

# MARANA WATER

## Water and Water Reclamation Rate Study

Final Report / September 13, 2019





September 13, 2019

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Interim Water Director  
Marana Water  
Marana Operations Center  
Tucson, AZ 85743

**Subject: Water and Water Reclamation Rate Study**

Dear Mr. Schladweiler,

Raftelis is pleased to provide this Water and Water Reclamation Rate Study Report (Report) for Marana Water.

The major objectives of the study include the following:

- Develop financial plans for the water and water reclamation funds for the 5-year study period, Fiscal Year (FY) 2020 – 2024.
- Develop water and water reclamation cost-of-service analyses to ensure equitable recovery of costs from customer classes
- Develop water and water reclamation rate structures which meet Marana Water's pricing objectives

The Report summarizes the key findings and recommendations related to the study.

It has been a pleasure working with you, and we thank you and Marana Water staff for the support provided throughout the course of this study.

Sincerely,

A handwritten signature in black ink that reads 'Todd Cristiano'.

**Todd Cristiano**  
*Senior Manager*

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## Definitions

Test year: The year in which proposed rates will be effective

Study period: Financial planning period for the FY19 through FY24.

FY20: The budget year period July 1, 2019 through June 30, 2020

Multi/Comm/Ind/Gov: Multifamily/Commercial/Industrial/Government

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# Executive Summary

## Introduction

Marana Water provides service to approximately 8,200 water customers and 4,300 water reclamation customers. Marana Water is financially self-sufficient with funding for capital and operating requirements derived primarily from rates. Marana Water authorized this study to ensure that an adequate level of revenue from water and water reclamation rates is maintained to finance Marana Water's daily operations as well as future capital improvements and expansions. The study includes the following:

- Development of water and water reclamation financial plans for the 5-year study period, Fiscal Year 2020-2024.
- Analysis of customer class cost of service (COS).
- Design of water and water reclamation rates.

Raftelis used industry standard methodologies supported by the American Water Works Association (AWWA) *Principles of Water Rates, Fees, and Charges* M1 manual for this rate study.

## Study Goals and Objectives

Marana Water's overarching goals for this study were to develop water and water reclamation rates that provide funding for:

- Current and future water resources
- System improvements
- Preventative maintenance programs
- Timely payment of annual debt obligations
- Appropriate reserves which mitigate the risk of unanticipated fluctuations in revenues and expenses

In addition, Marana Water identified specific pricing objectives to develop the rates presented in this study. These objectives were guided by three primary goals: equity, revenue stability and conservation. These objectives often compete with one another. For example, revenue stability would suggest a higher fixed charge while a conservation-oriented structure would favor a lower fixed charge (giving the customer more control over their monthly bill). Further, the water consumption has been consistent year of year, which contributed to the overall revenue stability for the department. Raftelis worked with staff to balance these objectives when developing the proposed structures.

## Principal Study Findings

### WATER

- Projected water sales revenue under current rates is insufficient to meet annual revenue requirements through the study period. Adjustments of 5.5% in FY20 through FY23, and 3% for FY24, are required in order to fund continued operations, capital reinvestment and maintain adequate reserves.
- It is recommended that the water financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.

- Proposed rates are based on the cost of service analysis and recover each class’s cost of service.
- For the *monthly service charge* we are recommending a decrease from the current rates, as they currently over-recover the costs attributable to installing and maintaining meters as well as providing customer service. In addition, we have included distinct charges for the 5/8” and 3/4” meters to reflect the difference in the cost to install and maintain the different sizes.
- The *volume charges* proposed below indicate a shift in revenue recovery from the customer class rates to the Groundwater Resources Fee, to better align the revenue generated from the fee with the manner in which the cost is incurred, which is generally the same per 1,000 gallons regardless of the customer class served. Additionally, this shift to the Groundwater Resource Fee provides greater customer control on their water use creating an indirect conservation mechanism.
- We are also recommending the addition of a *fire service fee* to recover the cost of the additional capacity available to customers with private fire lines.

**Table 1: Comparison of Current and Proposed Water Rates**

Description	Current	Proposed
<b>Base Charges, \$ per Bill</b>		
5/8”	\$19.09	\$15.96
3/4”	\$19.09	\$16.69
1”	\$46.35	\$17.79
1 1/2”	\$50.44	\$26.17
2”	\$58.62	\$42.95
3”	\$79.07	\$65.56
4”	\$139.05	\$96.93
6”	\$275.37	\$167.31
<b>Hydrant Meter</b>	\$65.00	\$54.26
<b>Fire Service</b>		
4”	\$0.00	\$13.70
6”	\$0.00	\$39.80
8”	\$0.00	\$84.82
<b>Volume Rates, \$ per 1,000 gal.</b>		
<b>Residential</b>		
0-10,000	\$3.11	\$3.15
10,001-20,000	\$4.33	\$4.41
20,001-30,000	\$5.63	\$5.67
30,001-40,000	\$6.94	\$7.09
40,000+	\$9.97	\$10.23
<b>Multi, Comm, Ind, Gov</b>	\$3.82	\$3.96
<b>Irrigation, Hydrant, Standpipe</b>	\$4.33	\$4.36
<b>Groundwater Resource Fee</b>	\$0.50	\$1.13

[a] Standpipe not assessed a base charge

## WATER RECLAMATION

- Projected water reclamation service revenue under current rates is insufficient to meet annual revenue requirements through the study period. 7% adjustments in FY20 and FY21, and 5% adjustments in FY22 through FY24, are required in order to fund continued operations, capital reinvestment and maintain adequate reserves.

- It is recommended that the water reclamation financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs and maintenance of reserve targets.
- Proposed rates are based on the cost of service analysis and recover each class's cost of service
- Table 2 indicates the indicates the monthly service charge and volume charge under the current and proposed rates. Under proposed rates non-residential customers would be billed for water reclamation service based on their actual water use, rather than the winter quarter average (the current approach). The residential volume rate would continue to be applied to winter quarter average consumption for this class.

**Table 2: Comparison of Current and Proposed Water reclamation Rates**

Description	Current	Proposed
<b>Residential</b>		
Fixed Charge	\$12.63	\$14.26
Volume Charge	\$4.71[a]	\$4.59[a]
<b>Non-Residential</b>		
Fixed Charge	\$12.63	\$14.26
Volume Charge	\$4.71[a]	\$4.59[b]
[a] Based on winter quarter average consumption (Dec, Jan, Feb)		
[b] Based on actual consumption		

# Section 2: Assumptions

This section presents the major assumptions used in this study. Actual results may deviate from these assumptions and could materially impact the results of the findings and conclusions.

**Table 3: Study Assumptions**

<b>Escalation Factors</b>	
Capital [a]	4.0%
Salaries [b]	3.0%
Benefits [b]	5.0%
Salaries and Wages [b]	3.0%
Health Insurance [c]	7.0%
Admin Charge [a]	7.5% of rate revenue
Variable Costs	General Inflation + Demand
General Long-Run Inflation [d]	2.2%
<b>Operating Cash Flow, Unrestricted Cash</b>	
<b>Beginning Balance FY18</b>	
Water	\$4.4 million
Water reclamation	\$1.7 million
<b>Impact Fee Cash Flow, Restricted Cash</b>	
<b>Beginning Balance</b>	
Water Infrastructure	\$ 0 million
Water Renewable	\$ (0.3 million)
Water reclamation	\$ 1.6 million
<b>Annual Account Growth [e]</b>	<b>6% water, 7% water reclamation</b>
<b>Water Operating Fund Reserves [b]</b>	90 Days O&M
<b>Water reclamation Operating Fund Reserves [b]</b>	60 Days O&M
<b>Future Debt Issuances [f]</b>	
Term	20 years
Interest Rate	4.0%
Issuance Expense	1.0%
Debt Service Reserve Requirement	None

[a] Vermeulens – Market Outlook Q2 2018

[b] Discussed at 12-11-2018 meeting with Marana Water.

[c] per Marana Water on 1-17-2019

[d] U.S. Federal Reserve Bank - Survey of Professional Forecasters

[e] Water and Water reclamation IIP Reports

[f] Discussed at 12-11-2018 meeting with Marana Water., no debt issuances assumed

# Section 3: Water Rates

## Introduction

Marana Water's water utility is a self-supporting enterprise fund. Marana Water tracks activities related to general operations, capital improvement financing (non-growth) and impact fee related projects in separate funds.

Accordingly, we have developed distinct cash flows for each fund within the water utility:

- Impact Fee Fund Cash Flows (Funds 5010, 5011, 5015 and 5016)
- Capital Fund Cash Flow (Fund 5005)
- Operating Fund Cash Flow (Fund 5000)

The operating cash flow provides the basis for rate-setting. Tables for the water utility financial plan, cost of service, and rate analysis can be found in Appendix A.

## Financial Plan

### IMPACT FEE FUND CASH FLOWS

Because of the restrictions on the uses of impact fee revenues, these revenues and the growth-related projects they fund are tracked separately. Marana Water has two primary water impact fee funds: Water Infrastructure and Renewable Resources.

### Beginning balance

The cash flow balance includes carryover impact fee revenues and bond proceeds from previous years. The combined balance of the two impact fee funds at the beginning of FY 2019 was -\$0.3 million.

### Sources of funds

Sources include impact fee revenue, transfers in from the Town's General Fund (if necessary), bond proceeds, and investment income. Impact fee revenue averages \$3.3 million annually. Impact fee revenue projections are based on Marana Water's 2017 Water Impact Fee report, reduced to 90% for a margin of safety.

### Uses of funds

Marana Water's growth-related projects for the study period total \$9.3 million, inflated. Notable impact fee related projects include the Marana Park Reservoir and several large transmission projects. These projects are all assumed to be funded by impact fee revenues with no additional debt service assumed during the study period. Existing impact fee fund debt service is approximately \$1.5 million per year.

### Impact Fee Fund Target Balance

Maintaining reserves is one method of addressing the cyclical nature of impact fee projects and revenues. Marana Water has indicated that any short-term cash flow imbalances will be offset by infusions from the Town's General Fund. Accordingly, no minimum target balance was used for the water impact fee funds.

### CAPITAL FUND CASH FLOWS

Marana Water tracks non-growth-related capital expenditures in the Capital Fund (Fund 5005). Total non-growth-related CIP is \$3.2 million over the study period, inflated. In FY 21 and beyond the Northwest Recharge Recovery and Delivery System (NWRDRS) Project will be funded by sources external to Marana Water. The remaining projects will be cash funded and include the SCADA and integrated telemetry project and the purchase of long-

term storage credits. Funds are transferred from the Operating Fund (Fund 5000) as needed to fund projects. Accordingly, there is no target minimum balance for the capital fund.

## OPERATING CASH FLOW

Financial activities associated with funding annual operating revenues and revenue requirements are tracked separately from the activities associated with impact fee project funding. Revenue requirements include operating expenses, annual debt service, and transfers to the Capital Fund (Fund 5005) to fund non-growth-related projects.

### Beginning balance

The operating cash balance includes unrestricted net revenues carried over from previous years. The fund balance is projected to be \$4.4 million at the beginning of FY19.

### Revenues

Operating revenue is derived from water rates, investment income, and other miscellaneous sources. Water sales revenue under current rates is based on the projected number of water accounts and water usage amounts for each customer class. Revenue from current rates is projected to be \$4.8 million in FY 19 increasing to \$5.9 million in FY 24 due to growth in customer accounts and usage. Non-rate revenues include miscellaneous fees such as connection fees, late fees, plan review fees etc. Also included are transfers in from the water reclamation operating fund to recover costs which are incurred by both funds but are currently only budgeted in the water fund.

### Revenue Requirements

Revenue requirements imposed on these operating revenues include operating expenses, existing debt service and transfers to the Capital Fund (Fund 5005) to fund non-growth-related capital projects.

A significant portion of operating expenses relate to annual system repairs and upgrades, which involve ongoing renewal and replacement of various components of Marana Water's distribution system. In addition, Marana Water will be adding additional personnel and processes related to water treatment. The remaining operating costs relate to existing personnel, the purchase of water rights from the Central Arizona Project (CAP), power, materials and supplies and administrative charges for services provided to Marana Water by the Town's General Fund.

Existing Water Operating Fund debt service consists of 30% of Marana Water's 2010 Water Infrastructure Financing Authority loan ("2010 WIFA Loan") and 100% of the 2014 Series Excise Tax Revenue Refunding Bonds ("2014 Refunding Bonds").<sup>1</sup> Transfers to the Capital Fund of approximately \$460,000 per year will be used for the SCADA and integrated telemetry projects and the purchase of long-term storage credits. Transfers in FY 20 are higher (\$880,000) due to the potable water master plan update and a portion of the NWRDRS project, which—in FY 21 and beyond—will be funded by external sources.

### Indicated Water Sales Revenue Adjustments

Water rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, maintain adequate reserves, and comply with bond covenants. A minimum operating reserve equal to 90 days of operating expenses is recommended, which is typical in the industry and for a utility of this size. Marana Water has historically relied on excise tax revenue bonds and WIFA loans as sources of debt funding. Currently the water utility is responsible for repaying the 2014 Refunding Bonds and 30% of the 2010 WIFA loan. The 2014 Refunding Bonds do not directly pledge the revenues of the utility, and the WIFA loan has a 1.2 times net revenue

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<sup>1</sup> The Water Infrastructure Impact Fee Fund is responsible for the remaining 70% of the 2010 WIFA Loan. The Renewable Resources Impact Fee fund is responsible for 29% of the 2013 Excise Tax Revenue Bond Issue and 50% of the 2017 A&C Bonds.

requirement. Given the level of cash funding proposed in the financial plan, the water utility will easily meet the 1.2 times coverage requirement, as shown below.

Revenue requirement adjustments of 5.5% per year are recommended for FY20-FY23 to meet the revenue requirements and maintain the financial health of the utility. A smaller increase (3.3%) is proposed for FY 24, due the reduction in debt service associated with the repayment of the 2014 Refunding Bond in FY23. It is recommended that the financial plan be updated annually to determine whether the projected increases are appropriate.

**Table 4: Water – Utility Financial Plan**

Description	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Adjustment	0.0%	5.5%	5.5%	5.5%	5.5%	3.0%
Ending Balance (\$ millions)	\$3.66	\$2.78	\$2.28	\$1.98	\$1.89	\$2.29
Target Minimum (\$ millions)	\$1.36	\$1.43	\$1.57	\$1.66	\$1.76	\$1.81
Over/(Under Target) (\$ millions)	\$2.30	\$1.34	\$0.71	\$0.32	\$0.13	\$0.47
Debt Service Coverage	1.51	1.99	2.12	2.38	2.64	3.32
Repair and Replacement Capital Funded (\$ millions)[a]	\$1.51	\$2.25	\$1.79	\$1.84	\$1.92	\$1.89

[a] Non-Growth-Related Capital

## Cost of Service

Equitable water rates fairly recover the cost to service each respective customer class. Determination of cost of service takes into account the volume of water used by the class, class peak rates of demand, number of customers within the class, fire protection requirements, and other relevant factors.

The cost of service analysis is conducted for a test year considered representative of the period in which resultant rates are expected to be in effect. The year FY20 was selected as the test year for this study.

### COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class’s proportionate share of water demands and number of customers. The cost-of-service analysis consists of the following nine steps:

1. Determine the FY20 rate revenue at current rates
2. Determine the test year revenue requirement
3. Functionalize the revenue requirement
4. Allocate functionalized costs to cost components
5. Determine the total system units of service
6. Determine the unit costs of service
7. Determine customer class units of service
8. Distribute costs to customer classes
9. Design rates to recover class cost-of-service and the total revenue requirement

### FY20 REVENUE AT CURRENT RATES

Raftelis developed FY20 rate revenue at current rates using detailed billing records provided by Marana Water. Revenue projections are based on the current number of customers by meter size and class, projected use per

account and growth in the number of accounts by class. The FY20 revenue at current rates is shown in Table 5. This projection serves as the basis for determining the FY20 revenue requirement. This billing data analysis is also used in the units of service analysis.

**Table 5: Water – FY20 Revenue at Current Rates**

Customer Class	Accounts	Volume (million gallons)	Revenue (\$ millions)
Residential – Single Family	7,729	543	\$3.60
Multi, Comm, Ind, Gov	230	79	\$0.38
Irrigation, Hydrant, Standpipe	211	131	\$0.64
Fire Service	44	N/A	\$0.00
Groundwater Resource	[a]	[a]	\$0.38
<b>Total</b>	<b>8,214</b>	<b>753</b>	<b>\$5.00</b>
*Values rounded to foot.			
[a] Separate volumetric charge that applies to all usage, not included in account or volume totals			

## TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 6 below shows the level of rate revenue required from rates with the FY20 proposed revenue adjustments.

**Table 6: Water – FY20 Water Revenue Requirement (\$ millions)**

Item	FY19
Operation and Maintenance Expense	\$5.82
Debt Service	\$0.08
Capital Improvements	\$0.88
<b>Total Expenditures</b>	<b>\$7.00</b>
<b>Other Revenue Adjustments</b>	
Miscellaneous Revenue	(\$0.79)
Investment Income	(\$0.03)
Change in Fund Balance	(\$0.89)
<b>Total Other Revenue Adjustments</b>	<b>(\$1.71)</b>
<b>Net FY19 Revenue Requirement</b>	<b>\$5.29</b>
*Values rounded to foot.	

## REVENUE REQUIREMENT ALLOCATION

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with the demands each customer class places on the system. Those costs are proportionally allocated to customer classes based on their respective customer class units of service to determine class cost of service. Customer class units of service include average day, peak day, and peak hour demands, the number of equivalent meters, and the number of bills.

## Functional Cost Components

Water systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and distribute water to customers. The separation of costs into functional components provides a



means for distributing costs to customer classes based on their respective responsibility for water system costs. Typical functional categories for water systems include source of supply, transmission and distribution, treatment, pumping, storage, and customer-related costs.

### Allocation Factors

Water systems are designed and operated to meet the average and peak demands of their customers. Therefore, data on annual consumption and peak demand contributions are needed to allocate costs equitably among customer classes. Since customers do not exert their maximum demand for water at the same time, water facilities are designed to meet the coincidental demands on the system. Using system peak demand to average demand ratios provides a means for distributing costs equitably to customer classes.

For every facility on the system, there is an underlying average demand, or uniform rate of usage, exerted coincidentally by customers for which the average day cost component applies. Certain facilities are operated and designed to meet the demand above the average day demand or maximum day extra-capacity demand. Costs associated with those facilities are allocated to both the average day and maximum day cost components. Similarly, other facilities are designed to meet demands in excess of maximum day requirements or maximum hour extra-capacity. Costs associated with these facilities are allocated to the average day, maximum day, and maximum hour cost components.

The ratio of maximum day and average day demand is used to allocate costs between average day and maximum day cost components. A maximum day to average day ratio of 2.0 is used based on the 2017 Water Impact Fee Report provided by Marana Water. This indicates approximately 50% of the capacity of facilities designed and operated for maximum day demand is needed for average day demands use. Accordingly, the remaining 50% is for maximum day extra-capacity requirements.

A ratio of maximum hour to average day water use of 3.5 is detailed in the 2017 Impact Fee Report. This ratio indicates 27% of the capacity of facilities designed and operated for maximum hour demand is needed for average day demands, 27% is required to meet maximum day extra-capacity demand, and the remaining 46% is for maximum hour extra-capacity demand. These ratios are used to allocate the line item functionalized costs to cost components. Other cost allocations are based on the allocation of all other categories.

Other revenue requirements can be directly assigned to specific cost components. Billing and administrative costs such as meter reading are allocated directly to the billing cost component. Indirect expenditures not specifically assigned are allocated in proportion to all other operations and maintenance cost components.

### Allocation of Functionalized Costs

Once costs have been separated by function, they can be further allocated to cost components using the demand factors identified above. Allocating costs to cost components provides a means of assigning functionalized costs based on the design and functional parameters of each facility that serves the system. Cost components include the annual water usage (i.e. average day demand, peak rates of demand, meters and services and customer). Below is a definition of the customer service characteristics.

- » **Average day** costs vary directly with the quantity of water sold under average day load conditions.
- » **Extra-capacity** costs represent those costs incurred to meet water demands that exceed average levels of water usage by customers. These costs are incurred to the water usage variations and peak demands imposed on a water system. Extra capacity costs are incurred to meet the capacity above the maximum day and maximum hour demands.

- » **Meter and services** costs vary based on the size of meter and include meter repair and maintenance and a portion of capital costs associated with meeting the demands of the customer. The count of meters is typically stated on a per 5/8” equivalent basis.
- » **Billing and collection** costs include the cost of billing, customer service, and customer accounting.

Functional O&M costs are generally allocated to the cost components that best reflect the design or functional parameter associated with that facility’s expense. Costs which relate to serving maximum day demand (wells, treatment facilities and transmission mains) are split between maximum day and average day. Costs which relate to providing maximum hour demand (pump stations, storage tanks, and distribution mains) are allocated average day, maximum day and maximum hour. Costs related to meters and services, customer billing and public fire are allocated 100% to Meters & Services, Billing, and public fire respectively. The remaining costs, Groundwater Resource and Bulk Water are also broken out because these costs relate directly to the provision of a particular service.

Capital costs are allocated in a similar fashion. Excluding the purchase of long-term storage credits (allocated 100% to groundwater resource) all test year capital costs are allocated based on the original cost of Marana Water’s investment in water assets. This approach recognizes that, over time, Marana Water will reinvest in assets in proportion to the level of their existing investment and avoids placing undue weight on projects which are occurring during the test year.

### Allocated Revenue Requirement

Table 7 summarizes the allocated revenue requirement from the analysis discussed above. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total customer service characteristics.

**Table 7: Water – FY20 Allocated Revenue Requirement (\$ millions)**

Description	Base	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Equivalent Meters	Billing	Public Fire	Bulk Water	Groundwater Resource
Operating	\$1.08	\$1.08	\$0.54	\$0.73	\$0.92	\$0.01	\$0.01	\$0.60
Capital	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.25
<b>Total</b>	<b>\$1.09</b>	<b>\$1.09</b>	<b>\$0.55</b>	<b>\$0.73</b>	<b>\$0.92</b>	<b>\$0.01</b>	<b>\$0.01</b>	<b>\$0.85</b>

\*Values rounded to foot.

## Customer Class Units of Service

Customers of a water utility are often identified according to customer class. Each customer class has unique water demands and usage characteristics. Because cost-of-service is based on the concept of proportionality, customer service characteristics for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective demand profiles. Table 8 details the units of service.

**Table 8: Water – FY20 Customer Class Units of Service**

Class	Base	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Meters	Billing	Public Fire	Bulk Water	Groundwater Resource
Units	1,000 gal.	1,000 gpd	1,000 gpd	Eq. Meters	Bills	Hydrants	1,000 gal.	1,000 gal.
Residential – Single Family	543,600	1,671	4,372	100,392	92,754			
Multi, Comm, Ind, Gov	79,411	383	896	4,646	2,760			
Irrigation, Hydrant, Standpipe	129,457	734	1,664	6,083	1,938		131,205	
Public Fire	0	680	4,081	0	0	860		
Private Fire	0	40	239	0	0			
Groundwater Resource	0	0	0	0	0			754,217
<b>Total</b>	<b>752,469</b>	<b>3,507</b>	<b>11,252</b>	<b>111,121</b>	<b>97,452</b>	<b>860</b>	<b>131,205</b>	<b>754,217</b>

\*Values rounded to foot.

## Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. Table 9 shows the calculation of the unit cost of service.

**Table 9: Water – FY20 Unit Cost of Service**

Description	Base	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Meters	Billing	Public Fire	Bulk Water	Groundwater Resource
Revenue Requirement (\$ millions)	\$1.09	\$1.09	\$0.55	\$0.73	\$0.92	\$0.01	\$0.01	\$0.85
Units of Service	1,000 gal.	1,000 gpd	1,000 gpd	Eq. Meters	Bills	Hydrants	1,000 gal.	1,000 gal.
Units	752,469	3,507	11,252	111,121	97,452	860	131,205	754,217
Unit Cost of Service	\$1.45	\$311.99	\$48.66	\$6.56	\$9.40	\$15.38	\$0.11	\$1.13

\*Values rounded to foot.

## Distribution of Costs to Customer Classes

Table 10 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 8 are multiplied by the unit cost of service in Table 9 to determine the customer class cost of service. Note that standpipe, hydrant meter and irrigation customers have been included in a combined class. Because the usage characteristics of these customers is comparable (i.e. highly seasonal) it is appropriate to maintain Marana Water’s existing policy of charging one rate for the same level of service received by all three groups.

**Table 10: Water – FY20 Customer Class Cost of Service (\$ millions)**

Class	Base	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Meters	Billing	Public Fire	Bulk Water	Groundwater Resource
Residential – Single Family	\$0.79	\$0.52	\$0.21	\$0.66	\$0.87			
Multi, Comm, Ind, Gov	\$0.12	\$0.12	\$0.04	\$0.03	\$0.03			
Irrigation, Hydrant, Standpipe	\$0.19	\$0.23	\$0.08	\$0.04	\$0.02		\$0.01	
Public Fire	\$0.00	\$0.21	\$0.20	\$0.00	\$0.00	\$0.01		
Private Fire	\$0.00	\$0.01	\$0.01	\$0.00	\$0.00			
Groundwater Resource								\$0.85
<b>Total</b>	<b>\$1.10</b>	<b>\$1.09</b>	<b>\$0.54</b>	<b>\$0.73</b>	<b>\$0.92</b>	<b>\$0.01</b>	<b>\$0.01</b>	<b>\$0.85</b>

\*Values rounded to foot.

## Comparison of FY20 Cost of Service to Revenue at Current Rates

Table 11 shows the comparison of FY20 cost of service to revenue under current rates for each customer class. The change in each customer class’s cost is a product of the two components 1) the functionalization and allocation of the revenue requirement and 2) the distribution of these costs to customer classes based on their units of service.

**Table 11: Water – FY20 Comparison of Cost of Service to Revenue Under Current Rates (\$ millions)**

Class	FY20 Cost of Service	Adjustments	Notes	Adjusted Cost of Service	FY20 Revenue Under Existing Rates	Change - \$	Change - %
Residential – Single Family	\$3.06	\$0.33	[a]	\$3.39	\$3.60	\$(0.21)	-5.8%
Multi, Comm, Ind, Gov	\$0.33	\$0.04	[a]	\$0.37	\$0.38	\$(0.01)	-2.6%
Irrigation, Hydrant, Standpipe	\$0.57	\$0.06	[a]	\$0.63	\$0.64	\$(0.01)	-1.6%
Public Fire	\$0.42	(\$0.42)	[a]	\$0.00	\$0.00	\$0.00	0.0%
Private Fire	\$0.02	\$0.00		\$0.02	\$0.00	\$0.02	
Groundwater Resource	\$0.85	\$0.00		\$0.85	\$0.38	\$0.47	124%
<b>Total</b>	<b>\$5.25</b>	<b>\$0.01</b>		<b>\$5.26</b>	<b>\$5.00</b>	<b>\$0.26</b>	<b>5.1%</b>

\*Values rounded to foot

[a] Reallocation of public fire costs

## RATE DESIGN

In the development of schedules of water rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable water rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

### Rate Alternatives

The proposed water rates are based on the cost of service analysis and recover each class's cost of service. Table 12 shows the monthly service charge at current rates and the proposed alternatives. For the monthly service charge we are recommending a decrease from the current rates, as they currently over-recover the costs attributable to installing and maintaining meters as well as providing customer service. In addition, we have included distinct charges for the 5/8" and 3/4" meters, which have historically paid the same rate. The change is subtle but reflects the differences in cost associated with the different sizes. Finally, customer with private fire service lines have additional capacity available to them which exceeds that available to typical domestic water users. We are recommending an additional fee to recover the fixed cost of maintaining that capacity for private fire lines.

The volume charges proposed below indicate a shift from the customer class rates to the Groundwater Resources Fee, which is the same for all customers regardless of class. This change will align the recovery of volumetric costs with the way Marana Water incurs them. Specifically, the cost of acquiring water resources has increased at a faster pace than the cost of delivering the water to customers. Accordingly, it is appropriate to recover a greater share of these costs on a uniform basis, as the cost of acquiring water resources is a base cost, which is not impacted by differences in customer class peak demand.

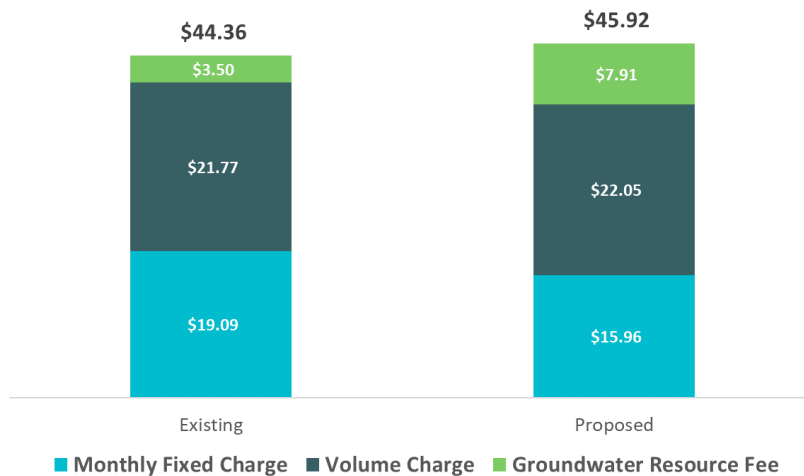
**Table 12: Water – FY20 Comparison of Current and Proposed Rates**

Description	Current	Proposed
<b>Base Charges, \$ per Bill</b>		
5/8"	\$19.09	\$15.96
3/4"	\$19.09	\$16.69
1"	\$46.35	\$17.79
1 1/2"	\$50.44	\$26.17
2"	\$58.62	\$42.95
3"	\$79.07	\$65.56
4"	\$139.05	\$96.93
6"	\$275.37	\$167.31
<b>Hydrant Meter</b>	\$65.00	\$54.26
<b>Fire Service</b>		
4"	\$0.00	\$13.70
6"	\$0.00	\$39.80
8"	\$0.00	\$84.82
<b>Volume Rates, \$ per 1,000 gallons</b>		
<b>Residential</b>		
0-10,000	\$3.11	\$3.15
10,001-20,000	\$4.33	\$4.41
20,001-30,000	\$5.63	\$5.67
30,001-40,000	\$6.94	\$7.09
40,001+	\$9.97	\$10.23
<b>Multi, Comm, Ind, Gov</b>	\$3.82	\$3.96
<b>Irrigation, Hydrant, Standpipe</b>	\$4.33	\$4.36
<b>Groundwater Resource Fee</b>	\$0.50	\$1.13

[a] Standpipe not assessed a base charge

The figure below compares a typical residential monthly bill under the current and proposed rates. Typical monthly usage is 7,000 gallons.

**Figure 1: Water – Typical Monthly Residential Bill  
7,000 Gallons**



# Section 4: Water Reclamation Rates

## Introduction

Marana Water's water reclamation utility is a self-supporting enterprise fund. Marana Water tracks activities related to general operations, capital improvement financing (non-growth) and impact fee related projects in separate funds. Accordingly, we have developed distinct cash flows for each fund within the water reclamation utility:

- Impact Fee Fund Cash Flows (Funds 5037 and 5038)
- Capital Fund Cash Flow (Fund 5035)
- Operating Fund Cash Flow (Fund 5030)

The operating cash flow is used for the basis of rate-setting. Tables for the water reclamation utility financial plan, cost of service, and rate analysis can be found in Appendix B.

## Financial Plan

### IMPACT FEE FUND CASH FLOW

Because of the restrictions on the uses of impact fee revenues, this revenue and the growth-related projects it funds are tracked separately.

#### Beginning balance

The cash balance includes unrestricted carryover monies from previous years. The fund balance at the beginning of FY19 was \$1.57 million.

#### Sources of funds

Sources include impact fee revenue, transfers from the Town of Marana General Fund (if necessary) and bond proceeds. Impact fee revenue averages \$1.8 million annually. Impact fee revenue projections are based on Marana Water's 2017 Water Reclamation Impact Fee report, reduced to 90% for a margin of safety.

#### Uses of funds

Marana Water's growth-related projects for the study period total \$0.8 million. These projects are all assumed to be funded by impact fee revenues with no additional debt service assumed during the study period. Existing impact fee fund debt service is approximately \$1.3 million per year.

#### Impact Fee Reserves

Maintaining reserves is one method of addressing the cyclical nature of impact fee projects and revenues. Marana Water has indicated that any short-term cash flow imbalances will be offset by infusions from the Town's General Fund. Accordingly, no minimum target balance was used for the water reclamation impact fee fund.

### CAPITAL FUND CASH FLOWS

Marana Water tracks non-growth-related capital expenditures in the Capital Fund (Fund 5035). Total non-growth-related CIP is \$2.2 million over the study period, inflated, and consist primarily of repairs and replacements to Marana Water's collection system. All projects will be cash funded and funds will be transferred from the Water

Reclamation Operating Fund (Fund 5030) as needed to fund projects. Accordingly, there is no target minimum balance for the capital fund.

## **OPERATING CASH FLOW**

Financial activities associated with funding annual operating revenues and revenue requirements are tracked separately from the activities associated with impact fee project funding. Revenue requirements include operating expenses, annual debt service, and transfers to the Capital Fund (fund 5035) to fund non-growth-related projects.

### **Beginning balance**

The cash fund balance includes unrestricted carryover monies from previous years. The fund balance is projected to be \$1.7 million at the beginning of FY19.

### **Revenues**

Operating revenue is derived from water reclamation rates, investment income, and other miscellaneous sources. Water reclamation revenue under current rates is based on the projected number of water reclamation accounts and water reclamation usage amounts for each customer class. Revenue from current rates is projected to be \$1.4 million in FY 19 increasing to \$1.9 million in FY 24 due to growth in customer accounts and usage. Non-rate revenues include miscellaneous fees such as connection fees and plan review fees.

### **Revenue Requirements**

Revenue requirements imposed on these operating revenues include operating expenses, existing debt service and transfers to the Capital Fund (Fund 5035) to fund non-growth-related capital projects.

Water reclamation operating costs relate primarily to existing personnel, contracted services for bio-solids hauling and disposal, power, materials and supplies and administrative charges for services provided to Marana Water by the Town's General Fund. In addition, Marana Water anticipates adding additional personnel, whose time and labor costs will be split between the water and water reclamation funds.

Existing debt service for the Water Reclamation Operating Fund consists of the 2018 WIFA Loan.<sup>2</sup> Transfers to the Capital Fund increase from \$320,000 per year initially to \$600,000 by the end of the study period and will be used to recover the cost of replacing sections of Marana Water's collection system. The revenue requirement also includes a transfer of \$116,500 from the Water Reclamation Operating Fund to the Water Operating Fund to recover costs incurred by both funds but are currently only budgeted in the Water Operating Fund.

### **Indicated Water reclamation Service Revenue Adjustments**

Water reclamation rate revenue should be sufficient to meet the revenue requirements, finance the capital improvement program, and maintain adequate reserves. A minimum operating reserve equal to 60 days of operating expenses is recommended. Overall rate revenue increases of 7% are recommended in the FY20 and FY21 with 5% increases thereafter. It is also recommended that the financial plan be updated annually to determine if the projected increases are appropriate.

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<sup>2</sup> The Water reclamation Impact Fee fund is responsible for 29% of the 2013 Excise Tax Revenue Bonds and 50% of the 2017 A&C Loan.



**Table 13: Water Reclamation – Utility Financial Plan**

Description	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Adjustment	0.0%	7.0%	7.0%	5.0%	5.0%	5.0%
Ending Balance (\$ millions)	\$1.70	\$1.30	\$1.24	\$0.97	\$0.79	\$0.74
Target Minimum (\$ millions)	\$0.24	\$0.25	\$0.26	\$0.28	\$0.30	\$0.32
Over/(Under Target) (\$ millions)	\$1.43	\$1.05	\$0.98	\$0.69	\$0.49	\$0.43
Debt Service Coverage	N/A	1.17	1.40	1.56	1.73	1.93
Repair and Replacement Capital Funded (\$ millions) [a]	\$0.00	\$0.36	\$0.21	\$0.53	\$0.55	\$0.58

[a] Non-Growth-Related Capital

## Cost of Service

Equitable water reclamation rates fairly recover the cost of service from each customer class. Determination of cost of service takes into account volume of contributed flow and number of customers. The cost of service analysis is conducted for a test year considered representative of the period in which the resultant rates are expected to be in effect. The year FY20 was selected as the test year for this study.

### COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class’s proportionate share of water reclamation flow characteristics and number of customers. The cost-of-service analysis consists of the following seven steps:

1. Determine the FY20 rate revenue at current rates
2. Determine test year revenue requirement
3. Functionalize revenue requirement
4. Allocate functionalized costs to cost components
5. Determine units of service
6. Distribute costs to customer classes
7. Design rates to recover class cost-of-service and total revenue requirement

### FY20 REVENUE AT CURRENT RATES

Raftelis developed FY20 rate revenue at current rates using detailed billing records provided by Marana Water. Revenue projections are based on the current number of customers, projected use per account and growth in the number of accounts. The FY20 revenue at current rates is shown below. This projection serves as the basis for determining the FY20 revenue requirement. This billing data analysis is also used in the units of service analysis.

**Table 14: Water Reclamation – FY20 Revenue Under Current Rates**

Customer Class	Bills	Volume (million gallons) [a]	Revenue (\$ Million)
Residential	46,761	175	\$1.42
Non-Residential	600	28	\$0.09
<b>Total</b>	<b>47,361</b>	<b>203</b>	<b>\$1.51</b>

[a] Residential based on average winter usage (Dec, Jan, Feb) , non-residential based on actual water usage.

\*Values rounded to foot.

## TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 15 below shows the level of revenue required from rates with the FY20 proposed revenue adjustments.

**Table 15: Water Reclamation – FY20 Revenue Requirement (\$ millions)**

Item	FY19
Operation and Maintenance Expense	\$1.55
Transfer to Water Operating Fund	\$0.12
Debt Service	\$0.05
Capital Improvements	\$0.32
<b>Total Expenditures</b>	<b>\$2.04</b>
<b>Other Revenue Adjustments</b>	
Misc. Revenue	(\$0.04)
Investment Income	(\$0.01)
Change in Fund Balance	(\$0.37)
<b>Total Other Revenue Adjustments</b>	<b>(\$0.42)</b>
<b>Net FY20 Revenue Requirement</b>	<b>\$1.62</b>

\*Values rounded to foot.

## REVENUE REQUIREMENT ALLOCATION

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with the demand each class places on the system. Those costs are proportionately allocated to customer classes based on their respective units of service to determine class cost of service. Customer class units of service typically include billable flow, strength, and number of bills.

### Functional Cost Components

Water reclamation systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and dispose of effluent to natural bodies of water. The separation of costs into functional components provides a means for distributing costs to customer classes based on their respective responsibility for system costs.

### Allocation of Functionalized Costs

Marana Water employs physical and biological processes to remove pollutants from customer wastewater. The two most common metrics for wastewater strength are biochemical oxygen demand and total suspended solids.<sup>3</sup> While Marana Water does incur costs to reduce BOD and TSS, the contributions of residential and non-residential customers do not meaningfully differ. Accordingly, allocating the functionalized costs to strength components such as biochemical oxygen demand (BOD) and total suspended solids (TSS) is not necessary for determining the water reclamation cost of service. Functionalized costs are allocated to flow and billing only.

### Allocated Revenue Requirement

Table 16 summarizes the allocated revenue requirement. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total units of service.

<sup>3</sup> BOD means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five (5) days at twenty degrees centigrade (20°C). Total suspended solids means the total suspended matter that floats on the surface of or is suspended in water, water reclamation or other liquids, and which is removable by laboratory filtering. Both BOD and TSS are usually expressed as a concentration in milligrams per liter (mg/l).

**Table 16: Water Reclamation – FY20 Allocated Revenue Requirement (\$ millions)**

Description	Flow	Bills
Expenditures	\$1.35	\$0.68
Adjustments	(\$0.42)	(\$0.00)
<b>Total Allocated Revenue Requirement</b>	<b>\$0.93</b>	<b>\$0.68</b>

\*Values rounded to foot.

### Customer Class Units of Service

Customers of a water reclamation utility are often identified according to customer class. Because cost-of-service is based on the concept of proportionality, the units of service for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective flow and billing profiles. Table 18 details the proposed units of service.

**Table 17: Water Reclamation – FY20 Units of Service**

Customer Class	Flow (1,000 gal)	Bills
Residential	175,142	46,761
Non-Residential	28,239	600
<b>Total</b>	<b>203,381</b>	<b>47,361</b>

\*Values rounded to foot.

### Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. The unit costs for each cost component are used to determine the customer class cost of service.

**Table 18: Water Reclamation – FY20 Unit Cost of Service**

Description	Flow (1,000 gal)	Bills
<b>Revenue Requirement (\$ millions)</b>	\$0.9332	\$0.6754
<b>Units</b>	203,381	47,361
<b>Unit Cost of Service</b>	<b>\$4.59</b>	<b>\$14.26</b>

Because cost-of-service is based on the concept of proportionality, customer class units of service must be analyzed to distribute the functionalized and allocated system revenue requirements.

## Distribution of Costs to Customer Classes

Table 19 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 17 are multiplied by the unit cost of service in Table 18 to determine the customer class cost of service.

**Table 19: Water Reclamation – FY20 Customer Class Cost of Service (\$ millions)**

Customer Class	Flow	Bills	Total
Residential	\$0.80	\$0.67	\$1.47
Non-Residential	\$0.13	\$0.01	\$0.14
<b>Total</b>	<b>\$0.93</b>	<b>\$0.68</b>	<b>\$1.61</b>

\*Values rounded to foot

## Comparison of FY20 Cost of Service to Revenue at Current Rates

Table 20 shows the comparison of FY20 cost of service to revenue at current rates for each customer class. The change in each customer class's cost is a product of two components 1) the functionalization and allocation of the revenue requirement and 2) the distribution of these costs to customer classes based on their units of service.

**Table 20: Water Reclamation – FY20 Comparison of Cost of Service to Revenue at Current Rates (\$ millions)**

Class	FY20 Cost of Service	FY20 Revenue Under Existing Rates	Change - \$	Change - %
Residential	\$1.47	\$1.42	\$0.05	3.5%
Non-Residential	\$0.14	\$0.09	\$0.05	55.5%
<b>Total</b>	<b>1.61</b>	<b>\$1.51</b>	<b>\$0.10</b>	<b>7.0%</b>

\*Values rounded to foot.

## RATE DESIGN

In the development of schedules of water reclamation rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable water reclamation rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

## Proposed Rate Alternatives

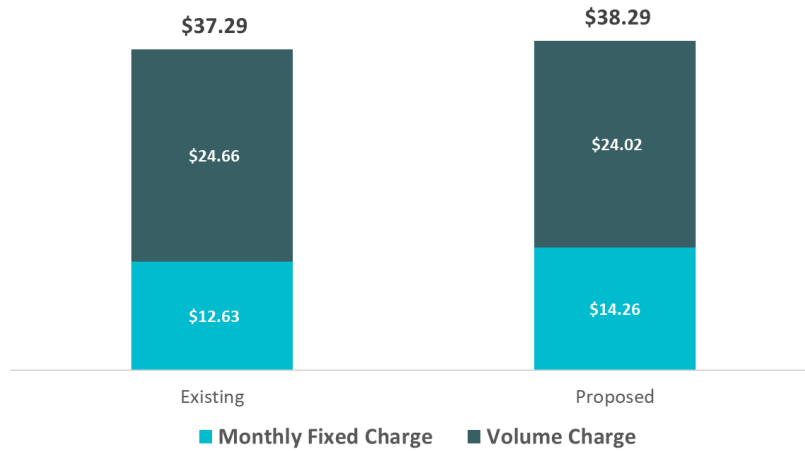
The proposed rates are based on the cost of service analysis and recover each class's cost of service. The monthly service charge recovers customer service costs and a portion of annual capital reinvestment costs. The volume charge recovers the remainder of the revenue requirement. In addition, Non-Residential customers will be billed on the basis of their monthly water usage, rather than the current approach which uses the winter quarter average. The shift to monthly consumption eliminates the inequity between residential customer and commercial water reclamation customers.

**Table 21: Water Reclamation – FY20 Comparison of Current and Proposed Rates**

Description	Current	COS
<b>Residential</b>		
Fixed Charge	\$12.63	\$14.26
Volume Charge	\$4.71[a]	\$4.59[a]
<b>Non-Residential</b>		
Fixed Charge	\$12.63	\$14.26
Volume Charge	\$4.71[a]	\$4.59[b]
[a] Based on winter quarter average consumption (Dec, Jan, Feb)		
[b] Based on actual consumption		

The figure below compares a typical residential monthly bill under current and proposed rates. Typical billable volume is 5,236 gallons (7 Ccf).

**Figure 2: Water Reclamation – Typical Monthly Residential Bill  
5,236 Gallons (7 Ccf)**



APPENDIX A:  
**WATER UTILITY  
FINANCIAL PLAN  
COST OF SERVICE AND  
RATE DESIGN**

**Marana Water**

*Water and Wastewater Rate Model*

Water Operating Fund (5000) Summary Cash Flow

Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 19 Budget	Notes
<b>Sources of Funds</b>								
Water Revenues Under Existing Rates	\$ 4,808,328	\$ 5,006,498	\$ 5,214,421	\$ 5,432,345	\$ 5,660,111	\$ 5,897,156		
Add'l Revenues from Rate Increase	\$ -	\$ 275,357	\$ 589,360	\$ 946,539	\$ 1,351,774	\$ 1,627,552		
Total Water Rate Revenues	\$ 4,808,328	\$ 5,281,856	\$ 5,803,780	\$ 6,378,884	\$ 7,011,885	\$ 7,524,708	\$ 5,101,097	
Other Water Revenues	710,508	701,958	695,050	691,087	689,172	690,693	690,485	
Transfer from Wastewater Operating (5030)	-	116,500	116,500	116,500	116,500	116,500		
<b>Total Sources</b>	<b>\$ 5,518,835</b>	<b>\$ 6,100,314</b>	<b>\$ 6,615,330</b>	<b>\$ 7,186,471</b>	<b>\$ 7,817,557</b>	<b>\$ 8,331,902</b>	\$ 5,791,582	Higher rev in budget
<b>Uses of Funds</b>								
Operating Expenses								
System Repairs and Upgrades	1,091,906	1,376,906	1,335,882	1,369,951	1,441,445	1,402,689		See CIP Table
Water Quality	75,000	76,500	267,030	272,371	277,818	283,374		See CIP Table
All Other	4,355,086	4,360,651	4,762,651	5,077,378	5,418,642	5,670,977		
Total Operating Expenses	\$ 5,521,992	\$ 5,814,057	\$ 6,365,563	\$ 6,719,699	\$ 7,137,905	\$ 7,357,041	\$ 5,636,391	add'l Well & WQ Cost
Debt Service	295,793	296,171	293,460	295,634	294,668	95,142	\$ 295,175	budget = DS, less xfers
Transfers to Capital Fund	416,000	877,000	458,000	466,000	475,000	484,000	\$ -	no xfer shown in budget
Transfer to IF (Water Infrastructure)	-	-	-	-	-	-	\$ -	
Transfer to IF (Renewable Resources)	-	-	-	-	-	-	\$ -	
<b>Total Uses of Funds</b>	<b>\$ 6,233,785</b>	<b>\$ 6,987,228</b>	<b>\$ 7,117,023</b>	<b>\$ 7,481,333</b>	<b>\$ 7,907,572</b>	<b>\$ 7,936,183</b>	\$ 5,931,566	
<b>Free Cash Flow Before Capital Transfers (PayGo)</b>	<b>\$ (298,950)</b>	<b>\$ (9,914)</b>	<b>\$ (43,692)</b>	<b>\$ 171,138</b>	<b>\$ 384,985</b>	<b>\$ 879,719</b>		
Annual Surplus (Deficiency)	\$ (714,950)	\$ (886,914)	\$ (501,692)	\$ (294,862)	\$ (90,015)	\$ 395,719	\$ (139,984)	
Beginning Balance	4,379,743	3,664,793	2,777,879	2,276,187	1,981,325	1,891,310	4,489,388	Per MW on 12-11
<b>Ending Balance</b>	<b>\$ 3,664,793</b>	<b>\$ 2,777,879</b>	<b>\$ 2,276,187</b>	<b>\$ 1,981,325</b>	<b>\$ 1,891,310</b>	<b>\$ 2,287,028</b>	\$ 4,349,404	proj. FY 19 w/o capex
Target Operating Reserves	\$ 1,361,587	\$ 1,433,603	\$ 1,569,591	\$ 1,656,912	\$ 1,760,031	\$ 1,814,065		
Unrestricted Funds	\$ 2,303,206	\$ 1,344,276	\$ 706,596	\$ 324,413	\$ 131,278	\$ 472,963		
Annual Revenue Increase	0.0%	5.5%	5.5%	5.5%	5.5%	3.0%		
Cumulative Revenue Increase	0.0%	5.5%	11.3%	17.4%	23.9%	27.6%		

**Marana Water**

Water and Wastewater Rate Model

Water Capital Improvement Program (CIP) - Escalated \$

Fund	Source	Description	GW Resource	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Water Capital	Per MW on 4-1-2019	NW Recharge, Recovery and Delivery System	No	\$ 138,640	\$ 361,494	\$ -	\$ -	\$ -	\$ -
Water Capital	Per MW on 2-13-19	Potable Water System Master Plan Update	No	\$ 5,000	\$ 65,000	\$ -	\$ -	\$ -	\$ -
Water Capital	Per MW on 5-2-19	SCADA and Integrated Telemetry	No	\$ -	\$ 200,000	\$ 208,000	\$ 216,320	\$ 224,973	\$ 233,972
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	Marana Park Reservoir	No	\$ 30,000	\$ 1,239,000	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	Tangerine, X-Zone Booster and PRV	No	\$ 58,259	\$ 876,616	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	Marana Park Well	No	\$ 15,000	\$ 660,000	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Renewable Resour	Per MW on 2-13-19	CAP Subcontract - NIA Reallocation	No	\$ 266,000	\$ 133,000	\$ 138,320	\$ 143,853	\$ 149,607	\$ 155,591
Water Capital	Per MW on 2-13-19	WT050 - Airline/Lambert Water Treatment	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Capital	Per MW on 2-13-19	WT051 - Picture Rocks Water Treatment	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Capital	Per MW on 2-13-19	WT052 - Oshrin Booster - design	No	\$ 21,900	\$ -	\$ -	\$ -	\$ -	\$ -
Water Capital	Per MW on 2-13-19	Long Term Storage Credit Purchase	Yes	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	WT035 - Cont. Reserve 24in Tie-In	No	\$ 300,000	\$ 1,436,910	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	WT036 - Picture Rocks Interconnect	No	\$ -	\$ 149,400	\$ 1,243,008	\$ -	\$ -	\$ -
Water Impact Fees (Infrastructure)	Per MW on 2-13-19	WTXXX - SANDERS ROAD 24" WATER LINE	No	\$ -	\$ -	\$ 2,142,400	\$ -	\$ -	\$ -
Water Impact Fees (Renewable Resour	Per MW on 2-13-19	WT025 - Constructed Recharge for Effluent	No	\$ 206,390	\$ -	\$ -	\$ -	\$ -	\$ -
Water Capital	New	New Project	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Capital	Dashboard	Water Capital Adjustment	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Infrastructure)	Dashboard	Water Capital Adjustment	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Impact Fees (Renewable Resour	Dashboard	Water Capital Adjustment	No	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
				\$ 1,291,189	\$ 5,371,420	\$ 3,981,728	\$ 610,173	\$ 624,580	\$ 639,563
		Construction Cost Inflation		0.0%	0.0%	4.0%	4.0%	4.0%	4.0%
		Cumulative		100%	100%	104%	108%	112%	117%
		Groundwater Resource		\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
		All Other		\$ 1,041,189	\$ 5,121,420	\$ 3,731,728	\$ 360,173	\$ 374,580	\$ 389,563
				\$ 1,291,189	\$ 5,371,420	\$ 3,981,728	\$ 610,173	\$ 624,580	\$ 639,563



Marana Water

Water and Wastewater Rate Model

Water System Repairs and Upgrades - Escalated \$

Fund	Source	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
System Repairs and Upgrades	FY 19 Detailed Budget	500 New Meter, TP and ball valves - new development	\$ 147,500	\$ 147,500	\$ 153,400	\$ 159,536	\$ 165,917	\$ 172,554
System Repairs and Upgrades	FY 19 Detailed Budget	Meter Repair/Replacement	\$ 10,670	\$ 10,670	\$ 11,097	\$ 11,541	\$ 12,002	\$ 12,482
System Repairs and Upgrades	FY 19 Detailed Budget	Electrical Misc.	\$ 10,000	\$ 10,000	\$ 10,400	\$ 10,816	\$ 11,249	\$ 11,699
System Repairs and Upgrades	FY 19 Detailed Budget	Asphalt Costs	\$ 20,000	\$ 20,000	\$ 20,800	\$ 21,632	\$ 22,497	\$ 23,397
System Repairs and Upgrades	FY 19 Detailed Budget	Shade Structures for Chlorine	\$ 10,000	\$ 10,000	\$ 10,400	\$ 10,816	\$ 11,249	\$ 11,699
System Repairs and Upgrades	FY 19 Detailed Budget	Arc Flash Study	\$ 15,000	\$ 15,000	\$ 15,600	\$ 16,224	\$ 16,873	\$ 17,548
System Repairs and Upgrades	FY 19 Detailed Budget	Transponder Replacements	\$ 20,736	\$ 20,736	\$ 21,565	\$ 22,428	\$ 23,325	\$ 24,258
System Repairs and Upgrades	FY 19 Detailed Budget	Hydrant Meter Testing and Replacement	\$ 15,000	\$ 15,000	\$ 15,600	\$ 16,224	\$ 8,436	\$ 8,774
System Repairs and Upgrades	FY 19 Detailed Budget	Construction Meter Backflows	\$ 11,000	\$ 11,000	\$ 5,720	\$ 5,949	\$ 6,187	\$ 6,434
System Repairs and Upgrades	FY 19 Detailed Budget	SCADA Hardware/Maintenance	\$ 10,000	\$ 10,000	\$ 10,400	\$ 10,816	\$ 11,249	\$ 11,699
System Repairs and Upgrades	FY 19 Detailed Budget	Recharge Basin Maintenance	\$ 35,000	\$ 35,000	\$ 36,400	\$ 37,856	\$ 39,370	\$ 40,945
System Repairs and Upgrades	FY 19 Detailed Budget	AMI Pilot Projects	\$ 4,000	\$ -	\$ -	\$ -	\$ -	\$ -
System Repairs and Upgrades	Per MW on 2-13-19	Tank Rehabilitation Program	\$ 50,000	\$ 250,000	\$ -	\$ 178,464	\$ -	\$ 152,082
System Repairs and Upgrades	Water Projects File	10-Year Meter Changeout Program (Meters and Installation)	\$ 175,000	\$ 185,000	\$ 188,700	\$ 192,474	\$ 196,323	\$ 200,250
System Repairs and Upgrades	Per MW on 2-13-19	Electrical Upgrades (Based on Honea West Fee)	\$ 179,000	\$ -	\$ 176,800	\$ -	\$ 224,973	\$ -
System Repairs and Upgrades	per MW on 4-8-2019	Main & Service Replacement Program	\$ -	\$ -	\$ 140,000	\$ 142,800	\$ 145,656	\$ 148,569
System Repairs and Upgrades	Per MW on 2-13-19	Well Rehabilitation Program	\$ 155,000	\$ 140,000	\$ 145,600	\$ 151,424	\$ 157,481	\$ 163,780
System Repairs and Upgrades	Water Projects File	O&M and Repairs (Production)	\$ 120,000	\$ 120,000	\$ 122,400	\$ 124,848	\$ 127,345	\$ 129,892
System Repairs and Upgrades	Water Projects File	O&M and Repairs (Distribution)	\$ 85,000	\$ 100,000	\$ 102,000	\$ 104,040	\$ 106,121	\$ 108,243
System Repairs and Upgrades	Water Projects File	Service Replacement Program (Based on Tricon Fees for 12/Yr)	\$ -	\$ 75,000	\$ 76,500	\$ 78,030	\$ 79,591	\$ 81,182
System Repairs and Upgrades	Water Projects File	Valve Replacement Program (Based on Tricon fees for 5 replaceme	\$ -	\$ 50,000	\$ 51,000	\$ 52,020	\$ 53,060	\$ 54,122
System Repairs and Upgrades	Water Projects File	Hydrant Maintenance Program	\$ 7,000	\$ 10,000	\$ 10,200	\$ 10,404	\$ 10,612	\$ 10,824
System Repairs and Upgrades	Water Projects File	Tank Inspection Program (\$7k/yr)	\$ 12,000	\$ 7,000	\$ 7,140	\$ 7,283	\$ 7,428	\$ 7,577
Water Quality Upgrades	Water Projects File	Process Control (water quality, O&M per Carollo report) 3.0% incre	\$ -	\$ -	\$ 189,000	\$ 192,780	\$ 196,636	\$ 200,568
Water Quality Upgrades	Water Projects File	Testing of raw water quarterly intervals-3.0% increase per yr.	\$ 75,000	\$ 76,500	\$ 78,030	\$ 79,591	\$ 81,182	\$ 82,806
System Repairs and Upgrades	per MW on 1-17	Billing Software Implementation and Ongoing	\$ -	\$ 100,000	\$ 3,120	\$ 3,245	\$ 3,375	\$ 3,510
System Repairs and Upgrades	Per MW on 2-13-19	Laboratory Information Management System (LIMS), start-up + on	\$ -	\$ 35,000	\$ 1,040	\$ 1,082	\$ 1,125	\$ 1,170
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
System Repairs and Upgrades	Dashboard	Water Capital Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Quality Upgrades	Dashboard	Water Capital Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			\$ 1,166,906	\$ 1,453,406	\$ 1,602,912	\$ 1,642,321	\$ 1,719,263	\$ 1,686,064
			0.0%	0.0%	4.0%	4.0%	4.0%	4.0%
			100%	100%	104%	108%	112%	117%

**Additional Staffing**

Water Operator - Water Quality	\$ 34,475	\$ 68,950	\$ 68,950	\$ 68,950	\$ 68,950	
Water Operator - Water Quality	34,475	68,950	68,950	68,950	68,950	
Water Operator - Water Production	-	68,950	68,950	68,950	68,950	
Water Operator - Water Production	-	68,950	68,950	68,950	68,950	
Water Operator - Water Distribution	-	-	68,950	68,950	68,950	
Water Operator - Water Distribution	-	-	-	68,950	68,950	
Business Services Analyst (50%/50%)	-	-	39,109	39,109	39,109	
Civil Engineer (50% W/50% WW)	-	-	-	53,483	53,483	
Construction Inspector (50% W/50% WW)	-	-	-	-	34,475	
Annual	\$ -	\$ 68,950	\$ 275,801	\$ 383,861	\$ 506,294	\$ 540,769

**Marana Water***Water and Wastewater Rate Model*

## Summary of CIP + System Repairs and Upgrades

**A-4***W\_CapSumm*

<b>Description</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Water Capital	415,540	876,494	458,000	466,320	474,973	483,972
Water Impact Fees (Infrastructure)	403,259	4,361,926	3,385,408	-	-	-
Water Impact Fees (Renewable Resources)	472,390	133,000	138,320	143,853	149,607	155,591
System Repairs and Upgrades	1,091,906	1,376,906	1,335,882	1,369,951	1,441,445	1,402,689
Water Quality Upgrades	75,000	76,500	267,030	272,371	277,818	283,374
	<u>\$ 2,458,095</u>	<u>\$ 6,824,826</u>	<u>\$ 5,584,640</u>	<u>\$ 2,252,494</u>	<u>\$ 2,343,842</u>	<u>\$ 2,325,627</u>

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Test Year = 2020

Line No	Description	Operating Expense	Capital Expense	Total
<b>Revenue Requirements</b>				
1	Operating Expense	\$ 4,360,651		\$ 4,360,651
2	System Repairs and Upgrades	1,376,906		1,376,906
3	Water Quality Upgrades	76,500		76,500
4	Debt Service		296,171	296,171
5	PAYGO Capital Expenditures		877,000	877,000
6	Transfers to Impact Fee Fund		-	-
7	<b>Total Revenue Requirement</b>	<b>\$ 5,814,057</b>	<b>\$ 1,173,171</b>	<b>\$ 6,987,228</b>
<b>Revenue Requirement Adjustments</b>				
8	WATER - NEW HOOKUPS	(324,258)		(324,258)
9	WATER - LATE FEES	(129,954)		(129,954)
10	OTHER INTERGOV REVENUE	(60,000)		(60,000)
11	WATER - SEWER FEES	(33,384)		(33,384)
12	OTHER AGENCY REVENUES	(28,000)		(28,000)
13	INSPECTION FEE	(25,000)		(25,000)
14	WATER SERVICE CHARGES	(31,188)		(31,188)
15	PLAN REVIEW FEES	(10,000)		(10,000)
16	HYDRAULIC MODELING FEES	(7,500)		(7,500)
17	MISCELLANEOUS REVENUES	(21,201)		(21,201)
18	Investment Income (from Operating Cash Flow)	\$ (31,473)		\$ (31,473)
19	Transfer from Wastewater Operating (5030)	(116,500)		(116,500)
20	Deposit To/(Use of) Operating Reserve		(886,914)	(886,914)
21	<b>Total Adjustments</b>	<b>(818,458)</b>	<b>(886,914)</b>	<b>(1,705,372)</b>
22	<b>Subtotal</b>	<b>\$ 4,995,598</b>	<b>\$ 286,257</b>	<b>\$ 5,281,856</b>
23	<b>Net Revenue Requirement</b>			<b>\$ 5,281,856</b>

Line No.	Description	Expense	Volume		Customer Related		Direct Allocations			
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Public Fire	Bulk Water	Groundwater Resource
<b>Operation and Maintenance Expenses</b>										
1	Groundwater Resource	\$ 699,086								100%
2	Wells	\$ 1,215,143	50%	50%						
3	Pump Stations	\$ 348,560	27%	27%	46%					
4	Treated Storage	\$ 468,846	27%	27%	46%					
5	Water Treatment	\$ 187,629	50%	50%						
6	Transmission Mains	\$ 375,535	50%	50%						
7	Distribution Mains	\$ 547,275	27%	27%	46%					
8	Customer	\$ 1,065,968					100%			
9	Meters & Services	\$ 848,969				100%				
10	Public Fire	\$ 14,452						100%		
11	Standpipe	\$ 42,594								100%
12	Total	\$ 5,814,057	\$ 1,257,986	\$ 1,257,986	\$ 627,016	\$ 848,969	\$ 1,065,968	\$ 14,452	\$ 42,594	\$ 699,086
	% Allocation for Miscellaneous Revenues		22%	22%	11%	15%	18%	0%	1%	12%
	Miscellaneous Revenues	\$(818,458)	\$(177,090)	\$(177,090)	\$(88,266)	\$(119,511)	\$(150,059)	\$(2,034)	\$(5,996)	\$(98,412)
	Standpipe Adjustment (1)							\$	\$(22,323)	
	Net O&M	\$ 4,973,275	\$ 1,080,896	\$ 1,080,896	\$ 538,749	\$ 729,457	\$ 915,909	\$ 12,418	\$ 14,275	\$ 600,674

(1) Policy adjustment to reflect overlap in operating costs to serve standpipe, hydrant and irrigation customers.

Line No.	Description	Original Cost	Volume			Customer Related		Direct Allocations		
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Public Fire	Bulk Water	Groundwater Resource
<b>Original Cost of Water System Assets</b>										
1	Groundwater Resource	\$ 4,501,349								100%
2	Wells	\$ 4,894,434	50%	50%						
3	Pump Stations	\$ 1,811,941	27%	27%	46%					
4	Treated Storage	\$ 1,318,438	27%	27%	46%					
5	Water Treatment	\$ 588,766	50%	50%						
6	Transmission Mains	\$ 10,739,872	50%	50%						
7	Distribution Mains	\$ 15,651,444	27%	27%	46%					
8	Customer	\$ -					100%			
9	Meters & Services	\$ 2,733				100%				
10	Public Fire	\$ 803,283						100%		
11	Standpipe	\$ 18,498								100%
	<b>Total</b>	<b>40,330,757</b>	<b>\$ 13,187,704</b>	<b>\$ 13,187,704</b>	<b>\$ 8,629,486</b>	<b>\$ 2,733</b>	<b>\$ -</b>	<b>\$ 803,283</b>	<b>\$ 18,498</b>	<b>\$ 4,501,349</b>
12	Total Excl. Groundwater Resource	35,829,408	\$ 13,187,704	\$ 13,187,704	\$ 8,629,486	\$ 2,733	\$ -	\$ 803,283	\$ 18,498	\$ -
	% Allocation Capital Costs (Excl. Groundwater Resource)		37%	37%	24%	0%	0%	2%	0%	0%
13	<b>Allocation of Capital Costs</b>									
14	Groundwater Resource Capital	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 250,000
15	All Other Transfers to Capital Fund (PayGo)	627,000	230,779	230,779	151,012	48	-	14,057	324	-
16	Debt Service	296,171	109,011	109,011	71,333	23	-	6,640	153	-
17	Deposit To/(Use of) Operating Reserve	(886,914)	(326,446)	(326,446)	(213,613)	(68)	-	(19,884)	(458)	-
18	Adjustment for Mid-Year Increase	-	-	-	-	-	-	-	-	-
19	<b>Total Capital Costs</b>	<b>\$ 286,257</b>	<b>\$ 13,345</b>	<b>\$ 13,345</b>	<b>\$ 8,733</b>	<b>\$ 3</b>	<b>\$ -</b>	<b>\$ 813</b>	<b>\$ 19</b>	<b>\$ 250,000</b>



Line No.	Customer Class	Water Use		Maximum Day Demand			Maximum Hour Demand			Customer			Direct Allocation		
		Base Annual 1,000 gal	Average Day 1,000 gpd	Demand Factor	Total Demand 1,000 gpd	Extra Demand 1,000 gpd	Demand Factor	Total Demand 1,000 gpd	Extra Demand 1,000 gpd	Capacity	Cost	Bills	Hydrants	Bulk Water	Groundwater Resource
1	Residential - Single Family	543,600	1,489	212%	3,160	1,671	394%	5,862	4,372	127,168	100,392	92,754			
2	Residential - Multi Family	22,174	61	262%	159	99	487%	296	235	863	579	252			
3	Commercial	46,779	128	266%	341	213	494%	633	505	5,871	3,687	2,256			
4	Government	10,459	29	347%	99	71	644%	184	156	558	380	252			
5	Irrigation	89,124	244	277%	677	433	514%	1,256	1,011	3,005	2,011	1,342		89,124	
6	Hydrant	40,333	111	372%	411	301	691%	763	653	6,854	4,073	596		40,333	
7	Standpipe													1,749	
8	Public Fire(1)					680			4,081			860			
9	Private Fire(1)					40			239						
10	Groundwater Resource													754,217	
11	<b>Total</b>	<b>752,469</b>	<b>2,062</b>		<b>4,849</b>	<b>3,507</b>		<b>8,994</b>	<b>11,252</b>	<b>144,319</b>	<b>111,121</b>	<b>97,452</b>	<b>860</b>	<b>131,205</b>	<b>754,217</b>

(1) Fire Flow Assumptions	Total	Public	Private
Eq. 6" Fire Connections	910	860	50
%		94%	6%
Max Day (1,000 gpd)	720	680	40
Max Hour (1,000 gpd)	4,320	4,081	239
Required Fire Flow (gpm)	3,000		

Line No.	Description	Total	Volume		Customer Related		Direct Allocations			
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Public Fire	Bulk Water	Groundwater Resource
<b>Cost of Service</b>										
1	Operation and Maintenance Expense	4,973,275	1,080,896	1,080,896	538,749	729,457	915,909	12,418	14,275	600,674
2	Capital Cost	286,257	13,345	13,345	8,733	3	0	813	19	250,000
3	<b>Total Cost of Service</b>	<b>5,259,532</b>	<b>1,094,242</b>	<b>1,094,242</b>	<b>547,482</b>	<b>729,460</b>	<b>915,909</b>	<b>13,231</b>	<b>14,294</b>	<b>850,674</b>
<b>Units of Service</b>										
	Units		<u>1,000 gal</u>	<u>gpd</u>	<u>gpd</u>	Eq. Meter Cost	<u># Bills</u>	<u># Hydrants</u>	<u>1,000 gal</u>	<u>1,000 gal</u>
4	Total Units of Service		752,469	3,507	11,252	111,121	97,452	860	131,205	754,217
5	Unit Costs		\$1.45	\$311.99	\$48.66	\$6.56	\$9.40	\$15.38	\$0.11	\$1.13

Line No.	Description	Total	Volume		Customer Related		Direct Allocations			
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Public Fire	Bulk Water	Groundwater Resource
1	<b>Unit Costs of Service - \$/unit</b>		\$1.45	\$311.99	\$48.66	\$6.56	\$9.40	\$15.38	\$0.11	\$1.13
	<b>Customer Class</b>									
	Residential - Single Family									
2	Units		543,600	1,671	4,372	100,392	92,754			
3	Cost of Service - \$	\$3,055,359	\$790,505	\$521,328	\$212,744	\$659,029	\$871,753		\$0	\$0
	Residential - Multi Family									
4	Units		22,174	99	235	579	252			
5	Cost of Service - \$	\$80,629	\$32,245	\$30,785	\$11,432	\$3,798	\$2,370		\$0	\$0
	Commercial									
6	Units		46,779	213	505	3,687	2,256			
7	Cost of Service - \$	\$204,494	\$68,026	\$66,496	\$24,565	\$24,204	\$21,203		\$0	\$0
	Government									
8	Units		10,459	71	156	380	252		0	
9	Cost of Service - \$	\$49,741	\$15,209	\$22,088	\$7,581	\$2,495	\$2,368		\$0	\$0
	Irrigation									
10	Units		89,124	433	1,011	2,011	1,342			
11	Cost of Service - \$	\$339,639	\$129,604	\$135,012	\$49,210	\$13,199	\$12,613		\$0	\$0
	Hydrant									
12	Units		40,333	301	653	4,073	596		\$0.00	\$0.00
13	Cost of Service - \$	\$216,644	\$58,652	\$93,898	\$31,757	\$26,735	\$5,602		\$0.00	\$0.00
	Public Fire									
14	Units		-	680	4,081	-	-	860	-	-
15	Cost of Service - \$	\$424,005	\$0	\$212,208	\$198,566	\$0	\$0	\$13,231	\$0	\$0
	Private Fire									
16	Units		-	40	239	-	-		-	-
17	Cost of Service - \$	\$24,054	\$0	\$12,426	\$11,627	\$0	\$0		\$0	\$0
	Standpipe									
18	Units								131,205	
19	Cost of Service - \$	\$14,294	\$0	\$0	\$0	\$0	\$0		\$14,294	\$0
	Groundwater Resource									
20	Units									754,217
21	Cost of Service - \$	\$850,674	\$0	\$0	\$0	\$0	\$0		\$0	\$850,674
22	<b>Total Cost of Service</b>	<b>\$5,259,532</b>	<b>\$1,094,242</b>	<b>\$1,094,242</b>	<b>\$547,482</b>	<b>\$729,460</b>	<b>\$915,909</b>	<b>\$13,231</b>	<b>\$14,294</b>	<b>\$850,674</b>

**Marana Water**

*Water and Wastewater Rate Model*

Comparison of Cost of Service With Revenues Under Existing Rates

<b>Line No.</b>	<b>Customer Class</b>	<b>Adjusted COS with Groundwater Allocation</b>	<b>Revenue Under Existing Rates</b>	<b>Indicated Revenue Adjustment (%)</b>	<b>Indicated Revenue Adjustment (\$)</b>	<b>Under Across the Board Increase (\$)</b>	<b>Change Due to Cost of Service (\$)</b>
1	Residential - Single Family	\$3,998,167	\$3,874,981	3.2%	\$123,185	\$195,846	(\$72,661)
2	Multi, Comm, Ind, Gov	\$460,617	\$423,131	8.9%	\$37,486	\$21,386	\$16,100
3	Irr, Hydrant, Standpipe	\$776,695	\$708,385	9.6%	\$68,310	\$35,803	\$32,507
4	Fire Service	\$24,054	\$0	N/A	\$24,054	\$0	\$24,054
5	<b>Total</b>	<b>\$5,259,532</b>	<b>\$5,006,498</b>	<b>5.1%</b>	<b>\$253,034</b>	<b>\$253,034</b>	<b>\$0</b>

**Marana Water**

*Water and Wastewater Rate Model*

Development of COS Service Charge

**A-15**

*W\_SVC\_Calc1*

<b>Line No.</b>	<b>COS Component</b>	<b>Cost of Service</b>	<b>Units of Service</b>	<b>Units</b>	<b>Unit Cost of Service</b>
1	Meters & Services	\$729,460	111,121	Equiv Meter Cost	\$6.56
2	Billing	\$915,909	97,452	Bills	\$9.40
3	Distribution Mains	\$0	144,319	Equiv Meter Capacity	\$0.00
4	Total	<u>\$1,645,369</u>			

Marana Water  
 Water and Wastewater Rate Model  
 Development of COS Service Charge

Line No.	Meter Size	Cost Equivalency	Capacity Equivalency	Monthly Meter Charge	Monthly Billing Charge	Monthly Distribution Charge	GW Customer Charges	Total Monthly Charge	Rounded
1	5/8"	1.00	1.00	\$6.56	\$9.40	\$0.00	\$0.00	\$15.96	\$15.96
2	3/4"	1.11	1.50	\$7.29	\$9.40	\$0.00	\$0.00	\$16.69	\$16.69
3	1"	1.28	2.50	\$8.39	\$9.40	\$0.00	\$0.00	\$17.79	\$17.79
4	1.5"	2.56	5.00	\$16.78	\$9.40	\$0.00	\$0.00	\$26.17	\$26.17
5	2"	5.11	8.00	\$33.55	\$9.40	\$0.00	\$0.00	\$42.95	\$42.95
6	2.5"	6.83	11.50	\$44.86	\$9.40	\$0.00	\$0.00	\$54.26	\$54.26
7	3"	8.56	15.00	\$56.16	\$9.40	\$0.00	\$0.00	\$65.56	\$65.56
8	4"	13.33	25.00	\$87.53	\$9.40	\$0.00	\$0.00	\$96.93	\$96.93
9	6"	24.06	50.00	\$157.91	\$9.40	\$0.00	\$0.00	\$167.31	\$167.31
10	8"	38.49	80.00	\$252.66	\$9.40	\$0.00	\$0.00	\$262.06	\$262.06

**Marana Water**

*Water and Wastewater Rate Model*

Development of Volume Rate

**A-17**

*W\_Vol\_Calc*

<b>Description</b>			<b>Volume</b>	<b>Volume Rate</b>	<b>Rounded</b>	<b>GW Fee</b>	<b>Total Volume Rate</b>
<b>Residential Volume Rates</b>							
10,000	1.00	86.9%	472,239	\$3.15	\$3.15	\$1.13	\$4.28
20,000	1.40	9.8%	53,038	\$4.41	\$4.41	\$1.13	\$5.54
30,000	1.80	1.9%	10,115	\$5.67	\$5.67	\$1.13	\$6.80
40,000	2.25	0.6%	3,006	\$7.09	\$7.09	\$1.13	\$8.22
Over	3.25	1.0%	5,202	\$10.23	\$10.23	\$1.13	\$11.36
<b>Volume COS</b>							
	<b>No Groundwater</b>		<b>Volume</b>	<b>Volume Rate</b>	<b>Rounded</b>	<b>GW Fee</b>	<b>Total Volume Rate</b>
<b>Multi, Comm, Ind, Gov.</b>	\$314,403		79,411	\$3.96	\$3.96	\$1.13	\$5.09
<b>Irrigation, Hydrant, Standpipe</b>	\$572,194		131,205	\$4.36	\$4.36	\$1.13	\$5.49

Marana Water

Water and Wastewater Rate Model

Total Revenue Check - COS Rates

Line No.	Customer Class	Total COS	Projected			Total Revenue	Difference
			Base Revenue	Groundwater Revenue	Volumetric Revenue		
1	Residential - Single Family	\$ 3,998,167	\$ 1,530,782	\$ 614,268	\$ 1,853,333	\$ 3,998,384	\$ 217
2	Multi, Comm, Ind, Gov	\$ 460,617	\$ 56,438	\$ 89,735	\$ 314,469	\$ 460,642	\$ 25
3	Irr, Hydrant, Standpipe	\$ 776,695	\$ 58,149	\$ 148,262	\$ 572,055	\$ 778,466	\$ 1,771
4	Fire Service	\$ 24,054	\$ 24,054	\$ -	\$ -	\$ 24,054	\$ -
5	Total	\$ 5,259,532	\$ 1,669,423	\$ 852,265	\$ 2,739,858	\$ 5,261,546	\$ 2,014



**Marana Water**

Water and Wastewater Rate Model

Water Rates - Cost of Service

**A-19**

W\_5YR\_Rate

Line No.	Description	FY19	FY20	FY21	FY22	FY23	FY24
<b>Base Charges, \$ per bill (Applies to All Customer Classes, Except Standpipe)</b>							
1	<u>Meter Size</u>						
2	5/8"	\$19.09	\$15.96	\$16.84	\$17.77	\$18.75	\$19.31
3	3/4"	\$19.09	\$16.69	\$17.61	\$18.58	\$19.60	\$20.19
4	1"	\$46.35	\$17.79	\$18.77	\$19.80	\$20.89	\$21.52
5	1.5"	\$50.44	\$26.17	\$27.61	\$29.13	\$30.73	\$31.65
6	2"	\$58.62	\$42.95	\$45.31	\$47.80	\$50.43	\$51.94
7	3"	\$79.07	\$65.56	\$69.17	\$72.97	\$76.98	\$79.29
8	4"	\$139.05	\$96.93	\$102.26	\$107.88	\$113.81	\$117.22
9	6"	\$275.37	\$167.31	\$176.51	\$186.22	\$196.46	\$202.35
10	Hydrant Meter	65.00	54.26	\$57.24	\$60.39	\$63.71	\$65.62
<b>Private Firelines \$ per Bill</b>							
11	<u>Connection Size</u>						
12	4"	\$0.00	\$13.70	\$14.45	\$15.24	\$16.08	\$16.56
13	6"	\$0.00	\$39.80	\$41.99	\$44.30	\$46.74	\$48.14
14	8"	\$0.00	\$84.82	\$89.49	\$94.41	\$99.60	\$102.59
<b>Volume Rate (\$ per 1,000 gal)</b>							
15	<u>Residential</u>						
16	0 - 10,000	\$3.11	\$3.15	\$3.32	\$3.50	\$3.69	\$3.80
17	10,001 - 20,000	\$4.33	\$4.41	\$4.65	\$4.91	\$5.18	\$5.34
18	20,001 - 30,000	\$5.63	\$5.67	\$5.98	\$6.31	\$6.66	\$6.86
19	30,001 - 40,000	\$6.94	\$7.09	\$7.48	\$7.89	\$8.32	\$8.57
20	40,001 +	\$9.97	\$10.23	\$10.79	\$11.38	\$12.01	\$12.37
21	<u>Multi, Comm, Ind, Gov (All Usage)</u>	\$3.82	\$3.96	\$4.18	\$4.41	\$4.65	\$4.79
22	<u>Irr, Hydrant, Standpipe (All Usage)</u>	\$4.33	\$4.36	\$4.60	\$4.85	\$5.12	\$5.27
23	<u>Groundwater Resource Fee</u>	0.50	1.13	1.19	1.26	1.33	1.37

APPENDIX B:

**WATER RECLAMATION  
FINANCIAL PLAN  
COST OF SERVICE AND  
RATE DESIGN**

**Marana Water**

*Water and Wastewater Rate Model*

Wastewater Operating Fund (5030) Summary Cash Flow

**B-1**

*WW\_OPCflow\_Summ*

Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 19 Budget	Notes
<b>Sources of Funds</b>								
Wastewater Revenues Under Existing Rates	\$ 1,408,852	\$ 1,503,374	\$ 1,603,305	\$ 1,708,891	\$ 1,820,035	\$ 1,936,302		
Additional Revenue from Rate Increases	\$ -	\$ 105,236	\$ 232,319	\$ 345,444	\$ 477,308	\$ 630,005		
Wastewater Rate Revenues	\$ 1,408,852	\$ 1,608,611	\$ 1,835,624	\$ 2,054,335	\$ 2,297,343	\$ 2,566,307	\$ 1,408,852	higher revs in budget
Other Revenues	57,293	55,541	53,409	51,731	49,474	48,370	\$ 40,750	interest \$ in model
<b>Total Sources</b>	<b>\$ 1,466,145</b>	<b>\$ 1,664,151</b>	<b>\$ 1,889,034</b>	<b>\$ 2,106,067</b>	<b>\$ 2,346,817</b>	<b>\$ 2,614,677</b>	\$ 1,449,602	
<b>Uses of Funds</b>								
Operating Expenses	\$ 1,452,524	\$ 1,512,905	\$ 1,576,507	\$ 1,682,630	\$ 1,806,664	\$ 1,915,285	\$ 1,449,602	budget = DS, less xfers
System Repairs and Upgrades	-	35,000	1,040	1,082	1,125	1,170		
Debt Service	-	45,555	47,569	47,569	47,569	47,569	\$ -	
Transfers to Capital Fund	-	320,000	210,000	533,000	554,000	577,000	\$ -	no xfer shown in budget
Transfer to IF (Wastewater) (5037)	-	-	-	-	-	-	\$ -	
Transfer to Water Operating (5000)	-	116,500	116,500	116,500	116,500	116,500		
<b>Total Uses of Funds</b>	<b>\$ 1,452,524</b>	<b>\$ 2,029,960</b>	<b>\$ 1,951,616</b>	<b>\$ 2,380,780</b>	<b>\$ 2,525,858</b>	<b>\$ 2,657,523</b>	\$ 1,449,602	
<b>Free Cash Flow Before Capital Transfers (PayGo)</b>	<b>\$ 13,621</b>	<b>\$ (45,809)</b>	<b>\$ 147,418</b>	<b>\$ 258,286</b>	<b>\$ 374,959</b>	<b>\$ 534,154</b>		
Annual Surplus (Deficiency)	\$ 13,621	\$ (365,809)	\$ (62,582)	\$ (274,714)	\$ (179,041)	\$ (42,846)	\$ -	
Beginning Balance	1,655,739	1,669,360	1,303,551	1,240,969	966,255	787,214	\$ 1,655,739	Per MW on 12-11
<b>Ending Balance</b>	<b>\$ 1,669,360</b>	<b>\$ 1,303,551</b>	<b>\$ 1,240,969</b>	<b>\$ 966,255</b>	<b>\$ 787,214</b>	<b>\$ 744,368</b>	\$ 1,655,739	proj. FY 19 w/o capex
Target Operating Reserves	\$ 238,771	\$ 254,450	\$ 259,323	\$ 276,775	\$ 297,171	\$ 315,034		
Unrestricted Funds	\$ 1,430,589	\$ 1,049,101	\$ 981,646	\$ 689,480	\$ 490,043	\$ 429,334		
Annual Revenue Increase	0.00%	7.00%	7.00%	5.00%	5.00%	5.00%		
Cumulative Revenue Increase	0.00%	7.00%	14.49%	20.21%	26.23%	32.54%		

Marana Water

Water and Wastewater Rate Model

Wastewater Capital Improvement Program (CIP) - Escalated \$

Fund	Source	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Wastewater Impact Fees	Per MW on 2-13-19	WR014 - Conveyance System Master Plan	\$ 128,099	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Impact Fees	Per MW on 2-13-19	CLARK FARMS SPLIT	\$ -	\$ 465,750	\$ -	\$ -	\$ -	\$ -
Wastewater Impact Fees	Per MW on 2-13-19	MARANA ROAD SANDERS ROAD 21" MAIN	\$ -	\$ 248,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Per MW on 2-13-19	WR011 - Marana 1MGD Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Per MW on 2-13-19	Manhole replacement and repair	\$ -	\$ 200,000	\$ 208,000	\$ 216,320	\$ 224,973	\$ 233,972
Wastewater Capital	Per MW on 2-13-19	Fair-Poor Manhole Replacement	\$ -	\$ -	\$ -	\$ 314,962	\$ 327,560	\$ 340,663
Wastewater Capital	Per MW on 2-13-19	WR012 - Sewer Conveyance System Rehab	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Per MW on 2-13-19	WR015 - Adonis Sewer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Rillito Vista Lift Station Motor Control Panel Replacement, & Genera	\$ -	\$ 48,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Rillito Vista Lagoon Clean Closure	\$ -	\$ 33,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Trailer Mounted Trash Pump	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Portable Composite Sampler	\$ -	\$ 7,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Pressure Washer/Steam Cleaner	\$ -	\$ 4,500	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Moisture Analyzer (used for Solids Concentrations)	\$ -	\$ 3,800	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Projects, Equipment, Staff File	Phase Contrast Microscope with LCD Monitor	\$ -	\$ 3,000	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Per MW on 1-17-19	Sewer Modeling Software Implm and Ongoing	\$ -	\$ 10,000	\$ 1,872	\$ 1,947	\$ 2,025	\$ 2,106
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Capital	Dashboard	Wastewater Capital Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Impact Fees	Dashboard	Wastewater Capital Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			\$ 128,099	\$ 1,033,050	\$ 209,872	\$ 533,229	\$ 554,558	\$ 576,740
		Construction Cost Inflation	0.0%	0.0%	4.0%	4.0%	4.0%	4.0%
		Cumulative	100%	100%	104%	108%	112%	117%

Marana Water

Water and Wastewater Rate Model

Wastewater System Repairs and Upgrades - Escalated \$

Fund	Source	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
System Repairs and Upgrades	Per MW on 2-13-19	Laboratory Information Management System (LIMS), start-up + on	\$ -	\$ 35,000	\$ 1,040	\$ 1,082	\$ 1,125	\$ 1,170
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New	New	New Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
System Repairs and Upgrades	Dashboard	Wastewater Capital Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			\$ -	\$ 35,000	\$ 1,040	\$ 1,082	\$ 1,125	\$ 1,170
			0.0%	0.0%	4.0%	4.0%	4.0%	4.0%
			100%	100%	104%	108%	112%	117%
<b>Additional Staffing</b>								
		Business Services Analyst (50%/50%)	\$ -	\$ -	\$ -	\$ 39,109	\$ 39,109	\$ 39,109
		Civil Engineer (50% W/50% WW)	\$ -	\$ -	\$ -	\$ -	\$ 53,483	\$ 53,483
		Construction Inspector (50% W/50% WW)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 34,475
		Annual	\$ -	\$ -	\$ -	\$ 39,109	\$ 92,592	\$ 127,067

**Marana Water***Water and Wastewater Rate Model*

## Summary of CIP + System Repairs and Upgrades

**B-4***WW\_CapSumm*

<b>Description</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Wastewater Capital	-	319,300	209,872	533,229	554,558	576,740
Wastewater Impact Fees	128,099	713,750	-	-	-	-
System Repairs and Upgrades	-	35,000	1,040	1,082	1,125	1,170
	<u>\$ 128,099</u>	<u>\$ 1,068,050</u>	<u>\$ 210,912</u>	<u>\$ 534,310</u>	<u>\$ 555,682</u>	<u>\$ 577,910</u>







**Marana Water**

Water and Wastewater Rate Model

Total Cost of Service

**B-7**

WW\_Total\_COS

Line No	Description	Operating Expense	Capital Expense	Total
<b>Revenue Requirements</b>				
1	Operating Expense	\$ 1,547,905		\$ 1,547,905
2	Debt Service		45,555	45,555
3	PAYGO Capital Expenditures		320,000	320,000
4	Transfers to Impact Fee Fund		-	-
	Transfer to Water Operating	116,500		116,500
5	<b>Total Revenue Requirement</b>	<b>\$ 1,664,405</b>	<b>\$ 365,555</b>	<b>\$ 2,029,960</b>
<b>Revenue Requirement Adjustments</b>				
6	INSPECTION FEE	\$ (30,000)		(30,000)
7	WATER - NEW HOOKUPS	\$ (4,450)		(4,450)
8	PLAN REVIEW FEES	\$ (6,300)		(6,300)
9	Investment Income (from Operating Cash Flow)	\$ (14,791)		\$ (14,791)
10	Deposit To/(Use of) Operating Reserve		(365,809)	(365,809)
11	<b>Total Adjustments</b>	<b>(55,541)</b>	<b>(365,809)</b>	<b>(421,350)</b>
12	<b>Subtotal</b>	<b>\$ 1,608,864</b>	<b>\$ (254)</b>	<b>\$ 1,608,611</b>
13	<b>Net Revenue Requirement</b>			<b>\$ 1,608,611</b>

**Marana Water**

Water and Wastewater Rate Model

Unit Cost of Service

**B-8**

WW\_Unit\_COS

<b>Line No</b>	<b>Description</b>	<b>Bills %</b>	<b>Volume %</b>	<b>Bills - \$</b>	<b>Flow - \$</b>	<b>Total</b>
<b>Cost of Service Allocation</b>						
<b>1</b>	Operating Expenses	26.74%	73.26%	\$ 445,120	\$ 1,219,285	\$ 1,664,405
<b>2</b>	Capital Expenses	63.00%	0.00%	230,300	135,255	365,555
<b>3</b>	Non-Rate Revenues	0%	0%	-	(421,350)	(421,350)
				<u>\$ 675,419</u>	<u>\$ 933,191</u>	<u>\$ 1,608,611</u>
<b>Units of Service</b>						
<b>4</b>	Residential - Single Family			46,761	175,142	
<b>5</b>	Multi-Family			122	9,170	
<b>6</b>	Commercial			342	12,088	
<b>7</b>	Government			136	6,981	
				<u>47,360</u>	<u>203,380</u>	
<b>8</b>	<b>Unit Cost of Service</b>			<u>\$ 14.26</u>	<u>\$ 4.59</u>	

**Marana Water**

Water and Wastewater Rate Model

Class COS

**B-9**

WW\_Class\_COS

<b>Line No</b>	<b>Description</b>	<b>Bills - \$</b>	<b>Flow - \$</b>	<b>Total - \$</b>
<b>1</b>	<b>Unit Cost of Service</b>	\$ 14.26	\$ 4.59	
	<b>Units of Service</b>			
<b>2</b>	Residential - Single Family	46,761	175,142	
<b>3</b>	Multi-Family	122	9,170	
<b>4</b>	Commercial	342	12,088	
<b>5</b>	Government	136	6,981	
<b>6</b>				
<b>7</b>	<b>Class Cost of Service</b>			
<b>8</b>	Residential - Single Family	\$ 666,865	\$ 803,621	\$ 1,470,486
<b>9</b>	Multi-Family	1,737	42,076	43,813
<b>10</b>	Commercial	4,877	55,465	60,342
<b>11</b>	Government	1,940	32,029	33,969
		<u>\$ 675,419</u>	<u>\$ 933,191</u>	<u>\$ 1,608,611</u>

**Marana Water**

*Water and Wastewater Rate Model*

Class COS Comparison

**B-10**

*WW\_COS\_Comp*

<b>Line No</b>	<b>Description</b>	<b>FY20 Cost of Service</b>	<b>FY20 Existing Revenue</b>	<b>Difference \$</b>	<b>Difference %</b>
1	Residential - Single Family	\$ 1,415,503	\$ 1,470,486	\$ 54,984	4%
2	Multi-Family	33,125	43,813	10,688	32%
3	Commercial	31,741	60,342	28,601	90%
4	Government	23,005	33,969	10,964	48%
		<u>\$ 1,503,374</u>	<u>\$ 1,608,611</u>	<u>\$ 105,236</u>	<u>7.00%</u>

**Marana Water**

Water and Wastewater Rate Model

Wastewater Rates - Cost of Service

**B-11**

WW\_5YR\_Rate

Line No	Description	FY19	FY20	FY21	FY22	FY23	FY24
<b>Residential</b>							
1	Fixed Charge	\$ 12.63	\$ 14.26	\$ 15.26	\$ 16.02	\$ 16.82	\$ 17.66
2	Volume Charge[a]	\$ 4.71	\$ 4.59	\$ 4.91	\$ 5.16	\$ 5.42	\$ 5.69
<b>Non-Residential</b>							
3	Fixed Charge	\$ 12.63	\$ 14.26	\$ 15.26	\$ 16.02	\$ 16.82	\$ 17.66
4	Volume Charge[a]	\$ 4.71	\$ 4.59	\$ 4.91	\$ 5.16	\$ 5.42	\$ 5.69

[a] Currently applied to average winter consumption for all customers, FY 20 and beyond will use average winter for residential and actual water use for non-residential