



**Rowland Water District**  
**Capacity Fee Study and  
Construction Rate Analysis**  
*Final Report*  
**April 2017**

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## SECTION 1. PURPOSE AND OVERVIEW OF THE STUDY

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Rowland Water District retained NBS to conduct a capacity fee study for two primary reasons: updating the District's capacity fees to comply with industry standards, and ensuring these fees reflect the cost of capital infrastructure needed to serve any person requesting a new, additional, or larger connection to the District's potable water system (referred to throughout as "new customers" or "new connections").

The purpose of this report is to summarize the results of our analysis, and presents the updated capacity fees<sup>1</sup> that may be imposed on new connections. Capacity fees are one-time fees intended to reflect the cost of existing infrastructure and planned improvements available to new services. Capacity fees are subject to Government Code 66013, which prescribes the means by which public agencies may impose water capacity fees.

This report also summarizes how the rates and fees for construction customers were developed. Some of the data used to prepare the 2016 Water Rate Study Report<sup>2</sup> was used in this analysis and report.

## SECTION 2. CAPACITY FEE STUDY

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### A. INTRODUCTION

Various methodologies have been and are currently used to calculate water capacity fees. The most common include establishing the capacity fees based on:

- The value of existing (historical) system assets, often called a "buy-in" methodology;
- The value of planned future improvements, also called the "incremental" or "system development" methodology;
- A combination of these two approaches.

This analysis uses the combination approach, which requires new customers to pay both their fair share of existing system assets as well as their share of the planned future capital improvements needed to provide them with capacity in the District's water system. As a result, new customers connecting to the District's water system would enter as equal participants with regard to their financial commitment and obligations to the utility.

In calculating the water capacity fees, the replacement-cost-new-less-depreciation (RCNLD) value of existing system assets was used to calculate the buy-in component of the capacity fee. The Handy Whitman Index of Public Utility Construction Costs<sup>3</sup>, which is a regionally specific construction index that tracks water utility construction costs, was used to estimate the replacement value of the existing system assets. The District can use this or the Engineering News Record Construction Cost Index going forward to adjust capacity fees in future years to offset the impacts of inflation.

### B. EXISTING CONNECTIONS AND PROJECTED FUTURE GROWTH

Larger meters have the potential to use more of the system's capacity, compared to smaller meters. The potential capacity demanded is proportional to the maximum hydraulic flow through each meter size as established by the AWWA<sup>4</sup> hydraulic capacity ratios. The AWWA hydraulic capacity ratios (also known as flow factors, or meter equivalencies) used in this study are shown in the fourth column of **Figure 1**.

As an example, a 2-inch meter has a greater capacity, or potential peak demand than a 5/8-inch meter. The "equivalency to a 5/8-inch meter" is calculated by dividing the maximum capacity or flow of larger

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<sup>1</sup> Otherwise known as system development charges or as connection fees.

<sup>2</sup> Rowland Water District Water Rate Study Final Report provided by NBS in December 2016

<sup>3</sup> The Handy-Whitman Index of Public Utility Construction Costs, Whitman, Requardt & Assoc., LLP, Bulletin No. 184.

<sup>4</sup> "AWWA" is the American Water Works Association.

meters by the capacity of the base (5/8-inch) meter size, which is typically the most common residential meter size.

The meter capacity factors shown in Figure 1 are the ratio of potential flow through each meter size compared to the flow through a 5/8-inch meter. The 5/8-inch meter is the most common meter size for the utility and is used to compare the capacities of the larger meters. For example, column 4 in Figure 1 shows that a two-inch meter is equivalent to 8 5/8-inch meters.

The actual number of meters by size is multiplied by the corresponding meter equivalency to calculate the total number of 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 capital costs, are related to meeting system capacity requirements. Therefore, the capacity fee for a new connection will be proportional to the service's meter equivalence.

The equivalent meter calculation is summarized for standard use meters in Figure 1. Given that the state now requires fire suppression systems in all new single-family home construction, the minimum meter size going forward is a 1-inch meter. This difference has not changed the expected use within the home. Consequently, the District has chosen to treat 3/4- and 1-inch meters as equivalent to 5/8-inch meters for the following reasons:

- The desire for a single, fixed meter charge across all customer classes.
- The overwhelming number of meters between 5/8-inch and 1 inch are for single family residential properties.
- The similar consumption pattern for single-family residential customers with meter sizes 5/8 to 1 inch.

The result of this analysis, summarized in Figure 1, is that while there are currently 13,136 connections to the potable water system, there are 21,467 potable water equivalent (i.e., 5/8-inch) meter units.

**Figure 1. Meter Equivalence**

Meter Size	Existing Potable Water Meters (1)	Meter Equivalence		Potable Water Meter Equivalent Units
		Maximum Flow (gpm) (2)	Equivalency to 5/8 inch meter (3)	
5/8 Inch	10,926	20	1.00	10,926
3/4 Inch	98	30	1.00	98
1 Inch	929	50	1.00	929
1 1/2 Inch	535	100	5.00	2,675
2 Inch	599	160	8.00	4,792
3 Inch	17	320	16.00	272
4 Inch	13	500	25.00	325
6 Inch	11	1,000	50.00	550
8 Inch	6	1,600	80.00	480
10 Inch	2	4,200	210.00	420
12 Inch	-	5,300	265.00	-
<b>Total</b>	<b>13,136</b>			<b>21,467</b>

1. Per District utility billing data, as of the July-August 2016 billing period.

Excludes Fire, Recycled and Construction meters.

2. Source: *AWWA M1, Table B-1*. Assumes displacement meters for 5/8" through 2",

Compound Class I for 3" through 8" and Turbine Class II for 10" through 12" meters.

3. Due to building code requirements, 1-inch meters will be the minimum size going forward, therefore existing 3/4 and 1-inch meters are considered equivalent to a 5/8-inch meter.

The District's capital improvement plan, which is the basis for defining the costs of planned future capital assets, only extends through Fiscal Year 2020/21. This limits the calculation of new capacity fees to a 5-year period. Based on the District's customer growth projections, there will be approximately 0.5 percent

annual growth in the potable water system. The result, as shown in **Figure 2**, are the expected 433 new 5/8-inch equivalent meters over the next five years.

**Figure 2. Projected Customer Growth**

Demographic Statistics	Existing Total	Projected Service Total (thru 2021) (1)	Allocation Factors		Cumulative Change	
			Existing Customers	New Customers	Number of Units	% Increase
Equivalent 5/8-inch meters	21,467	21,900	98.0%	2.0%	433	2.0%

1. Customer growth is estimated at 0.5% per year.

### C. EXISTING AND PLANNED FUTURE ASSETS

The capital assets addressed in this Capacity Fee Study include existing assets and planned capital improvements (i.e., the buy-in and incremental assets). Existing assets are often valued using “book value” (i.e., original cost less depreciation). However, replacement costs provide a more accurate estimate of these asset values. Ideally, replacement values would reflect the actual field condition of the assets (i.e., whether they are behind or ahead of the depreciation curve based on actual condition rather than just the remaining years of expected life). Unfortunately, this information was not available for this study, and the estimated RCNLD value was developed as the cost basis for the new capacity fees.

For the purpose of this analysis, assets that have exceeded their useful life (as defined in the District's asset records) were considered to have no remaining value. The resulting RCNLD value of existing assets are summarized in **Figure 3** as the System Buy-In Cost Basis.

**Figure 3. Summary of Existing Asset Values**

Asset Category (1)	Original Values (1)		Asset Cost Less Depreciation	Replacement Values (2)		System Buy-In Cost Basis (3)
	Asset Cost	Depreciation to Date		Asset Cost	Depreciation to Date	
<b>Water Fund</b>						
COMMUNICATION EQUIPMENT	\$ 146,202	\$ 146,202	\$ -	\$ -	\$ -	\$ -
DIST. RESERVOIRS & STANDPIPES	\$ 17,627,409	\$ 5,966,162	\$ 11,661,247	\$ 29,348,275	\$ 10,289,171	\$ 19,059,104
GENERAL PLANT & EQUIPMENT	\$ 377,326	\$ 339,622	\$ 37,704	\$ 355,553	\$ 286,254	\$ 69,299
LAND	\$ 261,340	\$ -	\$ 261,340	\$ 261,340	\$ -	\$ 261,340
METERS	\$ 2,901,848	\$ 1,976,553	\$ 925,295	\$ 3,174,715	\$ 1,603,542	\$ 1,571,174
OFFICE BUILDING	\$ 4,806,688	\$ 1,031,035	\$ 3,775,654	\$ 7,420,289	\$ 1,949,612	\$ 5,470,677
OFFICE FURNITURE & EQUIPMENT	\$ 2,295,641	\$ 1,227,495	\$ 1,068,147	\$ 1,695,477	\$ 584,306	\$ 1,111,171
PUMPING PLANT	\$ 10,037,819	\$ 3,210,155	\$ 6,827,664	\$ 16,844,089	\$ 5,800,934	\$ 11,043,155
SERVICES	\$ 8,397,523	\$ 5,079,922	\$ 3,317,601	\$ 8,226,799	\$ 3,679,399	\$ 4,547,401
SOURCE OF SUPPLY	\$ 5,652,137	\$ 949,586	\$ 4,702,551	\$ 5,966,162	\$ 976,313	\$ 4,989,850
STORES & SHOP BUILDING	\$ 209,538	\$ 193,665	\$ 15,872	\$ 98,664	\$ 76,462	\$ 22,202
TELEMETRY SYSTEM	\$ 1,489,672	\$ 941,343	\$ 548,329	\$ 2,276,003	\$ 1,507,036	\$ 768,967
TRANSMISSION MAINS & ACCESS	\$ 19,037,408	\$ 7,060,519	\$ 11,976,889	\$ 40,739,159	\$ 16,542,798	\$ 24,196,361
TRANSPORTATION EQUIPMENT	\$ 947,475	\$ 512,946	\$ 434,529	\$ 651,468	\$ 179,492	\$ 471,976
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 74,188,027</b>	<b>\$ 28,635,206</b>	<b>\$ 45,552,821</b>	<b>\$ 117,057,994</b>	<b>\$ 43,475,318</b>	<b>\$ 73,582,675</b>

1. The source of the original asset cost and depreciation to date is the District's fixed asset list (depreciation is as of June 30, 2016).

Fixed asset data was provided in the following source files: fixedassets06.30.16.csv and Asset Schedule.pdf.

2. Replacement values are calculated by escalating the original values (from District's fixed asset report) from service date to 2016 values using historical cost inflation factors from the Handy-Whitman Index of Public Utility Construction Costs, for Water Utility Construction in the Pacific Region.

3. Cost basis for consideration is calculated as replication value less accumulated depreciation.

Most of the RCNLD costs were allocated to existing customers based on the 98-percent allocation factor shown in Figure 2 (and 2-percent allocation factor for new customers). However, two asset categories - Meters and Services, were excluded from the analysis. Assets categorized as Meters or Services connect each existing customer to the system on a “one for one” basis. Therefore, these assets have no additional

capacity available for new customers and thus have been fully allocated to existing customers. The resulting allocation of exiting system assets to existing and new customers is shown in **Figure 4**.

**Figure 4. Existing Asset Values Allocated to New Customers**

Asset Category (1)	System Buy-In Cost Basis (2)	Allocation Basis (%)			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
<b>Water Fund</b>							
COMMUNICATION EQUIPMENT (3)	\$ -	0.0%	0.0%	0.0%	\$ -	\$ -	\$ -
DIST. RESERVOIRS & STANDPIPES (4)	\$ 19,059,104	0.0%	98.0%	2.0%	\$ -	\$ 18,682,639	\$ 376,465
GENERAL PLANT & EQUIPMENT (4)	\$ 69,299	0.0%	98.0%	2.0%	\$ -	\$ 67,930	\$ 1,369
LAND (4)	\$ 261,340	0.0%	98.0%	2.0%	\$ -	\$ 256,178	\$ 5,162
METERS (5)	\$ 1,571,174	0.0%	100.0%	0.0%	\$ -	\$ 1,571,174	\$ -
OFFICE BUILDING (4)	\$ 5,470,677	0.0%	98.0%	2.0%	\$ -	\$ 5,362,618	\$ 108,059
OFFICE FURNITURE & EQUIPMENT (4)	\$ 1,111,171	0.0%	98.0%	2.0%	\$ -	\$ 1,089,222	\$ 21,948
PUMPING PLANT (4)	\$ 11,043,155	0.0%	98.0%	2.0%	\$ -	\$ 10,825,026	\$ 218,130
SERVICES (5)	\$ 4,547,401	0.0%	100.0%	0.0%	\$ -	\$ 4,547,401	\$ -
SOURCE OF SUPPLY (4)	\$ 4,989,850	0.0%	98.0%	2.0%	\$ -	\$ 4,891,288	\$ 98,562
STORES & SHOP BUILDING (4)	\$ 22,202	0.0%	98.0%	2.0%	\$ -	\$ 21,763	\$ 439
TELEMETRY SYSTEM (4)	\$ 768,967	0.0%	98.0%	2.0%	\$ -	\$ 753,778	\$ 15,189
TRANSMISSION MAINS & ACCESS (4)	\$ 24,196,361	0.0%	98.0%	2.0%	\$ -	\$ 23,718,423	\$ 477,938
TRANSPORTATION EQUIPMENT (6)	\$ 471,976	0.0%	98.0%	2.0%	\$ -	\$ 462,653	\$ 9,323
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 73,582,675</b>	<b>0.0%</b>	<b>98.2%</b>	<b>1.8%</b>	<b>\$ -</b>	<b>\$ 72,250,092</b>	<b>\$ 1,332,583</b>

- The source of the original asset cost and depreciation to date is the District's fixed asset list (depreciation is as of June 30, 2016). Fixed asset data was provided in the following source files: fixedassets06.30.16.csv, Asset Schedule.pdf and staff email Feb 23, 2017.
- Cost basis for consideration is calculated as replication value less accumulated depreciation.
- Assets have no remaining value, therefore allocation is 0% to existing and future users.
- Refer to Exhibit 1: proportionate allocation between existing and future users.
- As meters and services distributed on a per account basis as new customers connect, there exists no additional capacity which they provide for new customers. Thus, asset values associated with meters and services are fully allocated to existing customers.
- Vehicles are excluded from the capacity charge calculation because they are not capacity related assets.

As noted earlier, the District's capital improvement plans only extend through 2021. The estimated cost of planned future improvements (in 2016 dollars) used to calculate the system development component of the capacity fee are summarized in Figure 2; based on the 2-percent allocation factor from Figure 2, new customers were allocated \$205,821 of these future capital project costs, as shown in **Figure 5**.

**Figure 5. Planned Asset Values Allocated to New Customers**

Facility / Equipment (1)	System Development Cost Basis <sup>2</sup>	% Allocation			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
Office Equipment (2)	\$ 1,510,000	0%	98%	2%	\$ -	\$ 1,480,174	\$ 29,826
Facilities (2)	\$ 1,720,000	0%	98%	2%	\$ -	\$ 1,686,026	\$ 33,974
Reservoir Rehabs (2)	\$ 3,170,000	0%	98%	2%	\$ -	\$ 3,107,385	\$ 62,615
Distribution System (2, 3, 4)	\$ 4,090,000	21%	78%	2%	\$ 850,000	\$ 3,176,002	\$ 63,998
Vehicles (5)	\$ 740,000	100%	0%	0%	\$ 740,000	\$ -	\$ -
Tools and Equipment (2)	\$ 780,000	0%	98%	2%	\$ -	\$ 764,593	\$ 15,407
<b>Total</b>	<b>\$ 12,010,000</b>	<b>13.2%</b>	<b>85.0%</b>	<b>1.7%</b>	<b>\$ 1,590,000</b>	<b>\$ 10,214,179</b>	<b>\$ 205,821</b>

- FY 2015/16 - FY 2020/21 Capital projects are per source file: *Five Year Capital Improvement Plan.xlsx*. The following years are an average of those five years CIP totals.
- Project costs are allocated to existing and future services based on projected growth in the system. See Demographics tab for detail.
- Meter replacement projects are excluded because they are for existing users.
- All recycled water system projects are excluded as it is a separate system.
- Vehicles are excluded from the cost basis for capacity fees since they are not capacity related assets.



## D. ADJUSTMENTS TO THE COST BASIS

Before the capacity fees are developed, two adjustments were applied to the cost basis to account for existing cash reserves and outstanding debt. Existing cash reserves are treated as an asset, since they were contributed by existing customers and are available to pay for capital and/or operating costs of the water utility. The cash reserves are, in a sense, no different than any other system asset. The existing cash reserves allocated to new customers are summarized in **Figure 6**. This calculation also uses the same 2-percent allocation factor from Figure 2. The allocation of cash reserves to new customers is \$424,382.

**Figure 6. Cash Reserves Allocated to New Customers**

Cash Reserves	Beginning Cash (1)	% Allocation		\$ - Allocation	
		Existing Customers	New Customers	Existing Customers	New Customers
Cash in Existing Reserves (2)	\$ 13,193,201	98.0%	2.0%	\$ 12,932,603	\$ 260,598
Cash with Fiscal Agent (Restricted Bond Funds) (3)	\$ 8,291,813	98.0%	2.0%	\$ 8,128,029	\$ 163,784
<b>Total Beginning Cash</b>	<b>\$ 21,485,014</b>	<b>98.0%</b>	<b>2.0%</b>	<b>\$ 21,060,632</b>	<b>\$ 424,382</b>

1. Beginning cash balances for Fiscal Year 2016/17 are per staff email February 23, 2017.
2. Existing District reserve funds are for: Operating, Rate Stabilization and Capital Improvements.
3. Cash held from 2012 Water Revenue Bonds to be used in Puente Basin Water Agency Capital Projects.

There was also a credit to the cost basis related to outstanding bonds. This credit was included because some existing assets were at least partially funded with revenue bonds that will be paid in future years by the “existing customers” at that time. Since new connections pay their share of existing asset values, including the remaining outstanding debt on those same assets would be double-counting the asset values in the capacity fees. Therefore, a credit is given in the capacity fee calculation for the value of future principal, to avoid double-charging new customers for bond-funded assets. **Figure 7** shows that the credit provided to new customers in the capacity fee development is \$368,878.

**Figure 7. Outstanding Debt Allocated to New Customers**

Bond Issue	Outstanding Principal (thru 2021)	% Allocation		\$ - Allocation	
		Existing Customers	New Customers	Existing Customers	New Customers
2012 Water Revenue Bonds (1)	\$ 18,675,000	98.0%	2.0%	\$ 18,306,122	\$ 368,878
<b>Grand Total</b>	<b>\$ 18,675,000</b>	<b>98.0%</b>	<b>2.0%</b>	<b>\$ 18,306,122</b>	<b>\$ 368,878</b>

1. Outstanding bond principal is allocated to existing and future services based on projected growth in the system.

See page 2 of the appendix for detail.

## E. CALCULATED CAPACITY FEES

The sum of the existing and planned asset values (that is, the system buy-in and system development costs), along with the adjustments for existing cash reserves and outstanding principal payments, defines the total cost basis allocated to new customers. **Figure 8** summarizes how this cost basis is developed.

**Figure 8. Summary of Cost Basis for New Customers:**

System Asset Values Allocated to New Customers	
<i>System Asset Values Allocated to New Customers</i>	
Existing System Buy-In (1)	\$ 1,332,583
Future System Expansion (2)	205,821
Total: Existing & Future System Costs	\$ 1,538,404
<i>Adjustments to Cost Basis Allocated to New Customers:</i>	
Cash Reserves	\$ 424,382
Outstanding Long-Term Debt (Principal)	(368,878)
Total: Adjustments to Cost Basis	\$ 55,505
<b>Total Adjusted Cost Basis for New Customers</b>	<b>\$ 1,593,909</b>

The total adjusted cost basis is then divided by the number of new customers, measured in 5/8-inch meter equivalents, expected to connect to the system (that is, the 433 meter equivalents shown in Figure 2). This calculation is shown in **Figure 9**.

**Figure 9. Summary of Costs Allocated to New Customers and New Capacity Fees**

Summary of Costs Allocated to Capacity Fees	Adjusted System Cost Basis	New Customers (1)	Maximum Base Capacity Fee
Maximum Potable Water Capacity Per 5/8-inch meter	\$ 1,593,909	433	\$ 3,685

1. In 5/8-inch meter equivalents, through 2021.

Based on the combined system buy-in and incremental capacity fee methodology, and the assumptions used in this analysis, NBS has calculated the new capacity fees for each meter size, as shown in **Figure 10**. These fees represent a change from the District's current capacity fee structure, which is based on a per-acre fee. The updated capacity fees represent the maximum fee that the District could charge for new connections.

<sup>5</sup> Details on Future System Expansion allocated to new customers can be found in Exhibit 5 of Appendix A.

**Figure 10. Updated Potable Water Capacity Fees**

Meter Size	Equivalency Factor		Maximum Unit Cost (\$/5/8-inch meter)	Maximum Potable Capacity Fee Per Meter
	Maximum Continuous Flow (gpm) (1)	Equivalency to Base Meter Size		
1 Inch	50	1.00	\$3,685	<b>\$3,685</b>
1 1/2 Inch	100	5.00	\$3,685	<b>\$18,424</b>
2 Inch	160	8.00	\$3,685	<b>\$29,478</b>
3 Inch	320	16.00	\$3,685	<b>\$58,956</b>
4 Inch	500	25.00	\$3,685	<b>\$92,118</b>
6 Inch	1,000	50.00	\$3,685	<b>\$184,237</b>
8 Inch	1,600	80.00	\$3,685	<b>\$294,779</b>
10 Inch	4,200	210.00	\$3,685	<b>\$773,794</b>
12 Inch	5,300	265.00	\$3,685	<b>\$976,455</b>

1. Source: AWWA M1, Table B-1. Assumes displacement meters for 1" through 2", Compound Class I for 3" through 8" and Turbine Class II for 10" through 12" meters.

## SECTION 3. CONSTRUCTION RATE ANALYSIS

As part of this study, NBS also evaluated the District's construction water rates and fees. Construction customers are different from other customers in the District's service area because they are not permanent connections to the water system; they are temporary customers of the water system, and their consumption patterns vary from year to year. Therefore, rates and fees developed for these customers account for these circumstances. This section of the Study describes the methodology used to develop the construction rates and fees.

### A. ONE-TIME FEES

New construction customers are subject to two one time fees - a meter deposit and an administrative fee, upon the time of connection. If the customer chooses to move the meter to another location, the customer will be subject to a meter move fee. This section of the report describes how these fees were developed.

- **Meter Deposit** – this is a deposit that is paid to the District for the meter, at the time water service begins. The deposit amount is calculated as the replacement cost of a temporary 3-inch<sup>6</sup> meter should the meter not be returned to the District. The current cost of a temporary 3-inch meter is \$2,485. The deposit is returned to the customer when the meter is returned.
- **Administrative Fee** – the administrative fee covers the cost of District staff time involved with processing the application for water service, opening the account and installing the water meter. The fee assumes 2.5 hours of staff time are required (for application processing, opening the account and installing the meter) at an hourly rate of \$56.40. An additional 1.5 hours for use of a service truck (\$20 hourly cost) are also included.
- **Meter Move Fee:** this is a fee for moving the meter (if requested by the customer). The fee is based on District staff time and equipment fees for moving the meter from one location to the other. This hourly fee will vary based on the number of hours required to move the meter. Each hour of use includes the \$56.40 hourly staff rate and \$20 hourly service truck cost.

**Figure 11** shows these fees for the five-year period (fees for years beyond FY 2016/17 assume an annual inflation factor of 3 percent):

<sup>6</sup> All construction meters are 3-inch meters.

**Figure 11. One-Time Fees for Construction Meters<sup>7</sup>**

Fee Description	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Meter Deposit	\$2,485.00	\$2,559.55	\$2,636.34	\$2,715.43	\$2,796.89
Administrative Fee	\$171.00	\$176.13	\$181.41	\$186.86	\$192.46
Meter Move Fee (cost per hour)	\$76.40	\$78.69	\$81.05	\$83.48	\$85.99

## B. MONTHLY CONSTRUCTION WATER RATES

Monthly construction water rates recover the cost of renting the meter, cost of water, and customer related costs such as meter reading, billing and customer service. As with all other customers in the District, these costs are recovered through a fixed monthly meter charge and a volumetric charge based on the amount of water consumed. This section describes how these rates were developed.

**Monthly Meter Fee** - This is a fixed monthly fee that consists of two components – a *meter rental component* that is based on the cost of the construction meter, and assumes a useful life of five years<sup>8</sup>. There is also a *customer component* that is based on the District’s costs of reading meters, billing customers and customer service costs, as shown in **Figure 12**. The customer component is the same charge that all other customers pay on a monthly basis, as developed in the 2016 Water Rate Study<sup>9</sup>. The “Monthly Meter Rental Fee Component” is calculated by taking the Cost of a Construction Meter (\$2,485 in FY 2016/17) and dividing by the useful life (in months, in this case 5 years \* 12 months per year = 60).

**Figure 12. Development of the Monthly Meter Fee**

Monthly Meter Fee	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
<u>Meter Rental Fee Component</u>					
Cost of Construction Meter <sup>1</sup>	\$2,485.00	\$2,559.55	\$2,636.34	\$2,715.43	\$2,796.89
Useful life (years)	5	5	5	5	5
Assumed Annual Cost Inflation	3%	3%	3%	3%	3%
Estimated Replacement Cost (in 5 years <sup>2</sup> )	<u>\$2,880.80</u>	<u>\$2,967.22</u>	<u>\$3,056.24</u>	<u>\$3,147.92</u>	<u>\$3,242.36</u>
Monthly Meter Rental Fee Component	\$48.01	\$49.45	\$50.94	\$52.47	\$54.04
<u>Customer Component</u>					
Standard Meter Customer Costs <sup>3</sup>	\$2.31	\$2.49	\$2.67	\$2.81	\$2.95
<b>Total Monthly Meter Fee</b>	<b>\$50.32</b>	<b>\$51.94</b>	<b>\$53.61</b>	<b>\$55.28</b>	<b>\$56.99</b>

1. Per District's source file: Backflow & Recycled Water Fees.xlsx.

2. 5 year useful life of construction meters provided by District staff.

3. Per December 2016 Water Rate Study.

**Potable Water Rate:** If the customer uses potable water, construction water customers will pay the potable volumetric rate for construction customers, which is based on the average cost of potable water (per unit of water consumed), plus the zonal surcharge if the customer is located in one of the District’s higher elevation zones. The average cost of water considers all of the District’s costs related to the potable water system, both fixed and variable (total Revenue Requirement, Zonal Costs and Estimated Consumption from the earlier Water Rate Study)<sup>10</sup>. The Zonal Surcharges recover the cost of pumping

<sup>7</sup> For FY 2016/17, the updated fee is scheduled for June 1, 2017. The following update is scheduled for January 1, 2018 and each January thereafter through January 1, 2021.

<sup>8</sup> Construction meter useful life provided by staff.

<sup>9</sup> See Figure 17 on page 18 Water Rate Study prepared by NBS December 2016 for details on how the customer component was calculated.

<sup>10</sup> For Total Revenue Requirement see Figure 12 on page 15, for Estimated Consumption see Figure 5 on page 11, of the Water Rate Study prepared by NBS December 2016.

water to the higher elevation zones. **Figure 13** shows how the average cost of potable water is developed, where the total Revenue Requirement from the 2016 Water Rate Study is reduced by the zonal costs (because they are recovered in the surcharge), and the Net Revenue Requirement is then divided by estimated water consumption, to get the average cost of water, per hcf. **Figure 14** shows the Zonal Surcharge that applies to those customers in higher elevation zones<sup>11</sup>.

**Figure 13. Average Cost of Potable Water**

Potable Water Cost	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Total Revenue Requirement	\$ 20,444,439	\$ 22,087,660	\$ 23,862,956	\$ 25,181,385	\$ 26,572,656
Less: Zonal Costs	\$ (265,144)	\$ (277,829)	\$ (291,129)	\$ (305,075)	\$ (319,697)
Net Revenue Requirement from Potable Rates	\$ 20,179,295	\$ 21,809,831	\$ 23,571,827	\$ 24,876,310	\$ 26,252,959
Estimated Consumption	4,040,437	4,060,639	4,080,942	4,101,347	4,121,854
<b>Average Cost of Potable Water (\$/hcf)</b>	<b>\$4.99</b>	<b>\$5.37</b>	<b>\$5.78</b>	<b>\$6.07</b>	<b>\$6.37</b>

**Figure 14. Zonal Surcharges**

Zonal Surcharges (\$/hcf)	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Zone 2	\$0.15	\$0.16	\$0.16	\$0.17	\$0.18
Zone 3	\$0.32	\$0.33	\$0.34	\$0.36	\$0.37
Zone 4	\$0.76	\$0.79	\$0.83	\$0.86	\$0.90
Zone 5	\$1.06	\$1.10	\$1.15	\$1.20	\$1.25
Zone 6	\$1.51	\$1.57	\$1.64	\$1.71	\$1.78

**Recycled Water Rate:** If a construction customer uses recycled water, the customer will pay the recycled water volumetric rate for construction customers, which is based on the average cost of recycled water (per unit of water consumed). The average cost of water considers all of the District's costs related to the recycled water system, both fixed and variable. **Figure 15** shows the average cost of recycled water which is developed by dividing the total revenue requirement by the total expected recycled water consumption.<sup>12</sup>

**Figure 15. Average Cost of Recycled Water**

Recycled Water Cost <sup>1</sup>	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Total Revenue Requirement	\$ 880,174	\$ 1,017,490	\$ 1,162,727	\$ 1,316,252	\$ 1,432,392
Estimated Consumption (hcf)	319,290	329,556	340,152	351,088	351,088
<b>Average Cost of Recycled Water (\$/hcf)<sup>2</sup></b>	<b>\$2.76</b>	<b>\$3.09</b>	<b>\$3.42</b>	<b>\$3.75</b>	<b>\$4.08</b>

1. Per December 2016 Water Rate Study.

2. Cost of recycled water assumes consumption is all in Zone 1.

<sup>11</sup> See Figures 33 & 34 on page 28 of the Water Rate Study prepared by NBS December 2016 for details on how these charges were calculated.

<sup>12</sup> For Recycled Water Total Revenue Requirement see Figure 4 on page 10, for Estimated Consumption see Figure 25 on page 22, of the Water Rate Study prepared by NBS December 2016.

Figure 16 shows the complete list of charges that apply to construction customers:

**Figure 16. Construction Meter Charges**

Updated Construction Customer Fee Schedule	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
<b>One-Time Fees</b>					
Meter Deposit	\$2,485	\$2,560	\$2,636	\$2,715	\$2,797
Administrative Fee	\$171.00	\$176.13	\$181.41	\$186.86	\$192.46
Meter Move Fee (cost per hour)	\$76.40	\$78.69	\$81.05	\$83.48	\$85.99
<b>Monthly Fees</b>					
<b>Fixed Charges (\$/meter)</b>					
Monthly Meter Fee	\$50.32	\$51.94	\$53.61	\$55.28	\$56.99
<b>Volumetric Charges (\$/hcf)</b>					
Potable Water - Zone 1	\$4.99	\$5.37	\$5.78	\$6.07	\$6.37
Potable Water - Zone 2	\$5.15	\$5.53	\$5.94	\$6.24	\$6.55
Potable Water - Zone 3	\$5.31	\$5.70	\$6.12	\$6.42	\$6.74
Potable Water - Zone 4	\$5.75	\$6.16	\$6.60	\$6.93	\$7.27
Potable Water - Zone 5	\$6.05	\$6.48	\$6.93	\$7.27	\$7.62
Potable Water - Zone 6	\$6.50	\$6.94	\$7.42	\$7.77	\$8.15
Recycled Water	\$2.76	\$3.09	\$3.42	\$3.75	\$4.08

## SECTION 4. RECOMMENDATIONS AND NEXT STEPS

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### A. CONSULTANT RECOMMENDATIONS

NBS recommends the District take the following actions:

- **Approve and Accept this Study:** NBS recommends the District Board of Directors formally approve and adopt this Study and its recommendations, and proceed with the steps outlined below to implement the new capacity fees and construction rates. This will provide documentation of the study and the basis for adopting the new capacity fees and construction rates.
- **Implement New Capacity Fees:** Based on the analysis presented in this report, the District Board of Directors should implement the new capacity fee of \$3,685 per 5/8-inch meter equivalent recommended in this report.
- **Implement New Construction Rates:** Based on the analysis presented in this report, the District Board of Directors should implement the new construction rates, as shown in **Figure 16**.
- **Annually Review Rates, Fees and Revenue:** Any time an Agency adopts new rates and fees, they should be periodically reviewed — even more so when new capital facilities are planned and/or significant repair and replacements projects are undertaken. This will help ensure the revenue generated is sufficient to meet the costs of capital projects, the fiscal health of the District is maintained, and future customers bear their fair share of costs of the District's water system.

### B. PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this report and the recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, number of customer accounts, conditions and events that may occur in the future. This information and assumptions, including the District's asset records, financial information and customer billing data (provided by District 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 or 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.

## **APPENDIX A: TABLES FROM THE CAPACITY FEE STUDY**



Exhibit Number	Pages	Function
1	2	Demographic Data and Projections
2	3 - 4	Summary of Existing Capital Facilities and Equipment for Consideration (System Buy-In)
3	not printed	Detail of Existing Capital Facilities and Equipment for Consideration (System Buy-In)
4	5	Cash Reserves and Debt Service Allocation
5	6 - 8	Planned Capital Facilities and Equipment for Consideration (System Development)
6	9	Updated Unit Cost Calculation
7	10	Updated Water Capacity Fees
8	not printed	Inflation Factors from Handy-Whitman Index Used for Estimation of Existing System Asset Values

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Demographic Data and Projections**

**EXHIBIT 1**

**METER EQUIVALENT UNITS:**

Meter Size	Existing Potable Water Meters (1)	Meter Equivalence		Potable Water Meter Equivalent Units
		Maximum Flow (gpm) (2)	Equivalency to 5/8 inch meter (3)	
5/8 Inch	10,926	20	1.00	10,926
3/4 Inch	98	30	1.00	98
1 Inch	929	50	1.00	929
1 1/2 Inch	535	100	5.00	2,675
2 Inch	599	160	8.00	4,792
3 Inch	17	320	16.00	272
4 Inch	13	500	25.00	325
6 Inch	11	1,000	50.00	550
8 Inch	6	1,600	80.00	480
10 Inch	2	4,200	210.00	420
12 Inch	-	5,300	265.00	-
<b>Total</b>	<b>13,136</b>			<b>21,467</b>

1. Per District utility billing data, as of the July-August 2016 billing period.  
Excludes Fire, Recycled and Construction meters.
2. Source: *AWWA M1, Table B-1*. Assumes displacement meters for 5/8" through 2", Compound Class I for 3" through 8" and Turbine Class II for 10" through 12" meters.
3. Due to building code requirements, 1-inch meters will be the minimum size going forward, therefore existing 3/4 and 1-inch meters are considered equivalent to a 5/8-inch meter.

**EXISTING AND PROJECTED SERVICE NUMBERS:**

Demographic Statistics	Existing Total	Projected Service Total (thru 2021) (1)	Allocation Factors		Cumulative Change	
			Existing Customers	New Customers	Number of Units	% Increase
Equivalent 5/8-inch meters	21,467	21,900	98.0%	2.0%	433	2.0%

1. Customer growth is estimated at 0.5% per year.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Existing Capital Facilities and Equipment for Consideration (System Buy-In)**

Asset Category (1)	Original Values (1)		Asset Cost Less Depreciation	Replacement Values (2)		System Buy-In Cost Basis (3)
	Asset Cost	Depreciation to Date		Asset Cost	Depreciation to Date	
<b>Water Fund</b>						
COMMUNICATION EQUIPMENT	\$ 146,202	\$ 146,202	\$ -	\$ -	\$ -	\$ -
DIST. RESERVOIRS & STANDPIPES	\$ 17,627,409	\$ 5,966,162	\$ 11,661,247	\$ 29,348,275	\$ 10,289,171	\$ 19,059,104
GENERAL PLANT & EQUIPMENT	\$ 377,326	\$ 339,622	\$ 37,704	\$ 355,553	\$ 286,254	\$ 69,299
LAND	\$ 261,340	\$ -	\$ 261,340	\$ 261,340	\$ -	\$ 261,340
METERS	\$ 2,901,848	\$ 1,976,553	\$ 925,295	\$ 3,174,715	\$ 1,603,542	\$ 1,571,174
OFFICE BUILDING	\$ 4,806,688	\$ 1,031,035	\$ 3,775,654	\$ 7,420,289	\$ 1,949,612	\$ 5,470,677
OFFICE FURNITURE & EQUIPMENT	\$ 2,295,641	\$ 1,227,495	\$ 1,068,147	\$ 1,695,477	\$ 584,306	\$ 1,111,171
PUMPING PLANT	\$ 10,037,819	\$ 3,210,155	\$ 6,827,664	\$ 16,844,089	\$ 5,800,934	\$ 11,043,155
SERVICES	\$ 8,397,523	\$ 5,079,922	\$ 3,317,601	\$ 8,226,799	\$ 3,679,399	\$ 4,547,401
SOURCE OF SUPPLY	\$ 5,652,137	\$ 949,586	\$ 4,702,551	\$ 5,966,162	\$ 976,313	\$ 4,989,850
STORES & SHOP BUILDING	\$ 209,538	\$ 193,665	\$ 15,872	\$ 98,664	\$ 76,462	\$ 22,202
TELEMETRY SYSTEM	\$ 1,489,672	\$ 941,343	\$ 548,329	\$ 2,276,003	\$ 1,507,036	\$ 768,967
TRANSMISSION MAINS & ACCESS	\$ 19,037,408	\$ 7,060,519	\$ 11,976,889	\$ 40,739,159	\$ 16,542,798	\$ 24,196,361
TRANSPORTATION EQUIPMENT	\$ 947,475	\$ 512,946	\$ 434,529	\$ 651,468	\$ 179,492	\$ 471,976
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 74,188,027</b>	<b>\$ 28,635,206</b>	<b>\$ 45,552,821</b>	<b>\$ 117,057,994</b>	<b>\$ 43,475,318</b>	<b>\$ 73,582,675</b>

1. The source of the original asset cost and depreciation to date is the District's fixed asset list (depreciation is as of June 30, 2016). Fixed asset data was provided in the following source files: fixedassets06.30.16.csv and Asset Schedule.pdf.
2. Replacement values are calculated by escalating the original values (from District's fixed asset report) from service date to 2016 values using historical cost inflation factors from the Handy-Whitman Index of Public Utility Construction Costs, for Water Utility Construction in the Pacific Region.
3. Cost basis for consideration is calculated as replication value less accumulated depreciation.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Existing Capital Facilities and Equipment for Consideration (System Buy-In)**

Asset Category (1)	System Buy-In Cost Basis (2)	Allocation Basis (%)			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
<b>Water Fund</b>							
COMMUNICATION EQUIPMENT (3)	\$ -	0.0%	0.0%	0.0%	\$ -	\$ -	\$ -
DIST. RESERVOIRS & STANDPIPES (4)	\$ 19,059,104	0.0%	98.0%	2.0%	\$ -	\$ 18,682,639	\$ 376,465
GENERAL PLANT & EQUIPMENT (4)	\$ 69,299	0.0%	98.0%	2.0%	\$ -	\$ 67,930	\$ 1,369
LAND (4)	\$ 261,340	0.0%	98.0%	2.0%	\$ -	\$ 256,178	\$ 5,162
METERS (5)	\$ 1,571,174	0.0%	100.0%	0.0%	\$ -	\$ 1,571,174	\$ -
OFFICE BUILDING (4)	\$ 5,470,677	0.0%	98.0%	2.0%	\$ -	\$ 5,362,618	\$ 108,059
OFFICE FURNITURE & EQUIPMENT (4)	\$ 1,111,171	0.0%	98.0%	2.0%	\$ -	\$ 1,089,222	\$ 21,948
PUMPING PLANT (4)	\$ 11,043,155	0.0%	98.0%	2.0%	\$ -	\$ 10,825,026	\$ 218,130
SERVICES (5)	\$ 4,547,401	0.0%	100.0%	0.0%	\$ -	\$ 4,547,401	\$ -
SOURCE OF SUPPLY (4)	\$ 4,989,850	0.0%	98.0%	2.0%	\$ -	\$ 4,891,288	\$ 98,562
STORES & SHOP BUILDING (4)	\$ 22,202	0.0%	98.0%	2.0%	\$ -	\$ 21,763	\$ 439
TELEMETRY SYSTEM (4)	\$ 768,967	0.0%	98.0%	2.0%	\$ -	\$ 753,778	\$ 15,189
TRANSMISSION MAINS & ACCESS (4)	\$ 24,196,361	0.0%	98.0%	2.0%	\$ -	\$ 23,718,423	\$ 477,938
TRANSPORTATION EQUIPMENT (6)	\$ 471,976	0.0%	98.0%	2.0%	\$ -	\$ 462,653	\$ 9,323
<b>Total Capital Facilities &amp; Equipment</b>	<b>\$ 73,582,675</b>	<b>0.0%</b>	<b>98.2%</b>	<b>1.8%</b>	<b>\$ -</b>	<b>\$ 72,250,092</b>	<b>\$ 1,332,583</b>

- The source of the original asset cost and depreciation to date is the District's fixed asset list (depreciation is as of June 30, 2016).  
Fixed asset data was provided in the following source files: fixedassets06.30.16.csv, Asset Schedule.pdf and staff email Feb 23, 2017.
- Cost basis for consideration is calculated as replication value less accumulated depreciation.
- Assets have no remaining value, therefore allocation is 0% to existing and future users.
- Refer to Exhibit 1: proportionate allocation between existing and future users.
- As meters and services distributed on a per account basis as new customers connect, there exists no additional capacity which they provide for new customers.  
Thus, asset values associated with meters and services are fully allocated to existing customers.
- Vehicles are excluded from the capacity charge calculation because they are not capacity related assets.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Allocation of Cash Reserves and Outstanding Debt to Existing and Future Services**

**EXHIBIT 4**

**ALLOCATION OF DEBT TO EXISTING AND FUTURE USERS:**

Bond Issue	Outstanding Principal (thru 2021)	% Allocation			Total	\$ - Allocation			Total
		Exclude from Analysis	Existing Customers	New Customers		Exclude from Analysis	Existing Customers	New Customers	
2014A Water Revenue Refinance Bonds (1)	\$ 19,025,000	100%	0.0%	0.0%	100%	\$ 19,025,000	\$ -	\$ -	\$ 19,025,000
2012 Water Revenue Bonds (2)	\$ 18,675,000	0%	98.0%	2.0%	100%	\$ -	\$ 18,306,122	\$ 368,878	\$ 18,675,000
<b>Grand Total</b>	<b>\$ 37,700,000</b>	<b>25%</b>	<b>24.3%</b>	<b>0.5%</b>	<b>50%</b>	<b>\$ 19,025,000</b>	<b>\$ 18,306,122</b>	<b>\$ 368,878</b>	<b>\$ 37,700,000</b>

1. Outstanding bond principal is excluded from the capacity fee calculation because it is for the recycled water system.
2. Outstanding bond principal is allocated to existing and future services based on projected growth in the system. See Demographics tab for detail.

**ALLOCATION OF CASH RESERVES TO EXISTING AND FUTURE USERS:**

Cash Reserves	Beginning Cash (1)	% Allocation			Total	\$ - Allocation			Total
		Exclude from Analysis	Existing Customers	New Customers		Exclude from Analysis	Existing Customers	New Customers	
Cash in Existing Reserves (2)	\$ 13,193,201	0%	98.0%	2.0%	100%	\$ -	\$ 12,932,603	\$ 260,598	\$ 13,193,201
Cash with Fiscal Agent (Restricted Bond Funds) (3)	\$ 8,291,813	0%	98.0%	2.0%	100%	\$ -	\$ 8,128,029	\$ 163,784	\$ 8,291,813
<b>Total Beginning Cash</b>	<b>\$ 21,485,014</b>	<b>0%</b>	<b>98.0%</b>	<b>2.0%</b>	<b>50%</b>	<b>\$ -</b>	<b>\$ 21,060,632</b>	<b>\$ 424,382</b>	<b>\$ 21,485,014</b>

1. Beginning cash balances for Fiscal Year 2016/17 are per staff email February 23, 2017.
2. Existing District reserve funds are for: Operating, Rate Stabilization and Capital Improvements.
3. Cash held from 2012 Water Revenue Bonds to be used in Puente Basin Water Agency Capital Projects.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Water Planned Capital Facilities and Equipment for Consideration (System Development)**

**EXHIBIT 5**

Facility / Equipment (1)	System Development Cost Basis for Consideration <sup>2</sup>	% Allocation			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
<b>Office Equipment</b>							
Office Furniture	\$ 100,000	0.0%	98.0%	2.0%	\$ -	\$ 98,025	\$ 1,975
New Servers	\$ 50,000	0.0%	98.0%	2.0%	\$ -	\$ 49,012	\$ 988
Telemetry System Upgrade	\$ 1,130,000	0.0%	98.0%	2.0%	\$ -	\$ 1,107,680	\$ 22,320
Wims Water Sample Software	\$ 30,000	0.0%	98.0%	2.0%	\$ -	\$ 29,407	\$ 593
Kiosk Payment Center	\$ 200,000	0.0%	98.0%	2.0%	\$ -	\$ 196,050	\$ 3,950
<b>Facilities</b>							
Office Building HVAC Improvements	\$ 40,000	0.0%	98.0%	2.0%	\$ -	\$ 39,210	\$ 790
Retaining Wall for Reservoir's 1, 5 and 11	\$ 300,000	0.0%	98.0%	2.0%	\$ -	\$ 294,074	\$ 5,926
District Office Improvements	\$ 50,000	0.0%	98.0%	2.0%	\$ -	\$ 49,012	\$ 988
Panic Alarm System	\$ 7,000	0.0%	98.0%	2.0%	\$ -	\$ 6,862	\$ 138
Retrofit Monument Sign	\$ 10,000	0.0%	98.0%	2.0%	\$ -	\$ 9,802	\$ 198
Reservoirs No. 8, 14, and 15 Fixed RMS	\$ 125,000	0.0%	98.0%	2.0%	\$ -	\$ 122,531	\$ 2,469
RCS System	\$ 55,000	0.0%	98.0%	2.0%	\$ -	\$ 53,914	\$ 1,086
RCS Structure	\$ 500,000	0.0%	98.0%	2.0%	\$ -	\$ 490,124	\$ 9,876
PAX Mixer	\$ 245,000	0.0%	98.0%	2.0%	\$ -	\$ 240,161	\$ 4,839
Cathodic Repairs	\$ 40,500	0.0%	98.0%	2.0%	\$ -	\$ 39,700	\$ 800
Reservoir Vent Rehabs	\$ 17,500	0.0%	98.0%	2.0%	\$ -	\$ 17,154	\$ 346
Asphalt Repair- Reservoir Sites	\$ 130,000	0.0%	98.0%	2.0%	\$ -	\$ 127,432	\$ 2,568
Tomich BS MCC Upgrade	\$ 200,000	0.0%	98.0%	2.0%	\$ -	\$ 196,050	\$ 3,950
<b>Sub-Total</b>	<b>\$ 3,230,000</b>	<b>0.0%</b>	<b>98.0%</b>	<b>2.0%</b>	<b>\$ -</b>	<b>\$ 3,166,199</b>	<b>\$ 63,801</b>

1. FY 2015/16 - FY 2020/21 Capital projects are per source file: *Five Year Capital Improvement Plan.xlsx*. The following years are an average of those five years CIP totals.

2. Project costs are allocated to existing and future services based on projected growth in the system. See Demographics tab for detail.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Water Planned Capital Facilities and Equipment for Consideration (System Development)**

**EXHIBIT 5**

Facility / Equipment (1)	System Development Cost Basis for Consideration <sup>2</sup>	% Allocation			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
<b>Reservoir Rehabs</b>							
Reservoir 3	\$ 400,000	0.0%	98.0%	2.0%	\$ -	\$ 392,099	\$ 7,901
Reservoir No. 6	\$ 330,000	0.0%	98.0%	2.0%	\$ -	\$ 323,482	\$ 6,518
Reservoir No. 7	\$ 395,000	0.0%	98.0%	2.0%	\$ -	\$ 387,198	\$ 7,802
Reservoir No. 8	\$ 240,000	0.0%	98.0%	2.0%	\$ -	\$ 235,259	\$ 4,741
Reservoir No. 10	\$ 440,000	0.0%	98.0%	2.0%	\$ -	\$ 431,309	\$ 8,691
Cuatro Booster Rehab	\$ 150,000	0.0%	98.0%	2.0%	\$ -	\$ 147,037	\$ 2,963
Reservoir CL2 Analyzer	\$ 120,000	0.0%	98.0%	2.0%	\$ -	\$ 117,630	\$ 2,370
Res. 6 Landscape	\$ 30,000	0.0%	98.0%	2.0%	\$ -	\$ 29,407	\$ 593
Replace BS Mag Meters	\$ 100,000	0.0%	98.0%	2.0%	\$ -	\$ 98,025	\$ 1,975
Reservoir Security	\$ 450,000	0.0%	98.0%	2.0%	\$ -	\$ 441,111	\$ 8,889
Security Mesh Network for Remote Sites	\$ 115,000	0.0%	98.0%	2.0%	\$ -	\$ 112,728	\$ 2,272
Warehouse/storage upgrade	\$ 250,000	0.0%	98.0%	2.0%	\$ -	\$ 245,062	\$ 4,938
Office Landscaping	\$ 150,000	0.0%	98.0%	2.0%	\$ -	\$ 147,037	\$ 2,963
<b>Distribution System</b>							
Valve Replacement (La Seda, Cantaria, Altario, Galleano, Johnson, Bixby)	\$ 580,000	0.0%	98.0%	2.0%	\$ -	\$ 568,544	\$ 11,456
Large meter replacements	\$ 150,000	100.0%	0.0%	0.0%	\$ 150,000	\$ -	\$ -
Recycled Water Expansion Projects	\$ 700,000	100.0%	0.0%	0.0%	\$ 700,000	\$ -	\$ -
Mainline Replacement (Native and Desire)	\$ 1,200,000	0.0%	98.0%	2.0%	\$ -	\$ 1,176,297	\$ 23,703
Preventative Pump- FBS- 1, HBS-1	\$ 400,000	0.0%	98.0%	2.0%	\$ -	\$ 392,099	\$ 7,901
Vault Rehab (PM9, PM22, etc.)	\$ 20,000	0.0%	98.0%	2.0%	\$ -	\$ 19,605	\$ 395
Sentous- Replace Valves, remove top, etc	\$ 75,000	0.0%	98.0%	2.0%	\$ -	\$ 73,519	\$ 1,481
AMR Conversion and Large Meter Expansion	\$ 965,000	0.0%	98.0%	2.0%	\$ -	\$ 945,939	\$ 19,061
<b>Sub-Total</b>	<b>\$ 7,260,000</b>	<b>11.7%</b>	<b>86.5%</b>	<b>1.7%</b>	<b>\$ 850,000</b>	<b>\$ 6,283,387</b>	<b>\$ 126,613</b>

1. FY 2015/16 - FY 2020/21 Capital projects are per source file: *Five Year Capital Improvement Plan.xlsx*. The following years are an average of those five years CIP totals.
2. Project costs are allocated to existing and future services based on projected growth in the system. See Demographics tab for detail.
3. Meter replacement projects are excluded because they are for existing users.
4. All recycled water system projects are excluded as it is a separate system.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Water Planned Capital Facilities and Equipment for Consideration (System Development)**

**EXHIBIT 5**

Facility / Equipment (1)	System Development Cost Basis for Consideration <sup>2</sup>	% Allocation			Distribution of Cost Basis (\$)		
		Exclude from Analysis	Existing Customers	New Customers	Exclude from Analysis	Existing Customers	New Customers
<b>Vehicles</b>							
Emergency Generators	\$ 150,000	100.0%	0.0%	0.0%	\$ 150,000	\$ -	\$ -
John Deere Flatbed Cart	\$ 20,000	100.0%	0.0%	0.0%	\$ 20,000	\$ -	\$ -
550 Crew Truck	\$ 150,000	100.0%	0.0%	0.0%	\$ 150,000	\$ -	\$ -
Field Trucks (#3, #14, #16, #17, #9, #11, #18, Crew cab)	\$ 420,000	100.0%	0.0%	0.0%	\$ 420,000	\$ -	\$ -
<b>Tools and Equipment</b>							
Portable RMS System	\$ 250,000	0.0%	98.0%	2.0%	\$ -	\$ 245,062	\$ 4,938
Portable Booster Pump - Coordinate W/Walnut for Emergency Use	\$ -	0.0%	98.0%	2.0%	\$ -	\$ -	\$ -
Vac Truck - Coordinate w/WVWD for Scheduled/Emergency Use	\$ 275,000	0.0%	98.0%	2.0%	\$ -	\$ 269,568	\$ 5,432
Valve Truck (w/ arrow board)	\$ 175,000	0.0%	98.0%	2.0%	\$ -	\$ 171,543	\$ 3,457
Fork Lift	\$ 30,000	0.0%	98.0%	2.0%	\$ -	\$ 29,407	\$ 593
Meter Reader laptop	\$ 10,000	0.0%	98.0%	2.0%	\$ -	\$ 9,802	\$ 198
Air Compressor	\$ 40,000	0.0%	98.0%	2.0%	\$ -	\$ 39,210	\$ 790
<b>Sub-Total</b>	<b>\$ 1,520,000</b>	<b>48.7%</b>	<b>50.3%</b>	<b>1.0%</b>	<b>\$ 740,000</b>	<b>\$ 764,593</b>	<b>\$ 15,407</b>
<b>Total</b>	<b>\$ 12,010,000</b>	<b>13.2%</b>	<b>85.0%</b>	<b>1.7%</b>	<b>\$ 1,590,000</b>	<b>\$ 10,214,179</b>	<b>\$ 205,821</b>

1. FY 2015/16 - FY 2020/21 Capital projects are per source file: *Five Year Capital Improvement Plan.xlsx*. The following years are an average of those five years CIP totals.
2. Project costs are allocated to existing and future services based on projected growth in the system. See Demographics tab for detail.
3. Meter replacement projects are excluded because they are for existing users.
4. All recycled water system projects are excluded as it is a separate system.
5. Vehicles are excluded from the cost basis for capacity fees since they are not capacity related assets.



**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Unit Cost Calculation**

**EXHIBIT 6**

**DEVELOPMENT OF THE MAXIMUM CAPACITY FEE FOR A 5/8-INCH METER EQUIVALENT:**

<b>System Asset Values Allocated to New Customers</b>	
<i>System Asset Values Allocated to New Customers</i>	
Existing System Buy-In (1)	\$ 1,332,583
Future System Expansion (2)	205,821
Total: Existing & Future System Costs	\$ 1,538,404
<i>Adjustments to Cost Basis Allocated to New Customers:</i>	
Cash Reserves	\$ 424,382
Outstanding Long-Term Debt (Principal)	(368,878)
Total: Adjustments to Cost Basis	\$ 55,505
<b>Total Adjusted Cost Basis for New Customers</b>	<b>\$ 1,593,909</b>

<b>Summary of Costs Allocated to Capacity Fees</b>	<b>Adjusted System Cost Basis</b>	<b>Increase in 5/8-inch meter equivalents (thru 2021) (3)</b>	<b>Maximum Base Capacity Fee</b>
Maximum Potable Water Capacity Per 5/8-inch meter	\$ 1,593,909	433	\$ 3,685

1. Refer to Exhibits 2 and 3 for detail of existing assets.
2. Refer to Exhibit 5 for detail related to planned assets.
3. Refer to Exhibit 1 (Demographics) for growth projections.

**ROWLAND WATER DISTRICT**  
**Water Capacity Fee Analysis**  
**Water Fee Classification and Calculation of Maximum Fee**

**EXHIBIT 7**

**WATER CAPACITY FEES BASED ON METER SIZE:**

Meter Size	Equivalency Factor		Maximum Unit Cost (\$/5/8-inch meter)	Maximum Potable Capacity Fee Per Meter
	Maximum Continuous Flow (gpm) (1)	Equivalency to 5/8 inch meter		
1 Inch	50	1.00	\$3,685	<b>\$3,685</b>
1 1/2 Inch	100	5.00	\$3,685	<b>\$18,424</b>
2 Inch	160	8.00	\$3,685	<b>\$29,478</b>
3 Inch	320	16.00	\$3,685	<b>\$58,956</b>
4 Inch	500	25.00	\$3,685	<b>\$92,118</b>
6 Inch	1,000	50.00	\$3,685	<b>\$184,237</b>
8 Inch	1,600	80.00	\$3,685	<b>\$294,779</b>
10 Inch	4,200	210.00	\$3,685	<b>\$773,794</b>
12 Inch	5,300	265.00	\$3,685	<b>\$976,455</b>

1. Source: AWWA M1, Table B-1. Assumes displacement meters for 1" through 2",  
 Coumpound Class I for 3" through 8" and Turbine Class II for 10" through 12" meters.

**APPENDIX B: TABLES FROM THE CONSTRUCTION RATE ANALYSIS**

**ROWLAND WATER DISTRICT  
WATER RATE STUDY  
Construction Rate Analysis**

**CONSTRUCTION METER FEE DEVELOPMENT:**

Administrative Fee for New Customers	Labor Hours	Labor Cost per hour	Charge to Customer
Application Processing	0.5	\$56.40	\$28.20
Opening Account	0.5	\$56.40	\$28.20
Meter Installation	1.5	\$56.40	\$84.60
Service Truck	1.5	\$20.00	\$30.00
<b>Total Administrative Fee</b>			<b>\$171.00</b>

Meter Move Fee	Labor Hours	Labor Cost per hour	Charge to Customer
Cost of Moving Meter	1.0	\$56.40	\$56.40
Service Truck	1.0	\$20.00	\$20.00
<b>Total Meter Move Fee (cost per hour)</b>			<b>\$76.40</b>

Monthly Meter Fee	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
<u>Meter Rental Fee Component</u>					
Cost of Construction Meter <sup>1</sup>	\$2,485.00	\$2,559.55	\$2,636.34	\$2,715.43	\$2,796.89
Useful life (years)	5	5	5	5	5
Assumed Annual Cost Inflation	3%	3%	3%	3%	3%
Estimated Replacement Cost (in 5 years <sup>2</sup> )	<u>\$2,880.80</u>	<u>\$2,967.22</u>	<u>\$3,056.24</u>	<u>\$3,147.92</u>	<u>\$3,242.36</u>
Monthly Meter Rental Fee Component	\$48.01	\$49.45	\$50.94	\$52.47	\$54.04
<u>Customer Component</u>					
Standard Meter Customer Costs <sup>3</sup>	\$2.31	\$2.49	\$2.67	\$2.81	\$2.95
<b>Total Monthly Meter Fee</b>	<b>\$50.32</b>	<b>\$51.94</b>	<b>\$53.61</b>	<b>\$55.28</b>	<b>\$56.99</b>

1. Per District's source file: Backflow & Recycled Water Fees.xlsx.

2. 5 year useful life of construction meters provided by District staff.

3. Per December 2016 Water Rate Study.

**ROWLAND WATER DISTRICT  
WATER RATE STUDY  
Construction Rate Analysis**

**CONSTRUCTION METER POTABLE VOLUMETRIC RATES:**

Potable Water Cost <sup>1</sup>	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Total Revenue Requirement	\$ 20,444,439	\$ 22,087,660	\$ 23,862,956	\$ 25,181,385	\$ 26,572,656
Less: Zonal Costs	\$ (265,144)	\$ (277,829)	\$ (291,129)	\$ (305,075)	\$ (319,697)
Net Revenue Requirement from Potable Rates	\$ 20,179,295	\$ 21,809,831	\$ 23,571,827	\$ 24,876,310	\$ 26,252,959
Estimated Consumption	4,040,437	4,060,639	4,080,942	4,101,347	4,121,854
<b>Average Cost of Potable Water (\$/hcf)</b>	<b>\$4.99</b>	<b>\$5.37</b>	<b>\$5.78</b>	<b>\$6.07</b>	<b>\$6.37</b>

Zonal Surcharges (\$/hcf) <sup>1</sup>	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Zone 2	\$0.15	\$0.16	\$0.16	\$0.17	\$0.18
Zone 3	\$0.32	\$0.33	\$0.34	\$0.36	\$0.37
Zone 4	\$0.76	\$0.79	\$0.83	\$0.86	\$0.90
Zone 5	\$1.06	\$1.10	\$1.15	\$1.20	\$1.25
Zone 6	\$1.51	\$1.57	\$1.64	\$1.71	\$1.78

Construction Water Cost (\$/hcf)	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Zone 1	\$4.99	\$5.37	\$5.78	\$6.07	\$6.37
Zone 2	\$5.15	\$5.53	\$5.94	\$6.24	\$6.55
Zone 3	\$5.31	\$5.70	\$6.12	\$6.42	\$6.74
Zone 4	\$5.75	\$6.16	\$6.60	\$6.93	\$7.27
Zone 5	\$6.05	\$6.48	\$6.93	\$7.27	\$7.62
Zone 6	\$6.50	\$6.94	\$7.42	\$7.77	\$8.15

**CONSTRUCTION METER RECYCLED VOLUMETRIC RATES:**

Recycled Water Cost <sup>1</sup>	Effective Date				
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Total Revenue Requirement	\$ 880,174	\$ 1,017,490	\$ 1,162,727	\$ 1,316,252	\$ 1,432,392
Estimated Consumption (hcf)	319,290	329,556	340,152	351,088	351,088
<b>Average Cost of Recycled Water (\$/hcf)<sup>2</sup></b>	<b>\$2.76</b>	<b>\$3.09</b>	<b>\$3.42</b>	<b>\$3.75</b>	<b>\$4.08</b>

1. Per December 2016 Water Rate Study.

2. Cost of recycled water assumes consumption is all in Zone 1.

**ROWLAND WATER DISTRICT  
WATER RATE STUDY  
Construction Rate Analysis**

**UPDATED FEE SCHEDULE:**

Updated Construction Customer Fee Schedule	Effective Date					Explanation of Fee
	6/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021	
<b>One-Time Fees</b>						
Construction Meter Deposit	\$2,485.00	\$2,559.55	\$2,636.34	\$2,715.43	\$2,796.89	[1]
Administrative Fee	\$171.00	\$176.13	\$181.41	\$186.86	\$192.46	[2]
Meter Move Fee (cost per hour)	\$76.40	\$78.69	\$81.05	\$83.48	\$85.99	[3]
<b>Monthly Fees</b>						
<b>Fixed Charges (\$/meter)</b>						
Monthly Meter Fee	\$50.32	\$51.94	\$53.61	\$55.28	\$56.99	[4]
<b>Volumetric Charges (\$/hcf)</b>						
Potable Water - Zone 1	\$4.99	\$5.37	\$5.78	\$6.07	\$6.37	[5]
Potable Water - Zone 2	\$5.15	\$5.53	\$5.94	\$6.24	\$6.55	[6]
Potable Water - Zone 3	\$5.31	\$5.70	\$6.12	\$6.42	\$6.74	[6]
Potable Water - Zone 4	\$5.75	\$6.16	\$6.60	\$6.93	\$7.27	[6]
Potable Water - Zone 5	\$6.05	\$6.48	\$6.93	\$7.27	\$7.62	[6]
Potable Water - Zone 6	\$6.50	\$6.94	\$7.42	\$7.77	\$8.15	[6]
Recycled Water	\$2.76	\$3.09	\$3.42	\$3.75	\$4.08	[7]

Explanation of Fee:

[1] Based on cost of replacing the meter in the current year, if it is not returned.

[2] Based on labor time and cost for: processing application, opening account and installing meter. Assumes 3% inflation per year.

[3] Based on labor time and cost for moving the meter from one location to another.

[4] Based on replacement cost of meter (assumes a useful life of 5 years), plus standard customer costs.

[5] Based on average cost of potable water, per December 2016 Rate Study.

[6] Based on average cost of potable water, plus zonal surcharge. Per December 2016 Rate Study.

[7] Based on average cost of recycled water, per December 2016 Rate Study.