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# MEMORANDUM

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Date: April 10, 2017

To: The Honorable Chair and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator 

Re: **Raftelis Financial Consultants Rate Structure Study Preliminary Results**

At the February 7, 2017 Board of Supervisors meeting, there was discussion about the Rate Structure Study currently underway for the Regional Wastewater Reclamation Department (RWRD). Raftelis Financial Consultants (RFC) performed this study, and the preliminary results are attached. The Board of Supervisors opted to postpone voting on a sewer user fee increase until these results were available. Based on that action and the related discussion at the February 7 meeting, I want to clarify the original intent of this study, which is unrelated to the pending rate increase.

1. Updated Cost of Service

A comprehensive cost of service analysis was necessary for RWRD, and this analysis is being performed in accordance with standards developed by the American Water Works Association. In a cost of service analysis, utility costs attributed to specific services provided are reviewed and allocated to each customer class. This is done to establish a basis for distributing the full costs of service to all customer classes in proportion to the demands they place on the system. Such assures equity of service payment by a variety of users.

Preliminary results indicate the Commercial class code may incur a 16 percent increase in order to recover the actual costs of providing service to that customer class. This is for the following two reasons:

- A. Currently, the Commercial class code incurs the same volume rate as the Residential class code. Comprehensive sample studies conducted in 2013, 2015 and 2017 confirm the Commercial class code has a higher strength wastewater and thus requires a higher treatment cost. This evidence is also supported in national trends.
- B. Sewer user fees are billed and collected through the various water providers. However, many commercial businesses in Tucson utilize a master water meter for an entire complex. For example, various strip malls that include many different types of businesses such as a grocery store, shoe shop,

laundromat, nail salon, restaurant, and a real estate office. These businesses each generate a different strength of wastewater; but because they are all on the same master meter, billing for the true cost of service for each class code is impossible. As a result, an inequity exists in which many high-strength businesses pay the same strength cost as residential users.

## 2. Determine Rate Design

Utilities across the country have experienced significant revenue shortfalls as water use has declined through conservation efforts and other factors. Therefore, to sufficiently fund their services, utilities have raised rates more frequently and/or more dramatically than originally anticipated. This problem arises primarily when the fixed and variable portions of utility costs are not aligned with the fixed and variable portions of revenue. Therefore, a restructuring of the fixed and variable portions is necessary to minimize variation in revenues.

Four rate design alternatives are presented in the preliminary report ranging from slight improvement in revenue stability to significant improvement in revenue stability by recovering 100 percent of fixed costs. These alternatives are not recommendations, but rather options for RWRD, the Regional Wastewater Reclamation Advisory Committee (RWRAC), and other appropriate stakeholders to discuss and evaluate and to determine if an appropriate rate structure modification should be recommended to the Board of Supervisors for consideration.

## 3. Determine Customer Classes

Because different customers discharge different wastewater pollutant strength, or concentration of oil and grease, suspended solids, and oxygen demand from the breakdown of biological waste, the costs of sewer services vary among classes of customers. Over the years, Pima County has had as many as 35 customer classes for billing commercial customers. Through pretreatment efficiencies and changes in business practices, RWRD has reduced the number of customer classes to 16 high-strength classes. However, due to the complexities in calculating associated sewage strengths, many of these commercial class codes vary only slightly, while others are more dramatic.

For these reasons, it now makes sense to further consolidate the number of high-strength customer classes and capture the multiple commercial businesses that currently receive the same strength as residential.

4. Connection Fee

The study process reviewed and updated the previous 2012 Connection Fee calculations, and a 2.6 percent increase to the sewer connection fees is necessary to ensure the recovery of actual costs associated with the capacity being provided.

5. Revenue Requirements

What this study does not provide is a determination of the revenue requirements for the utility. Such is the purpose of the Financial Plan prepared annually by the Finance and Risk Management Department in conjunction with RWRD and the RWRAC. The 2016 Financial Plan recommends three consecutive, annual 4 percent sewer user fee increases for 2017, 2018 and 2019. The RWRAC previously submitted a letter to the Board of Supervisors supporting a single 4 percent increase to the sewer user fee for 2017.

I hope this information clarifies the intent of the Rate Structure Study. Please let me know if you have any questions regarding this study or on the sewer user fee increase currently anticipated for consideration at the April 18, 2017 Board of Supervisors meeting.

CHH/mjk

Attachments

c: Carmine DeBonis, Jr., Deputy County Administrator for Public Works  
Jackson Jenkins, Director, Regional Wastewater Reclamation



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## MEMORANDUM

TO: Mr. Jackson Jenkins, Director, Pima County Regional Wastewater Reclamation Department

FROM: Mr. Bart Kreps, Senior Manager, Raftelis Financial Consultants, Inc.

DATE: April 4, 2017

RE: Rate Structure Study – Results

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### Introduction

Raftelis Financial Consultants, Inc. (RFC) is pleased to submit this memorandum to the Pima County Regional Wastewater Reclamation Department (PCRWRD) summarizing the draft results of the Wastewater Rate Structure Study (Study). The Study began in August 2016. Preliminary results were presented to the Pima County Regional Wastewater Reclamation Advisory Committee (PCRWRAC) on December 15, 2016 and March 23, 2017.

The primary objectives of the Study are:

- 1) Identify and prioritize PCRWRD's pricing objectives associated with the provision of wastewater services;
- 2) Identify the cost of service for PCRWRD's customer classes;
- 3) Evaluate the strengths and weaknesses of PCRWRD's current wastewater rate structure; and
- 4) Develop and evaluate alternative rate structures that align with PCRWRD's most important pricing objectives.

This memorandum summarizes the methodology and results of this Study.

### Pricing Objectives

RFC used a systematic approach to conduct this Study, designed around a process tailored specifically to PCRWRD's goals and objectives. The approach began with meetings, workshops, and interactive discussions with PCRWRD staff and PCRWRAC representatives to provide a foundation for identifying and prioritizing PCRWRD's most important objectives in pricing wastewater services. These pricing objectives, in particular, revenue stability, simple to understand and update, consistency with cost of service principles, and affordability were used as focal points during the cost of service and rate design components of the Study. The goal was to identify rate structure alternatives that balance as many of these objectives as possible.

## PCRWRD Financial Plan Revenue Requirements

It is important to note this Study **did not** determine the level of revenue required to ensure the wastewater utility’s financial sustainability; this is the purpose of PCRWRD’s Financial Plan prepared by the Finance and Risk Management Department. The revenue requirements, or costs, used in this Study of approximately \$158.5 million are based on information provided in PCRWRD’s Financial Plan dated August 23, 2016 assuming the wastewater user rates and charges in place at the beginning of fiscal year (FY) 2016-17. The two primary components of revenue requirements are operating and maintenance (O&M) expenses and capital expenditures, in this case primarily debt service. Non-rate revenue from connection fees and miscellaneous charges offset the total revenue requirements. The final component is incorporating the portion of transfers out to meet the revenue required for sewer utility services as identified in the Financial Plan.

**Table 1** provides a breakdown of the revenue requirements for FY 2016-17 that aligns with PCRWRD’s Financial Plan.

**Table 1: Summary of Revenue Requirements (FY 2016-17)**

| <b>FY2017</b>  | <b>Operating</b>      | <b>Capital</b>         | <b>Total</b>           |
|--|-----------------------|------------------------|------------------------|
| <b>GROSS REVENUE REQUIREMENTS</b>                              |                       |                        |                        |
| Total O&M  | \$ 84,563,807         | \$ -                   | \$ 84,563,807          |
| Total Debt Service   | \$ -                  | \$ 75,399,344          | \$ 75,399,344          |
| <b>Total Gross Revenue Requirements</b>                        | <b>\$ 84,563,807</b>  | <b>\$ 75,399,344</b>   | <b>\$ 159,963,151</b>  |
| <b>OTHER REVENUE</b>   |                       |                        |                        |
| Connection Fee Revenue   | \$ -                  | \$ (11,572,094)        | \$ (11,572,094)        |
| Non-Rate Revenue   | \$ (1,810,854)        | \$ -                   | \$ (1,810,854)         |
| <b>Total Other Revenue</b>                                     | <b>\$ (1,810,854)</b> | <b>\$ (11,572,094)</b> | <b>\$ (13,382,948)</b> |
| Transfers for Purpose of Determining Rate Revenue Requirements | \$ -                  | \$ 11,904,396          | \$ 11,904,396          |
| <b>Net Revenue Requirements</b>                                | <b>\$ 82,752,953</b>  | <b>\$ 75,731,646</b>   | <b>\$ 158,484,599</b>  |

## Cost of Service Analysis

RFC utilized the “functional cost methodology” described in the Water Environment Federations (“WEF”) publication, “Manual of Practice M27, Financing and Charges for Wastewater Systems.” Once the revenue requirements have been established, costs were allocated to categories which relate to functions performed by the wastewater utility. The functional allocation process was completed collaboratively by both RFC and PCRWRD staff. The functional categories include:

- ) Wastewater Collection
- ) Wastewater Conveyance
- ) Wastewater Treatment
- ) Laboratory
- ) Account/Customer
- ) General and Administration

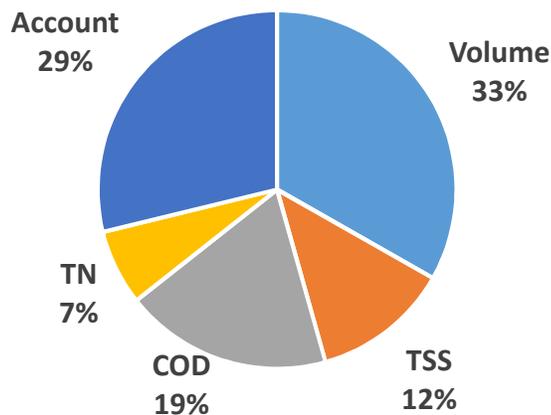
RFC and PCRWRD staff went through an extensive cost allocation exercise to allocate O&M expenses to the appropriate functional categories. Fixed assets were provided to RFC with functional categories assigned. Piping infrastructure was allocated to collection and conveyance based on size and length.

In the functional cost methodology, functionalized costs and assets are then allocated to demand parameters, including account, volume, and strength components. Account costs include customer service and related costs and a portion of debt service; volume costs are associated with volumetric throughput, or the annual flow from customers, and strength costs reflect the treatment of pollutants within wastewater in the form of total suspended solids (TSS), chemical oxygen demand (COD), and total nitrogen (TN).

The revenue requirements by demand parameters were divided by the account, volume, and strength billable units to determine a unit cost for each component. All customer classes were assigned wastewater strength characteristics of TSS, COD, and TN based on sampling conducted by PCRWRD in 2013, 2015, and 2017. Total revenue requirements by customer class were then developed by multiplying the demand parameter unit costs per number of accounts, volume, and strength of each customer class.

**Table 2** presents the allocation of costs by demand parameters.

**Table 2: Allocation of Cost by Demand Parameters**



The cost allocation methodology described above is consistent with industry standards and practices. But it is important to recognize that, in reality, the majority of PCRWRD’s costs are “fixed” in nature, with the only variable costs being commodity related (e.g. energy, chemicals, utilities). For example, PCRWRD must staff and operate its facilities 24 hours a day, seven days a week, and 365 days a year regardless of whether a drop of wastewater is treated. Additionally, PCRWRD has issued a significant amount of debt to finance infrastructure investment to meet regulatory requirements and provide continued, safe and reliable service to customers, and this debt service is a fixed cost. However, like most wastewater utilities, the majority of PCRWRD’s revenues are recovered volumetrically, which creates an imbalance between utility cost incurrence and revenue recovery. Thus, the wastewater utility industry is moving toward higher fixed fees to increase revenue stability, especially as per capita usage declines, utilities become more leveraged, and debt service becomes a larger portion of annual costs.

### Existing Rate Structure

PCRWRD’s primary source of revenue is from volumetric rates and monthly fixed charges. **Table 3** presents PCRWRD’s existing wastewater rate structure. The monthly fixed charge, or service fee, is the same for each customer class except for income-reduced residential customers that pay a lower service fee. For these customers, the service fee is calculated as a percentage of the full service fee based on their income in relation to the Federal Poverty Level. The volumetric rate is uniform and based on a customer’s average winter water usage, taken from the months of December, January and February. Income-reduced residential rates are also applied to the volumetric rates.

**Table 3: Existing User Charges**

| Rate Structure             |             |                           |
|----------------------------|-------------|---------------------------|
| Class Name                 | Service Fee | Volumetric Rate (per Ccf) |
| Residential                | \$12.63     | \$3.52                    |
| Income Reduced Residential | \$3.16      | \$0.88                    |
| Income Reduced Residential | \$6.32      | \$1.76                    |
| Income Reduced Residential | \$9.47      | \$2.64                    |
| Multi-Family               | \$12.63     | \$3.52                    |
| Commercial                 | \$12.63     | \$3.52                    |
| Commercial HS/Industrial   | \$12.63     | \$3.52 - \$12.79          |

Volumetric rates are then multiplied by a high-strength factor for each customer class to account for wastewater strength. The current high strength factors are shown below in **Table 4**.

**Table 4: Current High Strength Factors**

| CURRENT HIGH STRENGTH FACTOR (HSF)            |             |
|---|-------------|
| CLASSIFICATION                                | HSF Current |
| Single-Family Residential                     | 1.00        |
| Multi-Family Residential                      | 1.00        |
| Commercial                                    | 1.00        |
| Printing; copying                             | 1.01        |
| Industrial laundry                            | 1.06        |
| Mortuary                                      | 1.09        |
| Laundromat                                    | 1.09        |
| Electrical component manufacturer             | 1.14        |
| Car wash, self-service                        | 1.19        |
| Pet clinic                                    | 1.20        |
| Car wash, full service                        | 1.23        |
| Chemical, pharmaceutical, paint manufacturing | 1.25        |
| Bottling company                              | 1.68        |
| Restaurant, with seating and china            | 2.03        |
| Auto body and fender repair                   | 2.10        |
| Restaurant, fast food                         | 2.32        |
| Miscellaneous food processor                  | 2.33        |
| Meat packing; tallow processing               | 2.38        |
| Bakery  | 3.63        |

**Alternative Rate Structure Design**

After establishing customer class cost of service, the existing rate structure was evaluated considering PCRWRD’s pricing objectives. Alternative rate structures were then developed to modify the existing rate structure to address the primary pricing objectives, such as revenue stability, simple to understand and update, and consistency with cost of service principles.

- ) *Revenue stability* - PCRWRD’s costs are primarily fixed, and yet revenue is recovered predominantly through volumetric rates, like most utilities in the industry. As such, PCRWRD requested options that increased fixed cost recovery through the service fee.
- ) *Simple to understand and update and consistent with cost of service principles* - The existing rate structure with 16 separate classes for commercial high strength and industrial customers is complex, administratively burdensome, significantly problematic from a billing standpoint, and creates challenges in communication with customers. PCRWRD requested options that consolidated the number of classes to improve customer understanding and acceptance and reduce billing complexity, while still maintaining consistency with cost of service principles by recognizing the additional cost of treating higher strength wastewater.

To address these primary objectives, four rate structure alternatives were developed and are summarized below:

- ) **Alternative One** was calculated using the cost of service methodology summarized previously. This alternative incorporates a re-allocation of costs previously recovered by volumetric rates to recovery by service fees to improve revenue stability. For the volumetric rates, single-family and multi-family residential customers would be charged the same rate, while commercial and

industrial customers would be consolidated into two different subclasses, with the goal of simplifying the volumetric rate structure.

- ) **Alternative Two** was developed based on similar reasoning as alternative one, with one notable exception: commercial and industrial customers are split into four categories rather than two. The categories are based on new sampling data and re-calculated high strength factors and represent an average wastewater strength for various customer groupings. This alternative provides slightly more granularity in classifying commercial and industrial customers when compared to alternative one. The same approach to developing the service fee would be applied in this alternative as alternative one.
- ) **Alternative Three** was designed to recover 100% of costs allocated to the single-family residential customer class through a flat monthly fixed fee. For multi-family residential and non-residential customers, the same approach and structure as alternative two was applied, including the service fee and the four volumetric subclasses.
- ) **Alternative Four** was developed to recover 100% of the utility’s fixed costs through the monthly service fee, uniform for all classes, which would raise the monthly service to \$45.23. A small volumetric rate would be applied to customer class demand in this rate structure, which would be implemented in the same manner as alternative two. This option is for demonstration purposes and is not a RFC recommendation.

The rate structure alternatives are shown in **Table 5**.

**Table 5: Wastewater Rate Structure Alternatives**

| Service Fee       | Current | Calculated | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|-------------------|---------|------------|---------------|---------------|---------------|---------------|
| R - Residential   | \$12.63 | \$14.16    | \$14.16       | \$14.16       | \$35.28       | \$45.23       |
| All Other Classes | \$12.63 | \$14.16    | \$14.16       | \$14.16       | \$14.14       | \$45.23       |

| Volumetric Rate (Ccf)                | Current | Calculated | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|--------------------------------------|---------|------------|---------------|---------------|---------------|---------------|
| R - Residential                      | \$3.52  | \$3.34     | \$3.33        | \$3.34        | NA            | \$0.37        |
| MF - Multi-Family Residential        | \$3.52  | \$3.34     | \$3.33        | \$3.34        | \$3.33        | \$0.37        |
| C - Commercial                       | \$3.52  | \$3.89     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SA - Auto Body and Fender Repair     | \$7.40  | \$3.64     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SB - Mortuary                        | \$3.84  | \$3.66     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SC - Laundromat                      | \$3.84  | \$3.42     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SD - Pet Clinic                      | \$4.23  | \$3.79     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SG - Car wash, self-service          | \$4.19  | \$3.34     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SH - Car wash, full-service          | \$4.33  | \$3.34     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SJ - Printing, copying               | \$3.56  | \$4.07     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SK - Electric component manufacturer | \$4.02  | \$4.07     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SL - Industrial laundry              | \$3.73  | \$4.29     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SO - Chemical, pharmaceutical        | \$4.40  | \$3.51     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SF - Restaurant, fast food           | \$8.17  | \$5.03     | \$7.66        | \$4.85        | \$4.82        | \$0.54        |
| SN - Miscellaneous food processor    | \$8.21  | \$4.66     | \$7.66        | \$4.85        | \$4.82        | \$0.54        |
| SE - Restaurant, with seating        | \$7.15  | \$7.77     | \$7.66        | \$7.66        | \$7.61        | \$0.85        |
| SI - Bottling company                | \$5.92  | \$7.52     | \$7.66        | \$7.66        | \$7.61        | \$0.85        |
| SM - Bakery                          | \$11.63 | \$11.57    | \$7.66        | \$10.70       | \$10.64       | \$1.19        |
| SP - Meat packing                    | \$8.38  | \$9.85     | \$7.66        | \$10.70       | \$10.64       | \$1.19        |

The corresponding residential customer impacts of representative customers at a variety of monthly levels of demand (volumes) are provided in **Tables 6**.

## Tables 6: Monthly Residential Bill Impacts

| Volume (Ccf) | Current Bill | Alternative 1 | \$ Change | Alternative 2 | \$ Change | Alternative 3 | \$ Change | Alternative 4 | \$ Change | # Customers* |
|--------------|--------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|--------------|
| 0            | \$12.63      | \$14.16       | \$1.53    | \$14.16       | \$1.53    | \$35.28       | \$22.65   | \$45.23       | \$32.60   | 9,086        |
| 1            | \$16.15      | \$17.49       | \$1.33    | \$17.50       | \$1.35    | \$35.28       | \$19.13   | \$45.60       | \$29.45   | 11,977       |
| 2            | \$19.68      | \$20.82       | \$1.14    | \$20.84       | \$1.17    | \$35.28       | \$15.60   | \$45.98       | \$26.30   | 17,892       |
| 3            | \$23.20      | \$24.15       | \$0.95    | \$24.19       | \$0.99    | \$35.28       | \$12.08   | \$46.35       | \$23.15   | 21,562       |
| 4            | \$26.72      | \$27.48       | \$0.76    | \$27.53       | \$0.81    | \$35.28       | \$8.56    | \$46.72       | \$20.00   | 22,945       |
| 5            | \$30.25      | \$30.81       | \$0.57    | \$30.87       | \$0.63    | \$35.28       | \$5.04    | \$47.10       | \$16.86   | 22,159       |
| 6            | \$33.77      | \$34.14       | \$0.37    | \$34.21       | \$0.45    | \$35.28       | \$1.51    | \$47.47       | \$13.70   | 20,453       |
| 7            | \$37.29      | \$37.47       | \$0.18    | \$37.56       | \$0.27    | \$35.28       | -\$2.01   | \$47.84       | \$10.55   | 17,298       |
| 8            | \$40.81      | \$40.80       | -\$0.01   | \$40.90       | \$0.09    | \$35.28       | -\$5.53   | \$48.21       | \$7.40    | 14,289       |
| 9            | \$44.34      | \$44.13       | -\$0.20   | \$44.24       | -\$0.09   | \$35.28       | -\$9.06   | \$48.59       | \$4.25    | 11,402       |
| 10           | \$47.86      | \$47.46       | -\$0.40   | \$47.59       | -\$0.27   | \$35.28       | -\$12.58  | \$48.96       | \$1.10    | 8,890        |
| 15           | \$65.48      | \$64.12       | -\$1.36   | \$64.30       | -\$1.18   | \$35.28       | -\$30.20  | \$50.82       | -\$14.66  | 22,566       |
| 20           | \$83.09      | \$80.77       | -\$2.32   | \$81.01       | -\$2.08   | \$35.28       | -\$47.81  | \$52.68       | -\$30.41  | 11,714       |

\*Estimated based on the number of residential customers provided by Tucson Water as of 1/19/17 (for calendar year 2016). Represents winter quarter average consumption rounded down to the nearest whole unit.

Similarly, customer impacts were evaluated for non-residential customers and presented at an average level of demand for each class (see **Table 7**). It should be noted that commercial and industrial customers exhibit wide ranges of monthly consumption. For example, there are many commercial customers with lower levels of consumption more commensurate with residential customers. The monthly dollar impact on these customers would be much lower.

## Tables 7: Monthly Non-Residential Bill Impacts

| Class                                | Average Volume [Ccf] | Current Bill | Alternative 1 | \$ Change | Alternative 2 | \$ Change | Alternative 3 | \$ Change | Alternative 4 | \$ Change   | Customers* |
|--------------------------------------|----------------------|--------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-------------|------------|
| <b>Commercial</b>                    |                      |              |               |           |               |           |               |           |               |             |            |
| Commercial regular                   | 26.6                 | \$106.50     | \$117.10      | \$10.60   | \$117.52      | \$11.02   | \$116.98      | \$10.48   | \$56.75       | -\$49.75    | 19,371     |
| <b>Commercial HS/Industrial</b>      |                      |              |               |           |               |           |               |           |               |             |            |
| SA - Auto Body and Fender Repair     | 11.6                 | \$98.27      | \$58.88       | -\$39.39  | \$59.06       | -\$39.21  | \$58.92       | -\$39.35  | \$50.25       | -\$48.02    | 114        |
| SB - Mortuary                        | 13.5                 | \$64.54      | \$66.39       | \$1.85    | \$66.60       | \$2.06    | \$66.32       | \$1.78    | \$51.08       | -\$13.46    | 19         |
| SC - Laundromat                      | 122.0                | \$481.11     | \$485.52      | \$4.41    | \$487.44      | \$6.33    | \$470.91      | -\$10.20  | \$97.98       | -\$383.13   | 50         |
| SD - Pet Clinic                      | 14.5                 | \$73.74      | \$70.00       | -\$3.73   | \$70.23       | -\$3.50   | \$69.93       | -\$3.81   | \$51.48       | -\$22.26    | 74         |
| SG - Car wash, self-service          | 98.0                 | \$423.36     | \$392.69      | -\$30.67  | \$394.23      | -\$29.13  | \$392.31      | -\$31.05  | \$87.60       | -\$335.76   | 57         |
| SH - Car wash, full-service          | 157.4                | \$694.52     | \$622.15      | -\$72.37  | \$624.63      | -\$69.89  | \$621.56      | -\$72.96  | \$113.28      | -\$581.24   | 39         |
| SJ - Printing, copying               | 16.3                 | \$70.58      | \$77.08       | \$6.50    | \$77.34       | \$6.76    | \$77.00       | \$6.42    | \$52.27       | -\$18.31    | 43         |
| SK - Electric component manufacturer | 82.7                 | \$344.89     | \$333.80      | -\$11.09  | \$335.10      | -\$9.79   | \$333.48      | -\$11.41  | \$81.01       | -\$263.88   | 45         |
| SL - Industrial laundry              | 398.3                | \$1,499.97   | \$1,553.00    | \$53.03   | \$1,559.28    | \$59.31   | \$1,537.37    | \$37.40   | \$217.45      | -\$1,282.52 | 8          |
| SO - Chemical, pharmaceutical        | 258.0                | \$1,148.73   | \$1,010.93    | -\$137.80 | \$1,015.00    | -\$133.73 | \$995.82      | -\$152.91 | \$156.79      | -\$991.94   | 11         |
| SF - Restaurant, fast food           | 28.9                 | \$249.19     | \$235.88      | -\$13.31  | \$154.51      | -\$94.68  | \$139.50      | -\$109.69 | \$60.88       | -\$188.31   | 455        |
| SN - Miscellaneous food processor    | 23.2                 | \$203.46     | \$192.25      | -\$11.21  | \$126.89      | -\$76.57  | \$126.19      | -\$77.27  | \$57.80       | -\$145.66   | 16         |
| SE - Restaurant, with seating        | 56.2                 | \$414.45     | \$444.58      | \$30.13   | \$444.46      | \$30.01   | \$441.71      | \$27.26   | \$93.19       | -\$321.26   | 553        |
| SI - Bottling company                | 180.1                | \$1,078.40   | \$1,393.64    | \$315.24  | \$1,393.24    | \$314.84  | \$1,370.33    | \$291.93  | \$198.95      | -\$879.45   | 13         |
| SM - Bakery                          | 9.3                  | \$120.54     | \$85.26       | -\$35.28  | \$113.49      | -\$7.05   | \$112.90      | -\$7.64   | \$56.30       | -\$64.24    | 16         |
| SP - Meat packing                    | 74.0                 | \$632.71     | \$580.70      | -\$52.01  | \$805.60      | \$172.89  | \$801.50      | \$168.79  | \$133.50      | -\$499.21   | 4          |

\*Estimated based on the number of residential customers provided by Tucson Water as of 1/19/17 (for calendar year 2016). Represents winter quarter average consumption rounded down to the nearest whole unit.

### Evaluation of Alternatives

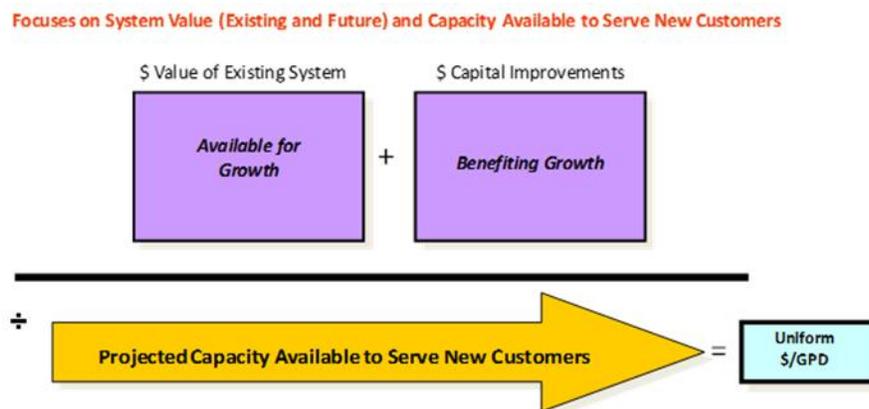
Alternative rate structures were developed to address the pricing objectives identified at the beginning of the Study. The first two alternatives provide improved revenue stability, are simple to understand and update, and consistent with cost of service principles. They also provide consideration for affordability as the impacts on residential customers are low. Alternative 3 improves revenue stability significantly, is simple to understand and update and consistent with cost of service principles, but there are higher

impacts on low-volume residential customers. Alternative 4 provides the most revenue stability, but it is not consistent with cost of service principles as both commercial and industrial customers would be subsidized by residential customers.

### Connection Fee Update

As part of this Study, RFC updated PCRWRD’s connection fees based on current data. Connection fees reflect PCRWRD’s cost of wastewater treatment and conveyance capacity, and these fees are assessed upfront to customers when they connect to the system. PCRWRD’s connection fees are calculated using a hybrid approach based on a combination of the industry accepted methodologies including the system buy-in and the marginal incremental approaches. The buy-in approach incorporates existing assets and available capacity. The marginal incremental approach incorporates expansion of the system and is tied to the utility’s Capital Improvement Plan (CIP). The hybrid approach, which supports PCRWRD’s connection fee, is called the System Average Cost Approach (see **Table 8**).

**Tables 8: System Average Cost Approach**



PCRWRD’s connection fees reflect only the cost of capacity associated with core, or “trunk”, system capacity that is available to serve new customers. Key factors used to allocate costs are:

- ) Available capacity – PCRWRD’s current treatment capacity amongst its facilities is 91.55 million gallons per day (MGD). Of this amount, PCRWRD experienced annual wastewater plant flows of 59.48 MGD in 2016, resulting in available treatment capacity of 32.07 MGD, or 35.0% of the system.
- ) Piping infrastructure – an updated review of PCRWRD’s piping infrastructure determined that 62.4% is associated with the wastewater collection system and 37.6% is associated with the wastewater conveyance system.

Costs included in the calculation are:

- ) Capital Improvement Plan – Of PCRWRD’s more than \$300 million CIP, \$120.5 million is allocated for expansion or available capacity.
- ) Fixed Assets in Service – PCRWRD’s updated fixed assets were functionalized, and based on core system assets, such as wastewater conveyance and wastewater treatment, \$356.4 million (replacement cost new less depreciation values) of assets are associated with capacity available to serve new customers.

) Reserves – PCRWRD’s unrestricted cash and cash equivalents for FY 2016 was \$143.3 million. Of this amount, \$50.1 million, or 35.0%, is identified as a core asset and included in the connection fee calculation.

As shown in **Table 9**, the results of the updated calculation of PCRWRD’s cost of capacity is \$16.44 per gallon per day (gpd).

**Tables 9: Cost of Capacity (gallons per day)**

|   | <b>Capital Costs<br/>(1)</b> | <b>Capacity<br/>(MGD) (2)</b> | <b>Cost per GPD</b> |
|---|------------------------------|-------------------------------|---------------------|
| Cost of Capacity Per Gallon Per Day (gpd) |                              |                               |                     |
| Land                                      | \$ 5,294,381                 | 32.07                         | \$ 0.17             |
| Conveyance and Pumping                    | 219,720,487                  | 32.07                         | \$ 6.85             |
| Wastewater Treatment                      | 251,910,106                  | 32.07                         | \$ 7.86             |
| Reserves (3)                              | 50,143,104                   | 32.07                         | \$ 1.56             |
| <b>Cost of Capacity (per gpd) (4)</b>     | <b>\$ 527,068,078</b>        |                               | <b>\$ 16.44</b>     |

Notes:

- (1) Represents the portion of system capital costs available to serve new customers.
- (2) Represents the portion of total projected system capacity available to serve new customers.
- (3) Includes only the related portion of unrestricted cash and cash equivalents (current assets), emergency reserve, and 60 days of the 90 day O&M reserve identified in the County's FY 2015/16 financial statements for the wastewater enterprise system.
- (4) Rounded up.

Using \$16.44 per gpd and an estimated design flow per customer per day of 253.8 gpd, which is consistent with PCRWRD’s most recent connection fee calculation, the revised connection fee is \$4,172 for a residential customer; this is a 2.6% increase above the existing connection fee. Using the residential charge as the basis for calculation, the connection fees for larger meter sizes are computed from a scale of factors reflecting customer demand by meter size relative to the average demand of 5/8-inch customer. The results are summarized in **Table 10**.

**Tables 10: Calculated Connections Fees by Meter Size**

| <b>Meter Size</b>                         | <b>Current</b> | <b>Calculated</b> | <b>% Change</b> |
|---|----------------|-------------------|-----------------|
| <u>Residential</u>                        |                |                   |                 |
| 5/8", 3/4", or 1"                         | \$4,066        | \$4,172           | 2.6%            |
| <u>Commercial/Industrial/Multi-Family</u> |                |                   |                 |
| 1"  | \$8,480        | \$8,700           | 2.6%            |
| 1 1/2"                                    | \$27,030       | \$27,733          | 2.6%            |
| 2"  | \$69,790       | \$71,605          | 2.6%            |
| 3"  | \$162,510      | \$166,735         | 2.6%            |
| 4"  | \$363,690      | \$373,146         | 2.6%            |



# Rate Structure Study Preliminary Results

RWRAC Meeting  
March 23, 2017  
Raftelis Financial  
Consultants

# CONNECTION FEE

- » Recovers wastewater system cost of capacity
- » Assessed to customers upfront as they connect to they system
- » Updated calculation with current data
- » Supports an increase to the current fee of approximately 2.6%

| Water Meter Size                          | Current   | Calculated | % Change |
|---|-----------|------------|----------|
| <u>Residential</u>                        |           |            |          |
| 5/8", 3/4", or 1"                         | \$4,066   | \$4,172    | 2.6%     |
| <u>Commercial/Industrial/Multi-Family</u> |           |            |          |
| 1"  | \$8,480   | \$8,701    | 2.6%     |
| 1 1/2"                                    | \$27,030  | \$27,735   | 2.6%     |
| 2"  | \$69,790  | \$71,609   | 2.6%     |
| 3"  | \$162,510 | \$166,747  | 2.6%     |
| 4"  | \$363,690 | \$373,171  | 2.6%     |

# AGENDA

- » Purpose of the study
- » Utility cost overview
- » Rate structure alternatives
  - Response to RWRAC feedback
- » Bill comparisons
- » Affordability

# PURPOSE OF THE STUDY

# PRIMARY PURPOSE OF THE STUDY

- » Conduct a cost of service analysis
  - Process of allocating costs to customer classes based on how they use the wastewater system
    - For the purpose of rate structure design
    - Requires detailed cost allocations
    - Customer class differentiation occurs primarily at the plant based on wastewater strength
  - Study **did not** include a determination of revenue requirements
    - Purpose of PCRWRD's Financial Plan

# UTILITY COST OVERVIEW

# UTILITY COSTS

## Industry imbalance between utility costs and revenue recovery.

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### » Utility Expenditures

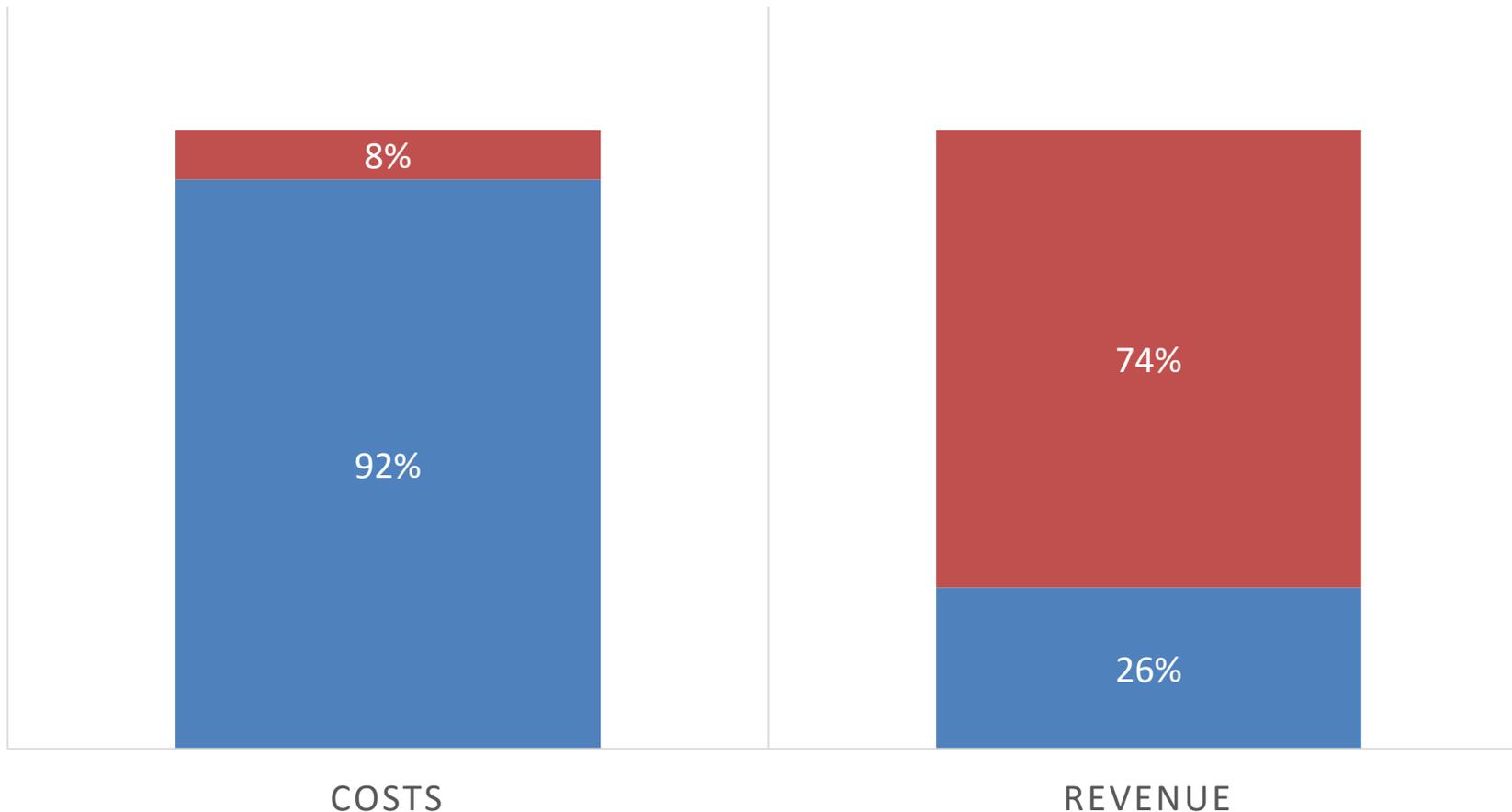
- Fixed costs
  - Operational
    - Personnel
    - Supplies
    - Services
    - Administrative overhead
  - Debt service
- Variable costs
  - Utilities and chemicals

### » Mechanisms for Cost Recovery

- Fixed charges
  - Revenue stability
- Variable (volumetric) rates
  - Metering technology: created link to customer water consumption (For Residential – WQA)
  - Provides customers more control over magnitude of bill
  - Cost equity

# COSTS VS. REVENUE

■ Fixed ■ Variable



*\*Industry is moving toward higher fixed fees to increase revenue stability and reliability, especially as per capita usage declines, utilities become more leveraged, and debt service becomes a larger portion of annual costs.*

# **RATE STRUCTURE**

# EXISTING RATE STRUCTURE

- » Two components
  - Service Fee
  - Volumetric Rate

| Service Fee   |                              |               |           |
|---------------|------------------------------|---------------|-----------|
| User Class    | Class Name                   | Billing Class | Fixed Fee |
| 1             | Residential                  | R             | \$12.63   |
| 1A            | Income Reduced Residential   | RA            | \$3.16    |
| 1B            | Income Reduced Residential   | RB            | \$6.32    |
| 1C            | Income Reduced Residential   | RC            | \$9.47    |
| 2A            | Multi-Family                 | MF            | \$12.63   |
| 2B            | Commercial                   | C             | \$12.63   |
| 3C through 5S | Commercial HS and Industrial | SA - SP       | \$12.63   |

+

| Volumetric Rate |                              |               |                        |
|-----------------|------------------------------|---------------|------------------------|
| User Class      | Class Name                   | Billing Class | Rate (Dollars per Ccf) |
| 1               | Residential                  | R             | \$3.523                |
| 1A              | Income Reduced Residential   | RA            | \$0.881                |
| 1B              | Income Reduced Residential   | RB            | \$1.762                |
| 1C              | Income Reduced Residential   | RC            | \$2.642                |
| 2A              | Multi-family                 | MF            | \$3.523                |
| 2B              | Commercial                   | C             | \$3.523                |
| 3C through 5S   | Commercial HS and Industrial | SA - SP       | \$3.523 - \$12.79      |

# EXISTING RATE STRUCTURE

$$\text{Volume Rate} \times \text{High Strength Factor} = \text{Adjusted Volume Rate}$$

| CURRENT HIGH STRENGTH FACTOR (HSF)            |             |
|---|-------------|
| CLASSIFICATION                                | HSF Current |
| Single-Family Residential                     | 1.00        |
| Multi-Family Residential                      | 1.00        |
| Commercial                                    | 1.00        |
| Printing; copying                             | 1.01        |
| Industrial laundry                            | 1.06        |
| Mortuary                                      | 1.09        |
| Laundromat                                    | 1.09        |
| Electrical component manufacturer             | 1.14        |
| Car wash, self-service                        | 1.19        |
| Pet clinic                                    | 1.20        |
| Car wash, full service                        | 1.23        |
| Chemical, pharmaceutical, paint manufacturing | 1.25        |
| Bottling company                              | 1.68        |
| Restaurant, with seating and china            | 2.03        |
| Auto body and fender repair                   | 2.10        |
| Restaurant, fast food                         | 2.32        |
| Miscellaneous food processor                  | 2.33        |
| Meat packing; tallow processing               | 2.38        |
| Bakery  | 3.63        |

# RATE STRUCTURE CONSIDERATIONS

## » Service Fee

- Identify cost components
  - Account component: recovers customer service and related costs
  - Portion of Debt service: represents a fixed cost
- Overall composition of fixed versus variable costs

## » Volumetric Rates

- Assign high strength factor to Commercial class
  - To address higher cost of treatment due to higher wastewater strength
- Reduce number of customer classes that qualify as high strength customers
  - Improved customer understanding and acceptance
  - Reduces billing complexity

# DECEMBER 15, 2016 RWRAC FEEDBACK

- » Consider separating certain commercial customers, such as office buildings, from the general “Commercial” class
- » Target Commercial customers whose discharge is primarily from a restroom and hand sink

# WHAT WAS DONE?

## » Wastewater strength assessment

- Sampling from individual business is challenging
  - Location of cleanout and limited flow
  - Examples: Family Dollar, Pima Federal Credit Union, and Child Time Daycare
- Identified 2 (out of 15) viable locations with private manholes
  - Both showed higher strength due to less dilution

|                     | COD (mg/L) | TSS (mg/L) |
|---------------------|------------|------------|
| Residential*        | 569        | 177        |
| TCI Wealth Advisors | 1,010      | 516        |
| The Home Depot      | 1,190      | 224        |

## – Implementation and Administration

- Conducted meeting with Tucson Water
  - Customers not identified in the billing system
  - Many billed through master meters
  - Would require installation of individual meters at the County's cost

# HIGH STRENGTH FACTORS

- » Recent sampling has substantiated recalculated Volumetric High Strength Factors
  - Based on 2013, 2015, and 2017 samples
- » Reflects cost of service for each customer class

| Class                                | Current | Calculated | % Difference |
|--------------------------------------|---------|------------|--------------|
| R - Single-Family Residential        | 1.00    | 1.00       | 0.0%         |
| MF - Multi-Family Residential        | 1.00    | 1.00       | 0.0%         |
| C - Commercial                       | 1.00    | 1.16       | 16.4%        |
| SA - Auto Body and Fender Repair     | 2.10    | 1.09       | -48.2%       |
| SB - Mortuary                        | 1.09    | 1.09       | 0.4%         |
| SC - Laundromat                      | 1.09    | 1.02       | -6.0%        |
| SD - Pet Clinic                      | 1.20    | 1.13       | -5.6%        |
| SG - Car wash, self-service          | 1.19    | 1.00       | -16.0%       |
| SH - Car wash, full-service          | 1.23    | 1.00       | -18.7%       |
| SJ - Printing, copying               | 1.01    | 1.22       | 20.6%        |
| SK - Electric component manufacturer | 1.14    | 1.22       | 6.9%         |
| SL - Industrial laundry              | 1.06    | 1.28       | 21.0%        |
| SO - Chemical, pharmaceutical        | 1.25    | 1.05       | -15.9%       |
| SF - Restaurant, fast food           | 2.32    | 1.50       | -35.2%       |
| SN - Miscellaneous food processor    | 2.33    | 1.39       | -40.2%       |
| SE - Restaurant, with seating        | 2.03    | 2.33       | 14.5%        |
| SI - Bottling company                | 1.68    | 2.25       | 33.9%        |
| SM - Bakery                          | 3.63    | 3.46       | -4.6%        |
| SP - Meat packing                    | 2.38    | 2.95       | 23.8%        |

# RATE STRUCTURE ALTERNATIVES

## » Alternative 1

- Service fee - increase to improve revenue stability
  - Recovers customer service and related costs and half of current debt service
- Volumetric rates – Reduce to three customer classes

## » Alternative 2

- Service fee - same as alternative 1
- Volumetric rates – Reduce to five customer classes

## » Alternative 3

- Single-family residential
  - Flat service fee with no volumetric rate
- Multi-family residential and non-residential
  - Same as alternative 2

## » Alternative 4

- Service fee – recovers 100% of “fixed” costs
- Volumetric rates – Same as alternative 2

# HIGH STRENGTH FACTORS

| Class                                | Current | Calculated | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|--------------------------------------|---------|------------|---------------|---------------|---------------|---------------|
| R - Single-Family Residential        | 1.00    | 1.00       | 1.00          | 1.00          | NA            | 1.00          |
| MF - Multi-Family Residential        | 1.00    | 1.00       | 1.00          | 1.00          | 1.00          | 1.00          |
| C - Commercial                       | 1.00    | 1.16       | 1.16          | 1.16          | 1.16          | 1.16          |
| SA - Auto Body and Fender Repair     | 2.10    | 1.09       | 1.16          | 1.16          | 1.16          | 1.16          |
| SB - Mortuary                        | 1.09    | 1.09       | 1.16          | 1.16          | 1.16          | 1.16          |
| SC - Laundromat                      | 1.09    | 1.02       | 1.16          | 1.16          | 1.16          | 1.16          |
| SD - Pet Clinic                      | 1.20    | 1.13       | 1.16          | 1.16          | 1.16          | 1.16          |
| SG - Car wash, self-service          | 1.19    | 1.00       | 1.16          | 1.16          | 1.16          | 1.16          |
| SH - Car wash, full-service          | 1.23    | 1.00       | 1.16          | 1.16          | 1.16          | 1.16          |
| SJ - Printing, copying               | 1.01    | 1.22       | 1.16          | 1.16          | 1.16          | 1.16          |
| SK - Electric component manufacturer | 1.14    | 1.22       | 1.16          | 1.16          | 1.16          | 1.16          |
| SL - Industrial laundry              | 1.06    | 1.28       | 1.16          | 1.16          | 1.16          | 1.16          |
| SO - Chemical, pharmaceutical        | 1.25    | 1.05       | 1.16          | 1.16          | 1.16          | 1.16          |
| SF - Restaurant, fast food           | 2.32    | 1.50       | 2.30          | 1.45          | 1.45          | 1.45          |
| SN - Miscellaneous food processor    | 2.33    | 1.39       | 2.30          | 1.45          | 1.45          | 1.45          |
| SE - Restaurant, with seating        | 2.03    | 2.33       | 2.30          | 2.29          | 2.29          | 2.29          |
| SI - Bottling company                | 1.68    | 2.25       | 2.30          | 2.29          | 2.29          | 2.29          |
| SM - Bakery                          | 3.63    | 3.46       | 2.30          | 3.20          | 3.20          | 3.20          |
| SP - Meat packing                    | 2.38    | 2.95       | 2.30          | 3.20          | 3.20          | 3.20          |

# RATE STRUCTURE

| Service Fee       | Current | Calculated | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|-------------------|---------|------------|---------------|---------------|---------------|---------------|
| R - Residential   | \$12.63 | \$14.16    | \$14.16       | \$14.16       | \$35.28       | \$45.23       |
| All Other Classes | \$12.63 | \$14.16    | \$14.16       | \$14.16       | \$14.14       | \$45.23       |

| Volumetric Rate (Ccf)                | Current | Calculated | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|--------------------------------------|---------|------------|---------------|---------------|---------------|---------------|
| R - Residential                      | \$3.52  | \$3.34     | \$3.33        | \$3.34        | NA            | \$0.37        |
| MF - Multi-Family Residential        | \$3.52  | \$3.34     | \$3.33        | \$3.34        | \$3.33        | \$0.37        |
| C - Commercial                       | \$3.52  | \$3.89     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SA - Auto Body and Fender Repair     | \$7.40  | \$3.64     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SB - Mortuary                        | \$3.84  | \$3.66     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SC - Laundromat                      | \$3.84  | \$3.42     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SD - Pet Clinic                      | \$4.23  | \$3.79     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SG - Car wash, self-service          | \$4.19  | \$3.34     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SH - Car wash, full-service          | \$4.33  | \$3.34     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SJ - Printing, copying               | \$3.56  | \$4.07     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SK - Electric component manufacturer | \$4.02  | \$4.07     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SL - Industrial laundry              | \$3.73  | \$4.29     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SO - Chemical, pharmaceutical        | \$4.40  | \$3.51     | \$3.86        | \$3.88        | \$3.86        | \$0.43        |
| SF - Restaurant, fast food           | \$8.17  | \$5.03     | \$7.66        | \$4.85        | \$4.82        | \$0.54        |
| SN - Miscellaneous food processor    | \$8.21  | \$4.66     | \$7.66        | \$4.85        | \$4.82        | \$0.54        |
| SE - Restaurant, with seating        | \$7.15  | \$7.77     | \$7.66        | \$7.66        | \$7.61        | \$0.85        |
| SI - Bottling company                | \$5.92  | \$7.52     | \$7.66        | \$7.66        | \$7.61        | \$0.85        |
| SM - Bakery                          | \$11.63 | \$11.57    | \$7.66        | \$10.70       | \$10.64       | \$1.19        |
| SP - Meat packing                    | \$8.38  | \$9.85     | \$7.66        | \$10.70       | \$10.64       | \$1.19        |

# MONTHLY RESIDENTIAL CUSTOMER IMPACTS

| Volume (Ccf) | Current Bill | Alternative 1 | % Change | Alternative 2 | % Change | Alternative 3 | % Change | Alternative 4 | % Change | # Customers* |
|--------------|--------------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|--------------|
| 0            | \$12.63      | \$14.16       | 12%      | \$14.16       | 12%      | \$35.28       | 179%     | \$45.23       | 258%     | 9,086        |
| 1            | \$16.15      | \$17.49       | 8%       | \$17.50       | 8%       | \$35.28       | 118%     | \$45.60       | 182%     | 11,977       |
| 2            | \$19.68      | \$20.82       | 6%       | \$20.84       | 6%       | \$35.28       | 79%      | \$45.98       | 134%     | 17,892       |
| 3            | \$23.20      | \$24.15       | 4%       | \$24.19       | 4%       | \$35.28       | 52%      | \$46.35       | 100%     | 21,562       |
| 4            | \$26.72      | \$27.48       | 3%       | \$27.53       | 3%       | \$35.28       | 32%      | \$46.72       | 75%      | 22,945       |
| 5            | \$30.25      | \$30.81       | 2%       | \$30.87       | 2%       | \$35.28       | 17%      | \$47.10       | 56%      | 22,159       |
| 6            | \$33.77      | \$34.14       | 1%       | \$34.21       | 1%       | \$35.28       | 4%       | \$47.47       | 41%      | 20,453       |
| 7            | \$37.29      | \$37.47       | 0%       | \$37.56       | 1%       | \$35.28       | -5%      | \$47.84       | 28%      | 17,298       |
| 8            | \$40.81      | \$40.80       | 0%       | \$40.90       | 0%       | \$35.28       | -14%     | \$48.21       | 18%      | 14,289       |
| 9            | \$44.34      | \$44.13       | 0%       | \$44.24       | 0%       | \$35.28       | -20%     | \$48.59       | 10%      | 11,402       |
| 10           | \$47.86      | \$47.46       | -1%      | \$47.59       | -1%      | \$35.28       | -26%     | \$48.96       | 2%       | 8,890        |
| 15           | \$65.48      | \$64.12       | -2%      | \$64.30       | -2%      | \$35.28       | -46%     | \$50.82       | -22%     | 22,566       |
| 20           | \$83.09      | \$80.77       | -3%      | \$81.01       | -2%      | \$35.28       | -58%     | \$52.68       | -37%     | 11,714       |

\*Estimated based on number of residential customers provided by Tucson Water as of 1/19/17 (for calendar year 2016). Based on winter quarter average rounded down to nearest whole unit.

# MONTHLY RESIDENTIAL CUSTOMER IMPACTS

| Volume (Ccf) | Current Bill | Alternative 1 | \$ Change | Alternative 2 | \$ Change | Alternative 3 | \$ Change | Alternative 4 | \$ Change | # Customers* |
|--------------|--------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|--------------|
| 0            | \$12.63      | \$14.16       | \$1.53    | \$14.16       | \$1.53    | \$35.28       | \$22.65   | \$45.23       | \$32.60   | 9,086        |
| 1            | \$16.15      | \$17.49       | \$1.33    | \$17.50       | \$1.35    | \$35.28       | \$19.13   | \$45.60       | \$29.45   | 11,977       |
| 2            | \$19.68      | \$20.82       | \$1.14    | \$20.84       | \$1.17    | \$35.28       | \$15.60   | \$45.98       | \$26.30   | 17,892       |
| 3            | \$23.20      | \$24.15       | \$0.95    | \$24.19       | \$0.99    | \$35.28       | \$12.08   | \$46.35       | \$23.15   | 21,562       |
| 4            | \$26.72      | \$27.48       | \$0.76    | \$27.53       | \$0.81    | \$35.28       | \$8.56    | \$46.72       | \$20.00   | 22,945       |
| 5            | \$30.25      | \$30.81       | \$0.57    | \$30.87       | \$0.63    | \$35.28       | \$5.04    | \$47.10       | \$16.86   | 22,159       |
| 6            | \$33.77      | \$34.14       | \$0.37    | \$34.21       | \$0.45    | \$35.28       | \$1.51    | \$47.47       | \$13.70   | 20,453       |
| 7            | \$37.29      | \$37.47       | \$0.18    | \$37.56       | \$0.27    | \$35.28       | -\$2.01   | \$47.84       | \$10.55   | 17,298       |
| 8            | \$40.81      | \$40.80       | -\$0.01   | \$40.90       | \$0.09    | \$35.28       | -\$5.53   | \$48.21       | \$7.40    | 14,289       |
| 9            | \$44.34      | \$44.13       | -\$0.20   | \$44.24       | -\$0.09   | \$35.28       | -\$9.06   | \$48.59       | \$4.25    | 11,402       |
| 10           | \$47.86      | \$47.46       | -\$0.40   | \$47.59       | -\$0.27   | \$35.28       | -\$12.58  | \$48.96       | \$1.10    | 8,890        |
| 15           | \$65.48      | \$64.12       | -\$1.36   | \$64.30       | -\$1.18   | \$35.28       | -\$30.20  | \$50.82       | -\$14.66  | 22,566       |
| 20           | \$83.09      | \$80.77       | -\$2.32   | \$81.01       | -\$2.08   | \$35.28       | -\$47.81  | \$52.68       | -\$30.41  | 11,714       |

\*Estimated based on number of residential customers provided by Tucson Water as of 1/19/17 (for calendar year 2016). Based on winter quarter average rounded down to nearest whole unit.

# MONTHLY COMMERCIAL CUSTOMER IMPACTS

| Class                                | Average Volume [Ccf] | Current Bill | Alternative 1 | % Change | Alternative 2 | % Change | Alternative 3 | % Change | Alternative 4 | % Change | Customers* |
|--------------------------------------|----------------------|--------------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|------------|
| <b>Commercial</b>                    |                      |              |               |          |               |          |               |          |               |          |            |
| Commercial - regular                 | 26.6                 | \$106.50     | \$117.10      | 10%      | \$117.52      | 10%      | \$116.98      | 10%      | \$56.75       | -47%     | 19,371     |
| <b>Commercial HS/Industrial</b>      |                      |              |               |          |               |          |               |          |               |          |            |
| SA - Auto Body and Fender Repair     | 11.6                 | \$98.27      | \$58.88       | -40%     | \$59.06       | -40%     | \$58.92       | -40%     | \$50.25       | -49%     | 114        |
| SB - Mortuary                        | 13.5                 | \$64.54      | \$66.39       | 3%       | \$66.60       | 3%       | \$66.32       | 3%       | \$51.08       | -21%     | 19         |
| SC - Laundromat                      | 122.0                | \$481.11     | \$485.52      | 1%       | \$487.44      | 1%       | \$470.91      | -2%      | \$97.98       | -80%     | 50         |
| SD - Pet Clinic                      | 14.5                 | \$73.74      | \$70.00       | -5%      | \$70.23       | -5%      | \$69.93       | -5%      | \$51.48       | -30%     | 74         |
| SG - Car wash, self-service          | 98.0                 | \$423.36     | \$392.69      | -7%      | \$394.23      | -7%      | \$392.31      | -7%      | \$87.60       | -79%     | 57         |
| SH - Car wash, full-service          | 157.4                | \$694.52     | \$622.15      | -10%     | \$624.63      | -10%     | \$621.56      | -11%     | \$113.28      | -84%     | 39         |
| SJ - Printing, copying               | 16.3                 | \$70.58      | \$77.08       | 9%       | \$77.34       | 10%      | \$77.00       | 9%       | \$52.27       | -26%     | 43         |
| SK - Electric component manufacturer | 82.7                 | \$344.89     | \$333.80      | -3%      | \$335.10      | -3%      | \$333.48      | -3%      | \$81.01       | -77%     | 45         |
| SL - Industrial laundry              | 398.3                | \$1,499.97   | \$1,553.00    | 4%       | \$1,559.28    | 4%       | \$1,537.37    | 2%       | \$217.45      | -86%     | 8          |
| SO - Chemical, pharmaceutical        | 258.0                | \$1,148.73   | \$1,010.93    | -12%     | \$1,015.00    | -12%     | \$995.82      | -13%     | \$156.79      | -86%     | 11         |
| SF - Restaurant, fast food           | 28.9                 | \$249.19     | \$235.88      | -5%      | \$154.51      | -38%     | \$139.50      | -44%     | \$60.88       | -76%     | 455        |
| SN - Miscellaneous food processor    | 23.2                 | \$203.46     | \$192.25      | -6%      | \$126.89      | -38%     | \$126.19      | -38%     | \$57.80       | -72%     | 16         |
| SE - Restaurant, with seating        | 56.2                 | \$414.45     | \$444.58      | 7%       | \$444.46      | 7%       | \$441.71      | 7%       | \$93.19       | -78%     | 553        |
| SI - Bottling company                | 180.1                | \$1,078.40   | \$1,393.64    | 29%      | \$1,393.24    | 29%      | \$1,370.33    | 27%      | \$198.95      | -82%     | 13         |
| SM - Bakery                          | 9.3                  | \$120.54     | \$85.26       | -29%     | \$113.49      | -6%      | \$112.90      | -6%      | \$56.30       | -53%     | 16         |
| SP - Meat packing                    | 74.0                 | \$632.71     | \$580.70      | -8%      | \$805.60      | 27%      | \$801.50      | 27%      | \$133.50      | -79%     | 4          |

\* Reflects average usage per bill in each class.

# MONTHLY COMMERCIAL CUSTOMER IMPACTS

| Class                                | Average Volume [Ccf] | Current Bill | Alternative 1 | \$ Change | Alternative 2 | \$ Change | Alternative 3 | \$ Change | Alternative 4 | \$ Change   | Customers* |
|--------------------------------------|----------------------|--------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-------------|------------|
| <b>Commercial</b>                    |                      |              |               |           |               |           |               |           |               |             |            |
| Commercial - regular                 | 26.6                 | \$106.50     | \$117.10      | \$10.60   | \$117.52      | \$11.02   | \$116.98      | \$10.48   | \$56.75       | -\$49.75    | 19,371     |
| <b>Commercial HS/Industrial</b>      |                      |              |               |           |               |           |               |           |               |             |            |
| SA - Auto Body and Fender Repair     | 11.6                 | \$98.27      | \$58.88       | -\$39.39  | \$59.06       | -\$39.21  | \$58.92       | -\$39.35  | \$50.25       | -\$48.02    | 114        |
| SB - Mortuary                        | 13.5                 | \$64.54      | \$66.39       | \$1.85    | \$66.60       | \$2.06    | \$66.32       | \$1.78    | \$51.08       | -\$13.46    | 19         |
| SC - Laundromat                      | 122.0                | \$481.11     | \$485.52      | \$4.41    | \$487.44      | \$6.33    | \$470.91      | -\$10.20  | \$97.98       | -\$383.13   | 50         |
| SD - Pet Clinic                      | 14.5                 | \$73.74      | \$70.00       | -\$3.73   | \$70.23       | -\$3.50   | \$69.93       | -\$3.81   | \$51.48       | -\$22.26    | 74         |
| SG - Car wash, self-service          | 98.0                 | \$423.36     | \$392.69      | -\$30.67  | \$394.23      | -\$29.13  | \$392.31      | -\$31.05  | \$87.60       | -\$335.76   | 57         |
| SH - Car wash, full-service          | 157.4                | \$694.52     | \$622.15      | -\$72.37  | \$624.63      | -\$69.89  | \$621.56      | -\$72.96  | \$113.28      | -\$581.24   | 39         |
| SJ - Printing, copying               | 16.3                 | \$70.58      | \$77.08       | \$6.50    | \$77.34       | \$6.76    | \$77.00       | \$6.42    | \$52.27       | -\$18.31    | 43         |
| SK - Electric component manufacturer | 82.7                 | \$344.89     | \$333.80      | -\$11.09  | \$335.10      | -\$9.79   | \$333.48      | -\$11.41  | \$81.01       | -\$263.88   | 45         |
| SL - Industrial laundry              | 398.3                | \$1,499.97   | \$1,553.00    | \$53.03   | \$1,559.28    | \$59.31   | \$1,537.37    | \$37.40   | \$217.45      | -\$1,282.52 | 8          |
| SO - Chemical, pharmaceutical        | 258.0                | \$1,148.73   | \$1,010.93    | -\$137.80 | \$1,015.00    | -\$133.73 | \$995.82      | -\$152.91 | \$156.79      | -\$991.94   | 11         |
| SF - Restaurant, fast food           | 28.9                 | \$249.19     | \$235.88      | -\$13.31  | \$154.51      | -\$94.68  | \$139.50      | -\$109.69 | \$60.88       | -\$188.31   | 455        |
| SN - Miscellaneous food processor    | 23.2                 | \$203.46     | \$192.25      | -\$11.21  | \$126.89      | -\$76.57  | \$126.19      | -\$77.27  | \$57.80       | -\$145.66   | 16         |
| SE - Restaurant, with seating        | 56.2                 | \$414.45     | \$444.58      | \$30.13   | \$444.46      | \$30.01   | \$441.71      | \$27.26   | \$93.19       | -\$321.26   | 553        |
| SI - Bottling company                | 180.1                | \$1,078.40   | \$1,393.64    | \$315.24  | \$1,393.24    | \$314.84  | \$1,370.33    | \$291.93  | \$198.95      | -\$879.45   | 13         |
| SM - Bakery                          | 9.3                  | \$120.54     | \$85.26       | -\$35.28  | \$113.49      | -\$7.05   | \$112.90      | -\$7.64   | \$56.30       | -\$64.24    | 16         |
| SP - Meat packing                    | 74.0                 | \$632.71     | \$580.70      | -\$52.01  | \$805.60      | \$172.89  | \$801.50      | \$168.79  | \$133.50      | -\$499.21   | 4          |

\* Reflects average usage per bill in each class.

# EVALUATION OF ALTERNATIVES

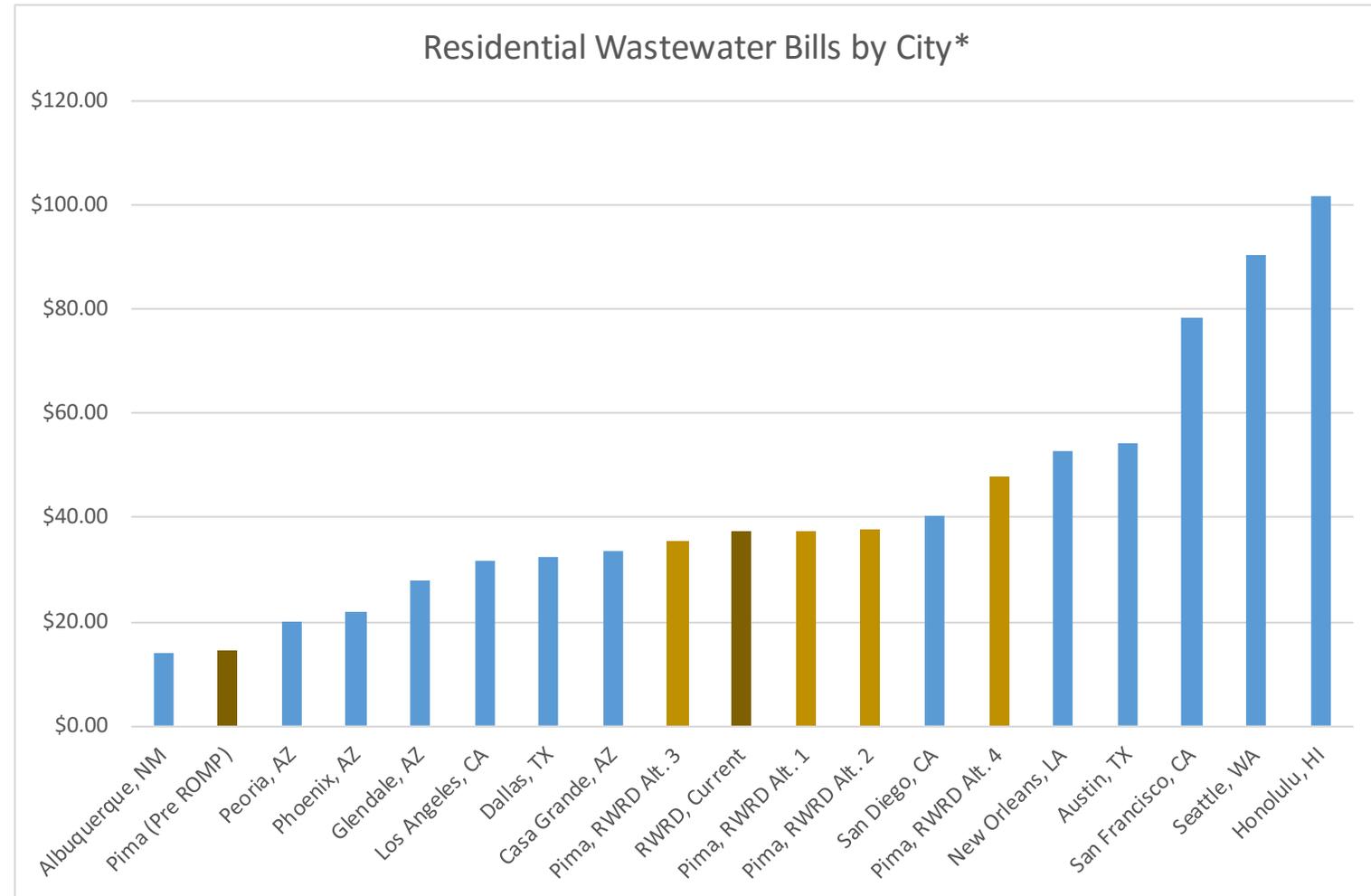
| Top Pricing Objectives            | Alternative 1                        | Alternative 2                        | Alternative 3                                    | Alternative 4*                             |
|-----------------------------------|--------------------------------------|--------------------------------------|--|--|
| Revenue Stability                 | Improvement                          | Improvement                          | Significant Improvement                          | Significant Improvement                    |
| Cost of Service Based Allocations | Yes                                  | Yes                                  | Yes  | No   |
| Simple to Understand and Update   | Yes                                  | Yes                                  | Yes  | Yes  |
| Affordability                     | Low impacts on residential customers | Low impacts on residential customers | High impacts on low-volume residential customers | High impacts on most residential customers |

\* RFC cannot recommend.

# **BILL COMPARISON**

# BILL COMPARISON

- » Apples to apples comparisons are difficult
- » Higher is not necessarily a negative
  - Can demonstrate prudent management and appropriate system investment



\*Assuming 7 Ccf of usage

**AFFORDABILITY**

# AFFORDABILITY

## ZIP CODE LEVEL ANALYSIS

- » Consumption in low-income zip codes slightly less than residential average
- » Average bill by zip code not above 2.0% median household income
- » Data available to support marketing of customer assistance program

| Zip Code | Average Monthly Consumption | Median Household Income [MHI] | Current Annual Bill | Current % of MHI | Alternative 1 | Alt 1 % of MHI | Alternative 2 | Alt 2 % of MHI | Alternative 3 | Alt 3 % of MHI | Alternative 4 | Alt 4 % of MHI |
|----------|-----------------------------|-------------------------------|---------------------|------------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|
| 85714    | 6.21                        | \$ 25,106                     | \$ 414.02           | 1.65%            | \$ 418.02     | 1.67%          | \$ 419.03     | 1.67%          | \$ 423.36     | 1.69%          | \$ 570.53     | 2.27%          |
| 85705    | 5.36                        | \$ 24,188                     | \$ 378.05           | 1.56%            | \$ 384.02     | 1.59%          | \$ 384.89     | 1.59%          | \$ 423.36     | 1.75%          | \$ 566.72     | 2.34%          |
| 85706    | 6.61                        | \$ 30,550                     | \$ 431.16           | 1.41%            | \$ 434.23     | 1.42%          | \$ 435.31     | 1.42%          | \$ 423.36     | 1.39%          | \$ 572.34     | 1.87%          |
| 85719    | 6.14                        | \$ 29,813                     | \$ 411.11           | 1.38%            | \$ 415.27     | 1.39%          | \$ 416.27     | 1.40%          | \$ 423.36     | 1.42%          | \$ 570.22     | 1.91%          |
| 85716    | 6.30                        | \$ 33,075                     | \$ 418.08           | 1.26%            | \$ 421.87     | 1.28%          | \$ 422.89     | 1.28%          | \$ 423.36     | 1.28%          | \$ 570.96     | 1.73%          |
| 85711    | 6.25                        | \$ 33,279                     | \$ 415.98           | 1.25%            | \$ 419.88     | 1.26%          | \$ 420.90     | 1.26%          | \$ 423.36     | 1.27%          | \$ 570.74     | 1.72%          |
| 85712    | 5.79                        | \$ 32,240                     | \$ 396.42           | 1.23%            | \$ 401.39     | 1.24%          | \$ 402.33     | 1.25%          | \$ 423.36     | 1.31%          | \$ 568.67     | 1.76%          |
| 85713    | 5.67                        | \$ 32,892                     | \$ 391.41           | 1.19%            | \$ 396.64     | 1.21%          | \$ 397.57     | 1.21%          | \$ 423.36     | 1.29%          | \$ 568.14     | 1.73%          |
| 85746    | 7.18                        | \$ 39,669                     | \$ 454.92           | 1.15%            | \$ 456.70     | 1.15%          | \$ 457.87     | 1.15%          | \$ 423.36     | 1.07%          | \$ 574.86     | 1.45%          |
| 85736    | 6.31                        | \$ 39,597                     | \$ 418.45           | 1.06%            | \$ 422.22     | 1.07%          | \$ 423.25     | 1.07%          | \$ 423.36     | 1.07%          | \$ 571.00     | 1.44%          |
| 85710    | 6.37                        | \$ 41,845                     | \$ 420.94           | 1.01%            | \$ 424.57     | 1.01%          | \$ 425.60     | 1.02%          | \$ 423.36     | 1.01%          | \$ 571.26     | 1.37%          |
| 85701    | 5.44                        | \$ 40,059                     | \$ 381.53           | 0.95%            | \$ 387.31     | 0.97%          | \$ 388.20     | 0.97%          | \$ 423.36     | 1.06%          | \$ 567.09     | 1.42%          |
| 85745    | 7.00                        | \$ 47,841                     | \$ 447.42           | 0.94%            | \$ 449.60     | 0.94%          | \$ 450.74     | 0.94%          | \$ 423.36     | 0.88%          | \$ 574.06     | 1.20%          |
| 85735    | 6.30                        | \$ 46,476                     | \$ 417.90           | 0.90%            | \$ 421.69     | 0.91%          | \$ 422.72     | 0.91%          | \$ 423.36     | 0.91%          | \$ 570.94     | 1.23%          |
| 85730    | 6.15                        | \$ 45,873                     | \$ 411.35           | 0.90%            | \$ 415.50     | 0.91%          | \$ 416.51     | 0.91%          | \$ 423.36     | 0.92%          | \$ 570.25     | 1.24%          |
| 85704    | 7.34                        | \$ 51,971                     | \$ 461.68           | 0.89%            | \$ 463.09     | 0.89%          | \$ 464.28     | 0.89%          | \$ 423.36     | 0.81%          | \$ 575.57     | 1.11%          |
| 85718    | 12.19                       | \$ 76,853                     | \$ 667.10           | 0.87%            | \$ 657.29     | 0.86%          | \$ 659.28     | 0.86%          | \$ 423.36     | 0.55%          | \$ 597.31     | 0.78%          |
| 85756    | 5.17                        | \$ 43,658                     | \$ 370.14           | 0.85%            | \$ 376.54     | 0.86%          | \$ 377.38     | 0.86%          | \$ 423.36     | 0.97%          | \$ 565.89     | 1.30%          |
| 85741    | 6.56                        | \$ 51,614                     | \$ 428.87           | 0.83%            | \$ 432.06     | 0.84%          | \$ 433.13     | 0.84%          | \$ 423.36     | 0.82%          | \$ 572.10     | 1.11%          |
| 85715    | 7.09                        | \$ 55,238                     | \$ 451.10           | 0.82%            | \$ 453.08     | 0.82%          | \$ 454.23     | 0.82%          | \$ 423.36     | 0.77%          | \$ 574.45     | 1.04%          |
| 85757    | 6.38                        | \$ 54,199                     | \$ 421.26           | 0.78%            | \$ 424.87     | 0.78%          | \$ 425.91     | 0.79%          | \$ 423.36     | 0.78%          | \$ 571.30     | 1.05%          |
| 85750    | 9.66                        | \$ 72,431                     | \$ 560.15           | 0.77%            | \$ 556.18     | 0.77%          | \$ 557.75     | 0.77%          | \$ 423.36     | 0.58%          | \$ 585.99     | 0.81%          |
| 85653    | 6.61                        | \$ 56,721                     | \$ 431.16           | 0.76%            | \$ 434.23     | 0.77%          | \$ 435.31     | 0.77%          | \$ 423.36     | 0.75%          | \$ 572.34     | 1.01%          |
| 85748    | 7.54                        | \$ 64,814                     | \$ 470.41           | 0.73%            | \$ 471.34     | 0.73%          | \$ 472.57     | 0.73%          | \$ 423.36     | 0.65%          | \$ 576.50     | 0.89%          |
| 85742    | 7.61                        | \$ 69,395                     | \$ 473.43           | 0.68%            | \$ 474.19     | 0.68%          | \$ 475.43     | 0.69%          | \$ 423.36     | 0.61%          | \$ 576.82     | 0.83%          |
| 85749    | 9.87                        | \$ 84,583                     | \$ 568.92           | 0.67%            | \$ 564.47     | 0.67%          | \$ 566.08     | 0.67%          | \$ 423.36     | 0.50%          | \$ 586.92     | 0.69%          |
| 85739    | 5.90                        | \$ 62,063                     | \$ 401.17           | 0.65%            | \$ 405.88     | 0.65%          | \$ 406.84     | 0.66%          | \$ 423.36     | 0.68%          | \$ 569.17     | 0.92%          |
| 85743    | 6.75                        | \$ 68,945                     | \$ 436.85           | 0.63%            | \$ 439.61     | 0.64%          | \$ 440.71     | 0.64%          | \$ 423.36     | 0.61%          | \$ 572.95     | 0.83%          |
| 85737    | 7.78                        | \$ 80,571                     | \$ 480.52           | 0.60%            | \$ 480.90     | 0.60%          | \$ 482.17     | 0.60%          | \$ 423.36     | 0.53%          | \$ 577.57     | 0.72%          |
| 85641    | 6.72                        | \$ 82,808                     | \$ 435.72           | 0.53%            | \$ 438.54     | 0.53%          | \$ 439.63     | 0.53%          | \$ 423.36     | 0.51%          | \$ 572.83     | 0.69%          |
| 85658    | 6.48                        | \$ 81,027                     | \$ 425.54           | 0.53%            | \$ 428.92     | 0.53%          | \$ 429.97     | 0.53%          | \$ 423.36     | 0.52%          | \$ 571.75     | 0.71%          |
| 85747    | 6.49                        | \$ 82,024                     | \$ 425.91           | 0.52%            | \$ 429.27     | 0.52%          | \$ 430.33     | 0.52%          | \$ 423.36     | 0.52%          | \$ 571.79     | 0.70%          |

# SEWER OUTREACH SUBSIDY PROGRAM: USAGE BY RESIDENTIAL CUSTOMERS

- » Customers currently enrolled in the affordability program have similar consumption patterns compared to the residential class
- » Reasonably reflective of consumption in low-income zip codes

| Volume (Ccf) | # on Low Income |         | # of Regular* | % Total |
|--------------|-----------------|---------|---------------|---------|
|              | Program*        | % Total |               |         |
| 0            | 357             | 6.4%    | 9,086         | 4.3%    |
| 1            | 688             | 12.3%   | 11,977        | 5.6%    |
| 2            | 795             | 14.3%   | 17,892        | 8.4%    |
| 3            | 672             | 12.0%   | 21,562        | 10.2%   |
| 4            | 534             | 9.6%    | 22,945        | 10.8%   |
| 5            | 465             | 8.3%    | 22,159        | 10.4%   |
| 6            | 375             | 6.7%    | 20,453        | 9.6%    |
| 7            | 348             | 6.2%    | 17,298        | 8.2%    |
| 8            | 303             | 5.4%    | 14,289        | 6.7%    |
| 9            | 260             | 4.7%    | 11,402        | 5.4%    |
| 10           | 171             | 3.1%    | 8,890         | 4.2%    |
| 15           | 457             | 8.2%    | 22,566        | 10.6%   |
| 20           | 152             | 2.7%    | 11,714        | 5.5%    |

\*Estimated based on number of residential customers provided by Tucson Water as of 1/19/17 (for calendar year 2016). Based on winter quarter average rounded down to nearest whole unit.

**THANK YOU**

# BACK-UP SLIDES

# Sample Commercial Bill Comparisons

| Address                      | Usage [ccf] | Current   | Alternative 1 | % Change | Alternative 2 | % Change | Alternative 3 | % Change | Alternative 4 | % Change |
|------------------------------|-------------|-----------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|
| 4356 N. Oracle Road          | 21.33       | \$ 87.78  | \$ 96.57      | 10.02%   | \$ 96.91      | 10.41%   | \$ 96.47      | 9.91%    | \$ 54.45      | -37.96%  |
| 6351 E. Broadway Blvd.       | 46.00       | \$ 174.69 | \$ 191.89     | 9.85%    | \$ 192.62     | 10.26%   | \$ 191.70     | 9.74%    | \$ 65.12      | -62.72%  |
| 5121                         | 101.66      | \$ 370.78 | \$ 406.94     | 9.75%    | \$ 408.55     | 10.19%   | \$ 406.55     | 9.65%    | \$ 89.19      | -75.95%  |
| 6360 #180 Flemings           | 149.00      | \$ 537.56 | \$ 589.85     | 9.73%    | \$ 592.20     | 10.16%   | \$ 589.28     | 9.62%    | \$ 109.66     | -79.60%  |
| 4362 N. Oracle Road          | 161.33      | \$ 581.00 | \$ 637.49     | 9.72%    | \$ 640.03     | 10.16%   | \$ 636.87     | 9.62%    | \$ 114.99     | -80.21%  |
| 2985 Firebirds International | 215.33      | \$ 771.24 | \$ 846.13     | 9.71%    | \$ 849.52     | 10.15%   | \$ 845.31     | 9.60%    | \$ 138.34     | -82.06%  |

# DETERMINE ANNUAL REVENUE REQUIREMENTS

## ***FY 2017 Test Year – Aligns with Financial Plan\****

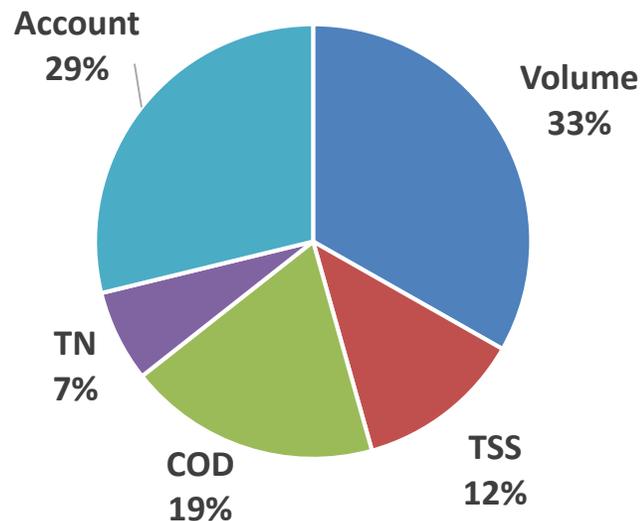
|  | <u>Operating</u>      | <u>Capital</u>         | <u>Total</u>           |
|--|-----------------------|------------------------|------------------------|
| <b>GROSS REVENUE REQUIREMENTS</b>  |                       |                        |                        |
| <i>Total O&amp;M</i>   | \$ 84,563,807         |                        | \$ 84,563,807          |
| <i>Total Debt Service</i>  |                       | \$ 75,399,344          | \$ 75,399,344          |
| <b><i>Total Gross Revenue Requirements</i></b>                                 | <b>\$ 84,563,807</b>  | <b>\$ 75,399,344</b>   | <b>\$ 159,963,151</b>  |
| <b>OTHER REVENUE</b>   |                       |                        |                        |
| <i>Connection Fee Revenue</i>  |                       | \$ (11,572,094)        | \$ (11,572,094)        |
| <i>Non-Rate Revenue</i>  | \$ (1,810,854)        |                        | \$ (1,810,854)         |
| <b><i>Total Other Revenue</i></b>  | <b>\$ (1,810,854)</b> | <b>\$ (11,572,094)</b> | <b>\$ (13,382,948)</b> |
| <b><i>Transfers for Purpose of Determining Rate Revenue Requirements**</i></b> | <b>\$ -</b>           | <b>\$ 11,904,396</b>   | <b>\$ 11,904,396</b>   |
| <b>NET REVENUE REQUIREMENTS</b>  | <b>\$ 82,752,953</b>  | <b>\$ 75,731,646</b>   | <b>\$ 158,484,599</b>  |

\*Based on revised financial plan dated August 23, 2016.

\*\*Reflects portion of operating transfers out to meet net revenue requirements to be recovered from user charges.

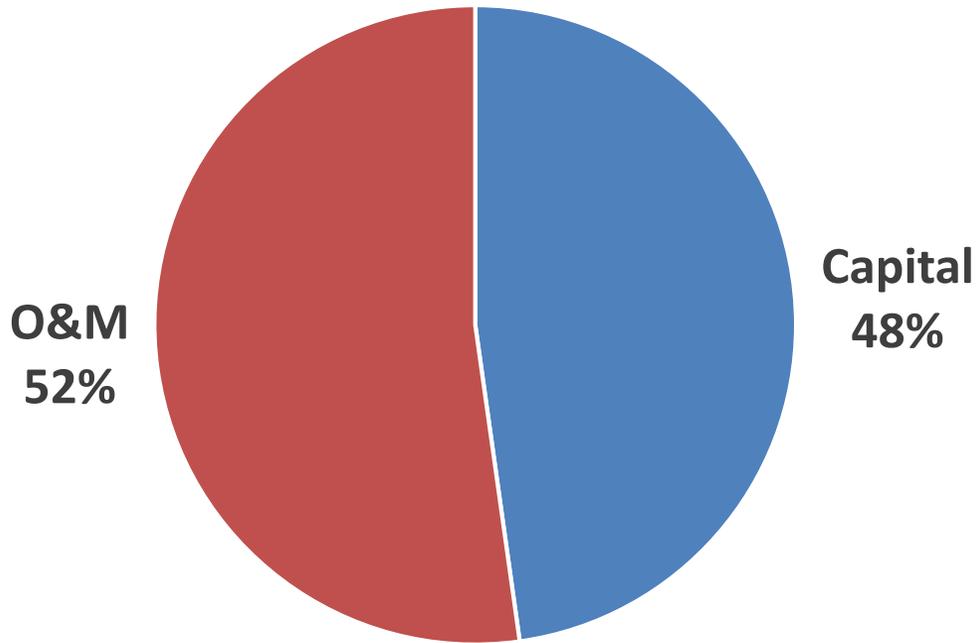
# Pima specific - COST ALLOCATION

|  | <u>FY 2017 (Test Year)</u> | <u>Volume</u>        | <u>TSS</u>           | <u>COD</u>           | <u>TN</u>            | <u>Account</u>       |
|--|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b><u>Net Revenue Requirements</u></b> |                            |                      |                      |                      |                      |                      |
| Operating Expenses                     | \$ 82,752,953              | \$ 29,927,625        | \$ 14,439,229        | \$ 21,775,636        | \$ 7,942,681         | \$ 8,667,782         |
| <i>% Allocation</i>                    | <i>100%</i>                | <i>36%</i>           | <i>17%</i>           | <i>26%</i>           | <i>10%</i>           | <i>10%</i>           |
| Capital Expenditures                   | \$ 75,731,646              | \$ 22,750,385        | \$ 5,225,768         | \$ 7,880,921         | \$ 2,874,572         | \$ 37,000,000        |
| <i>% Allocation</i>                    | <i>100%</i>                | <i>30%</i>           | <i>7%</i>            | <i>10%</i>           | <i>4%</i>            | <i>49%</i>           |
| <b>Total Net Rev. Requirements</b>     | <b>\$ 158,484,599</b>      | <b>\$ 52,678,010</b> | <b>\$ 19,664,997</b> | <b>\$ 29,656,557</b> | <b>\$ 10,817,253</b> | <b>\$ 45,667,782</b> |
| <i>% Allocation</i>                    | <i>100%</i>                | <i>33.2%</i>         | <i>12.4%</i>         | <i>18.7%</i>         | <i>6.8%</i>          | <i>28.8%</i>         |

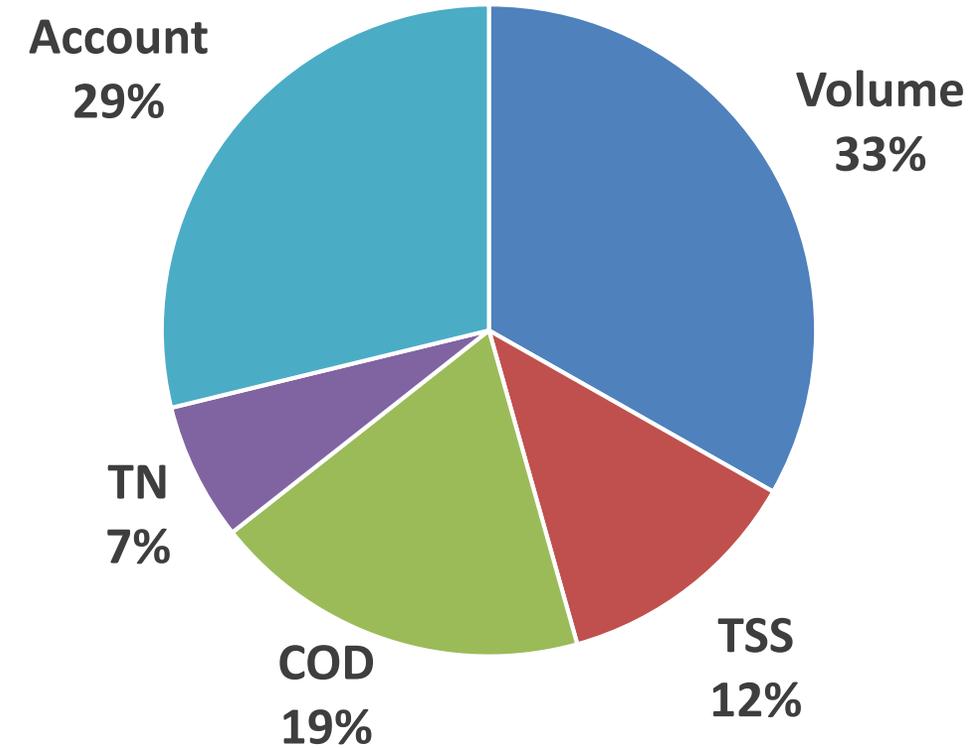


# DETERMINE ANNUAL REVENUE REQUIREMENTS

## Revenue Requirements

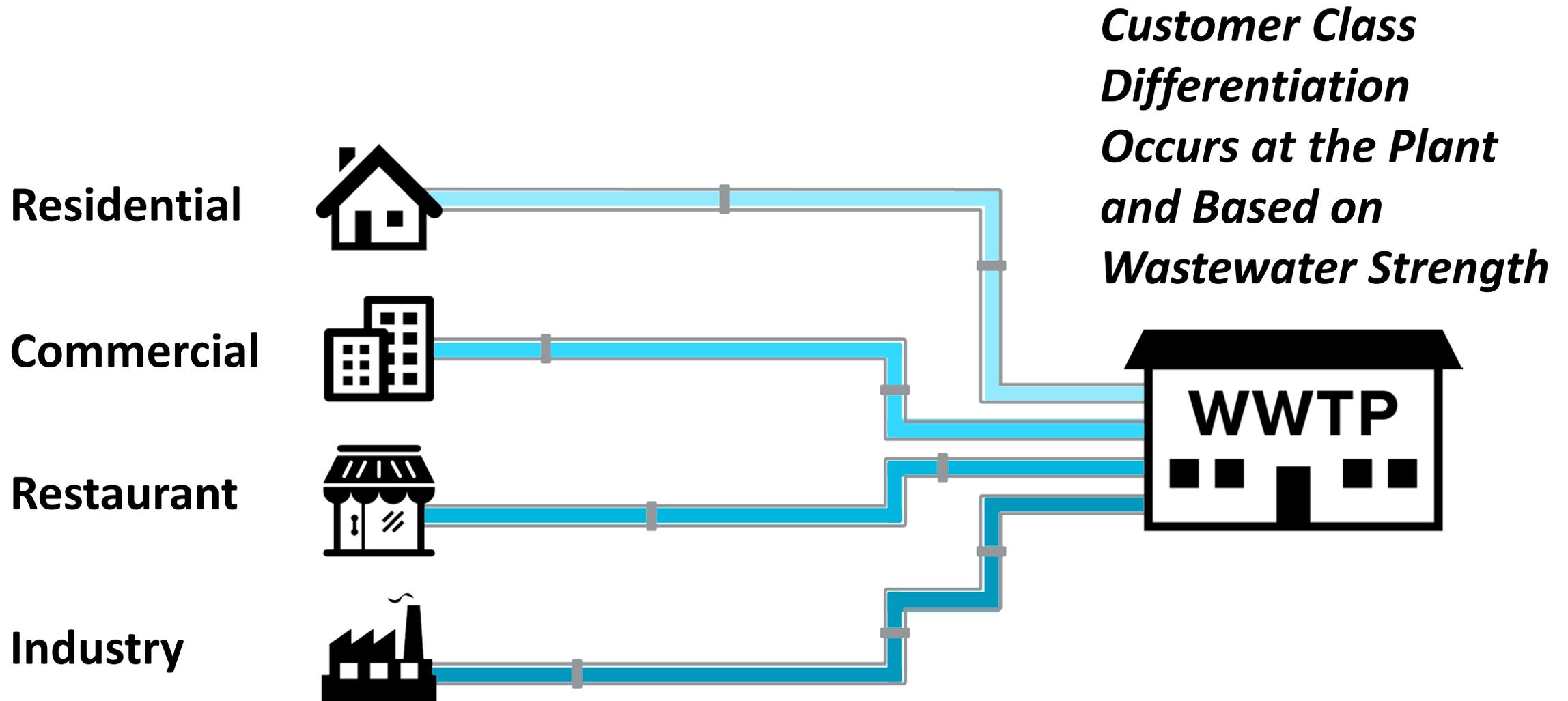


## Cost Allocations



**Net Rate Revenue Requirements: \$158.5 Million**

# COST OF SERVICE AND CUSTOMER CLASSES



# AFFORDABILITY (CURRENT) ZIP CODE LEVEL ANALYSIS

