Town of Prescott Valley
2015 Water and Wastewater System Capacity Charges Report

Raftelis Financial Consultants, Inc.
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1. Introduction

The Town of Prescott Valley, Arizona (Town) retained the services of Raftelis Financial Consultants (RFC) to update its water and wastewater system capacity charges. Table 1 shows the resulting revised charges compared to the Town's current charges (based on the current assessment methodology). Later in this Report, RFC presents these revised charges using a different assessment methodology. RFC believes these revised charges are appropriate based on industry standard calculation methodologies as set forth herein.

Table 1
Summary of Current and Proposed System Capacity Charges Under the Current Assessment Methodology

Water System Capacity Charges			
	Current		
Development Type	**North of Highway 89A**	**South of Highway 89A**	**Proposed**
Single-Family Residential (per Residential Dwelling Equivalent or RDE)	$1,570	$1,311	$1,491
Non-Residential (per fixture unit)	62.80	52.44	59.64

Wastewater System Capacity Charges		
Development Type	**Current**	**Proposed**
Single-Family Residential (per RDE)	$3,162	$3,014
Non-Residential (per fixture unit)	126.48	120.56

[Note: This Report does not include an analysis of the Town's Water Resource Charge or Sewer In-Lieu of Assessment Fee.[1] Nothing in this Report should be construed as modifying those charges or fees.]

2. Nature of Water and Wastewater of System Capacity Charges

The Town's Water and Wastewater System Capacity Charges are also known as system development charges, plant investment fees, tap fees, and a variety of other terms.[2] As

[1] The Sewer In-Lieu-of Assessment Fee was established in 1993 when the Town's original wastewater collection system was constructed using statutory improvement districts. It was intended to ensure that properties (typically zoned commercial) that were not yet developed and which had paid a minimal assessment paid their fair share of system costs (since once developed they would contribute a greater amount of wastewater than their initial assessment had paid for). The In-Lieu-of-Assessment Fee is calculated based on a complex formula utilizing fixture units and equivalent septic tank sizing calculations. These calculations require knowledge of original assessment amounts for the particular property involved and information on intervening parcel splits or combinations.

[2] In Arizona two different statutes are the basis for one-time charges or fees paid by new customers for system capacity. ARS §9-463.05 is part of municipal subdivision regulations and provides for development fees to offset

described in the Sixth Edition of the American Water Works Association publication *Manual of Water Supply Practices M1, Principles of Water Rates, Fees, and Charges*, these types of charges are meant to compensate a community for the cost of acquiring, constructing and extending infrastructure to support new development:

> "[Such assessments are] a one-time charge paid by a new water system customer for system capacity. It is also assessed to existing customers requiring increased system capacity. The receipts from this charge are used to finance the development of capacity-related water facilities and are an important funding/financing source for growth-related or capacity-related water facilities."

Such one-time charges cannot cover operational and maintenance expenses, or the repair and replacement of existing infrastructure or facilities. The revenues collected must be dedicated solely for infrastructure expansion required by new development. And, the charges must be proportional to a new development's share of infrastructure costs.

3. Discussion of Calculation Methodologies

The three primary industry accepted methodologies for calculating one-time payments for increased system capacity are the Equity Buy-In, Incremental Cost, and Hybrid approaches. Which is used for a particular entity at a particular time is based on unique circumstances.

3a. Equity Buy-In Method

The Equity Buy-In method is appropriate for utility systems with existing available capacity to meet the demands imposed by new development. This method estimates the value of a unit of system capacity based upon the equity in existing capacity-related assets. The resulting capacity charge reflects the proportional cost of new customer's share of existing system capacity. Under the Equity Buy-In method, the cost of existing capacity-related facilities is generally estimated using current replacement cost. However, some utilities (depending on their unique circumstances) choose to value existing capacity-related assets at original cost, net book value, or replacement cost less depreciation. Generally excluded from the valuation of existing capacity-related assets are local service lines that are dedicated to serving existing customers and all assets contributed by or paid for by developers. The outstanding principal payments

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costs associated with providing necessary public services to new developments,. And, ARS §9-511.01 is part of authority for municipalities to engage in businesses of a public nature and provides for assessing water or wastewater rates or rate components, fees or service charges in the domestic water or wastewater business. Town water and wastewater system capacity charges are based on ARS §9-511.01. This was initially for historical reasons since monthly utility rates authorized under that statute were the initial source for repaying bonds to purchase water and wastewater improvements for existing customers. It followed that subsequent one-time charges for new customers (also used to pay off bonds) would be adopted under the same statutory process. Moreover, the charges under this latter statute have been distinguished from development fees adopted under the former statute in that they have looked backward and charged new customers for that increment of the remaining capacity in current public resources that those customers are using up. Development fees, on the other hand, typically look forward and charge residents of new developments for their share of facilities expected to be needed because of the new developments. In the end, both types of one-time payments finance new improvements for new customers. But, utility capacity charges start by attempting to recover "lost opportunity costs" for already-built facilities.

associated with the debt used to construct capacity-related assets are generally also deducted because these costs will be recovered from present and future ratepayers via their water and/or wastewater rates.

3b. Incremental Cost Method

The Incremental Cost Method focuses on the cost of the additional capacity-related assets required to serve new customers. The incremental cost method is most appropriate for utility systems that do not have existing available capacity. The resulting capacity charge reflects the proportional cost of each new customer's share of future system capacity. As such, the Incremental Cost Method is most appropriately used when a utility has a well-defined capital improvement program or utility master plan. Under the incremental cost method, debt principal payments associated with the financing of planned new capacity-related assets are generally deducted because this cost will be recovered from present and future ratepayers via their water and wastewater rates.

3c. Hybrid Method

It is common for many water and wastewater utilities to use a combination or "hybrid" of these two approaches. This hybrid approach is used when a utility has some existing system capacity to accommodate growth but will also be required to construct additional new capacity in the future. For example, if a wastewater utility has adequate treatment capacity to accommodate long-term demand growth (but has a short-term shortage of backbone transmission main and pumping capacity), it may be appropriate to utilize the Equity Buy-In method to calculate that portion of the capacity charges associated with its wastewater treatment plant capacity and then the Incremental Cost Method to calculate that portion related to planned future transmission main and pumping capacity additions.

4. Historical Background: Town Water and Wastewater System Capacity Charges

4a. Water System Capacity Charges

On July 11, 1996, Town Resolution No. 683 first adopted a Water System Capacity Charge for the new Town water system operating north of State Route 69 in the Viewpoint subdivision. On January 14, 1999, the new Prescott Valley Water District adopted by its Resolution No. 7 a significantly higher Water System Capacity Charge as part of the acquisition of the former Shamrock Water Company which provided water to the rest of Prescott Valley.

On August 30, 2001, Town Resolution No. 1034 substantially increased the Water System Capacity Charge for the Town system to meet anticipated growth of that system. On July 11, 2002, Town Resolution No. 1095 (and PVWD Resolution No. 35) revised the methodology for calculating system capacity charges and water resource charges for new residential, commercial and industrial uses in order to eliminate cumbersome and inconsistent administration thereof.

On August 31, 2006, Town Resolution No. 1456 increased the Water System Capacity Charge based on a capital improvement plan that included additional wells costing $3,154,730, additional storage costing $346,667, additional well capacity costing $3,560,000, and other miscellaneous costs of $700,000. At the same time, PVWD Resolution No. 66 actually decreased the District's Water System Capacity Charge based on a capital improvement plan of equipping the Legend Larry Well in the north well field ($600,000), drilling and equipping the Half Pint Well in the north well field ($1,000,000), building a 1MG water storage tank in Granville ($550,000), building a 2MG water storage tank in Stoneridge ($1,750,000), moving the water pressure reduction valve for North Central University ($50,000), upgrading the SCADA control system ($200,000), building new water mains ($728,000), building new wells for the upper system (including potential effluent recovery wells) ($2,050,000), building a new triplex 20" discharge main ($1,530,000), installing a pressure reduction valve at Glassford Hill Road and Lake Shore Drive ($18,000), building new wells for the lower system (including potential effluent recovery wells) ($2,050,000), and building transmission mains in SR 69 from a future well field to zone 7 ($3,170,000).

On March 13, 2008, the PVWD system was merged into the Town system by Resolution No. 1570. And, the same day, PVWD adopted Resolution No. 70 refunding its bonds, selling its system, and liquidating itself in accordance with Arizona Revised Statutes. The MPC Board adopted its Resolution No. 08-01 to sell its refunding bonds, purchase the PVWD system, and enter into a purchase agreement with the Town. When Town Council Resolution No. 1602 was adopted on August 23, 2008, it listed a separate Water System Capacity Charge for the former Town system of $1,570 and a Charge for the former District system of 1,311. From that time until Resolution No. 1761 (September 22, 2011) steps were taken to finally equalize the rates for the two systems. Now that they are equalized, it is proposed that the Water System Capacity Charges for the two areas be equalized.

Table 2
Current Town of Prescott Valley Water System Capacity Charges

Development Type	Single-Family Residential Equivalency	Water System Capacity Charge North of Highway 89A	Water System Capacity Charge South of Highway 89A
Single-Family Residential (RDE)	1.00 RDE	$,1570	$1,311
Multi-Family Residential (per Dwelling Unit)			
Duplexes, Triplexes, Fourplexes	0.85 RDE	$1,334	$1,114
Apartments / Condominiums	0.80 RDE	1,256	1,048
Hotels / Motels	0.50 RDE	785	655
Non-Residential (per fixture unit)	Fixture Unit	$62.80	$52.44

4b. Wastewater System Capacity Charges

On December 28, 1994, the Town Council adopted Resolutions No. 600, 601 & 602 to issue $8,000,000 in sewer revenue refunding bonds to repay an FmHA loan in that amount for phase 1 of the Town's Wastewater Treatment Plant. This expenditure had previously been approved by the electors in votes held on November 6, 1990 ($10,000,000 authority) and March 8, 1994 ($11,400,000 authority). The Town then issued $4,140,000 in sewer revenue refunding bonds for phase 2 of the WWTP by Resolution No. 724 (November 21, 1996). These bonds were payable through revenues raised by the monthly wastewater user charge and a commitment of $300,000 in Transaction Privilege Tax subsidies from the Town's general fund.

In November 2000, a citizen's utility rate study committee began to consider new monthly wastewater rates and eventually recommended a new one-time Wastewater System Capacity Charge. On August 30, 2001, Resolution No. 1033 set that Charge at $1,755. With this new Charge and other rates in place, the Town issued $10,545,000 in refunding bonds to retire the 1994 and 1996 bonds (Resolution No. 1175, March 27, 2003). Then, on January 27, 2005 (Resolution No. 1325) the Town entered into a loan agreement with the Water Infrastructure Finance Authority of Arizona for $9,317,470 towards financing phase 3 of the WWTP. This used up the remaining revenue bond authority but was insufficient to cover the construction contract amount of $17,645,000 approved on August 11, 2005. Fortunately, new rules allowed WIFA to offer the Town a second loan for $5,000,000 without the need for another election. This loan was approved on February 8, 2007 (Resolution No. 1485). The Town Council then budgeted the remainder ($3,327,540) in FY 2006-07 from unspent Town reserves. The loans were each payable over 20 years using revenues from the Charge and from monthly wastewater rates.

In 2006, the Wastewater System Capacity Charge was substantially increased to $3,162 per residential dwelling unit equivalent based on a capital improvement plan for the phase 3 WWTP expansion ($5,400,000), the Castle Canyon Mesa Sewer Conversion Project ($ 570,000), the phase 4 WWTP expansion ($35,000,000), gravity sewer main additions to serve Granville ($1,337,000), and collection system improvements along SR 89A ($1,821,000).

Table 3
Current Town of Prescott Valley Wastewater System Capacity Charges

Development Type	Single-Family Residential Equivalency	Wastewater System Capacity Charge
Single-Family Residential Equivalent (RDE)	1.00 RDE	$3,162
Multi-Family Residential (per Dwelling Unit)		
Duplexes, Triplexes, Fourplexes	0.85 RDE	$2,687
Apartments / Condominiums	0.80 RDE	2,529
Hotels / Motels	0.50 RDE	1,581
Non-Residential (per fixture unit)	Fixture Unit	$126.48

5. Current Assessment Methodology

5a. Single-Family Residential

The Town's current Water and Wastewater System Capacity Charges are based on the foundational unit of measure called a single-family residential dwelling unit equivalent (RDE). A RDE reflects the estimated capacity demand (i.e., billed water consumption or billed wastewater discharges) imposed on the Town's utility systems by a detached single-family residential dwelling. Historically, one RDE is considered to accommodate a total of 25 plumbing fixture units (dishwashers, showers, sinks, toilets, washing machines, etc.). As defined by the International Plumbing Code, all water using devices are assigned a fixture unit count. For example, a toilet may be three fixture units and a bathroom sink may be one fixture unit.

5b. Multi-Family Residential

The current Water and Wastewater System Capacity Charges for multi-family residential developments are also charged on a dwelling unit basis. The capacity demands imposed by each dwelling unit in a duplex, triplex, or fourplex are assumed to be equivalent to 85% of that imposed by a RDE (approximately 21 fixture units). Therefore, the Charges assessed for each dwelling unit in a duplex, triplex, or fourplex development are 85% of that paid by a RDE. Similarly, the capacity demands imposed by each dwelling unit in an apartment building or condominium are assumed to be equivalent to 80% of that imposed by a RDE (approximately 20 fixture units). As a result, the Water and Wastewater System Capacity Charges assessed for each dwelling unit in an apartment building or condominium are 80% of that paid by a RDE.

5c. Non-Residential

The Water System Capacity Charges for non-residential developments (e.g., commercial, industrial and institutional buildings) are assessed based on the actual number of fixture units in each property. The amount charged for each non-residential fixture unit is equivalent to cost per fixture unit for a RDE. As discussed above, a RDE is assumed to be equivalent to a total of 25 fixture units. For example, the Town's current single-family residential water capacity charge for developments located North of Arizona State Highway 89A is $1,570. This translates to $62.80 per plumbing fixture unit ($1,570 / 25 = $62.80). Therefore, a commercial building with 1,000 fixture units would pay a Water System Capacity Charge of $62,800 (1,000 X $62.80). A similar plumbing fixture-based approach is used by the Town for the assessment of Wastewater System Capacity Charges. In those cases in which a new development does not have readily identifiable plumbing fixtures (i.e., park or school irrigation or mining and gravel pit operations), the Town assesses these Charges based on meter size.

6. Proposed Water System Capacity Charges

6a. Cost of Capacity-Related Water CIP Additions

To accommodate projected customer demand growth during the period FY 2015 - FY 2024, the Town requires 2,500 gallons per minute (gpm) of new well capacity along with associated expansions of storage tanks, booster pumps, mains, and other system assets. As initially set forth in the June 8, 2000 “Report of Intent to Increase a Water Rate Component per ARS §9-

511.01", the Town has since employed a hybrid of the Equity-Buy In and Incremental Cost Methods to calculate proposed new Water System Capacity Charges (see Section 3b). The total estimated cost of these new facilities is $10,086,039. A comprehensive detail of the specific projects included in this amount is shown in Appendix A.

6b. Proposed Single-Family Residential Water System Capacity Charge

The proposed Water System Capacity Charge per RDE is $1,491 (using, to begin with, the Town's existing assessment methodology). As shown in Table 4, this Charge is based on per capita RDE water usage of 105.2 gallons per day. Assuming an average household size of 2.53 persons, this equates to a daily usage of 266.2 gallons per household. Based on information supplied by Town staff, the water utility maximum day demand is approximately two times greater than annual average day demand (i.e., a 2.0 maximum day peaking factor). Thus, the maximum day demand for a RDE is 532.3 gallons per day. Over a 24-hour period, this equates to 0.37 gallons per minute.

As noted above, the Town plans to add 2,500 gpm of well capacity during the period FY 2015 - FY 2024. This level of well capacity can serve up to 6,762 new RDEs. Thus, the resulting proposed single-family residential Water System Capacity Charge would be $1,491.

Table 4
Calculation of the Proposed Single-Family Residential Water System Capacity Charge

Demand and Cost Metrics	Input
Water Production Expressed on a Gallons per Capita per Day (GPCD) Basis (Total Gallons of SFR Demand + System Line Losses) / SFR Population / 365	105.19
System Coincident Maximum Day Peaking Factor	2.00
SFR Maximum GPCD Demand (SFR GPCD Demand X System Peaking Factor)	210.38
SFR Average Household Size (SFR Population / SFR Occupied Units)	2.53
SFR Maximum Day Demand (SFR Maximum GPCD Demand x SFR Avg. Household Size)	532.35
Number of Minutes During 24-Hour Period	1,440
SFR Maximum Day Gallons Per Minute During a 24 Hour Period	0.3697
Well Capacity Added Expressed in Gallons per Minute	2,500
Well Capacity Added Expressed in SFR Dwelling Units	6,762
CIP Includable in the Capacity Charge Calculation Over the FY 2015 - FY 2024 Planning Horizon	$10,086,039
Proposed Single-Family Residential Water System Capacity Charge	**$1,491**

6c. Proposed Multi-Family Residential Water System Capacity Charges

Table 5 shows the proposed multi-family Water System Capacity Charges calculated using the Town's current assessment methodology.

Table 5
Calculation of Proposed Multi-Family Residential Water System Capacity Charges

Multi-Family Development	Single-Family Residential Charge	Single-Family Residential Equivalency	Proposed Charge
Duplexes, Triplexes, Fourplexes	$1,491	0.85 RDE	$1,267
Apartments / Condominiums	1,491	0.80 RDE	1,192
Hotels / Motels	1,491	0.50 RDE	745

6d. Proposed Non-Residential Water System Capacity Charges

As discussed previously, the Town currently assesses water capacity charges on the basis of plumbing fixture units. The proposed single-family residential Water System Capacity Charge is proposed to be $1,491. Therefore, under the Town's current non-residential assessment methodology, the non-residential Water System Capacity Charge would be $59.64 per fixture unit ($1,491/25 plumbing fixture units).

7. Proposed Wastewater System Capacity Charges

7a. Replacement Cost of Existing Wastewater Treatment Plant

The Town's WWTP presently has a total capacity of 3.75 million gallons per day (MGD). When originally constructed, the WTP had a capacity of 2.5 MGD. The WWTP was expanded to 3.75 MGD in 2007. In accordance with past calculations of the Wastewater System Capacity Charge, RFC has valued the Town's existing WWTP capacity using the Equity Buy-In method.

RFC estimates the replacement cost of the WWTP at $66.7 million. There are two components of this cost. The first is replacement cost of the WWTP physical infrastructure. The second is the present value of the interest payments associated with debt service used to finance the 2007 expansion of the WWTP. This debt financing was obtained from the State of Arizona's Water Infrastructure Financing Authority (WIFA). The Town has utilized two WIFA loans to finance the WWTP. The first loan was in the amount of $9.3 million and the second loan was in the amount of $5.0 million. Table 6 shows a summary of the WWTP replacement cost calculation.

Table 6 Calculation of the Estimated Replacement Cost of the Wastewater Treatment Plant	
Cost and Demand Input	**Replacement Cost of WTP**
Cost of 2007 WTP 1.25 MGD Expansion	$18,000,000
Estimated Replacement Cost in 2014 Dollars	20,478,413
Present Value of WIFA Debt Interest Payments	1,764,914
Total Replacement Cost of 2007 WTP Expansion in 2014 Dollars	22,243,327
2007 Capacity WTP Added (MGD)	1.25
Cost per MGD in 2014 Dollars ($22,243,327 / 1.25 MGD)	17,794,661
Total WTP Capacity (MGD)	3.75
Estimated Replacement Cost of WTP Existing Capacity in 2014 Dollars ($17.794,661 X 3.75 MGD)	$66,729,980

7b. Cost of Capacity-Related Wastewater CIP Additions

To accommodate projected customer demand growth during the period FY 2015 - FY 2024, the Town requires the construction of capacity-related wastewater infrastructure estimated to cost $3,569,133. A comprehensive detail of the specific projects included in this amount is shown in Appendix D.

7c. Proposed Single-Family Residential Wastewater System Capacity Charge

Based on the need for capacity-related infrastructure additions and existing capacity available in the Town's WWTP, a hybrid between the Equity Buy-In and Incremental Cost methods was used to calculate a proposed new Wastewater System Capacity Charge of $3,014 (considering, initially, the current assessment methodology). Of this amount, $2,475 is associated with the cost of existing capacity in the Town's WWTP and $539 is associated with future CIP additions. Table 7 illustrates the calculation of both of these Charge components.

The value of $2,475 shown in the top half of Table 7 is based on per capita RDE wastewater discharges of 54.7 gallons per day. Assuming an average household size of 2.53 persons, this equates to a daily usage of 139.1 gallons per household. The existing WWTP has a capacity of 3.75 MGD. Thus, it has the capacity to serve an estimated 26,981 RDE. The estimated replacement cost of the Town's WWTP is $66.7 million. As a result, the WWTP portion of the single-family residential Wastewater System Capacity Charge is $2,475. The value of $539 shown in the bottom half of Table 7 is based on CIP additions of $3,569,133 and the estimated addition of 6,620 RDEs during the period FY 2015 - FY 2024. Thus, the future CIP portion of the proposed single-family residential Wastewater System Capacity Charge is $539.

Table 7 Calculation of the Proposed Single-Family Residential Wastewater System Capacity Charge	
Replacement Cost of Existing Wastewater Treatment Capacity	
Total Population	41,982
Annual Billed Wastewater Discharges	842,290,944
Estimated Wastewater Discharges Expressed on a Gallons per Capita per Day Basis (GPCD)	54.97
SFR Average Persons per Household	2.53
Estimated SFR Household Wastewater Discharges	139.09
System Maximum Day Peaking Factor	1.00
SFR Maximum Day Household Discharges	139.09
Existing WTP Capacity (Gallons)	3,750,000
Theoretical SFR Households Served By Existing Capacity	26,961
Replacement Cost New of Existing Capacity and Present Value WIFA Debt Interest	$66,729,980
Cost of Existing WTP Capacity	**$2,475**
Cost of Future CIP	
Forecast Incremental Population Growth Through 2024	16,751
SFR Average Persons per Household	2.53
Incremental SFR Households	6,620
Collection and Conveyance CIP	$2,712,668
Treatment Plant CIP	856,465
Total Future CIP	**$3,569,133**
Cost per Capacity-Related Collection & Conveyance CIP	**$539**
Proposed Single-Family Residential Wastewater System Capacity Charge	**$3,014**

7d. Proposed Multi-Family Residential Wastewater System Capacity Charges

Table 8 shows the proposed multi-family Wastewater System Capacity Charges (using, initially, the Town's current assessment methodology).

Table 8 Calculation of Proposed Multi-Family Residential Wastewater System Capacity Charges			
Multi-Family Development	**Single-Family Residential Charge**	**Single-Family Residential Equivalency**	**Proposed Charge**
Duplexes, Triplexes, Fourplexes	$3,014	0.85 RDE	$2,561
Apartments / Condominiums	3,014	0.80 RDE	2,411
Hotels / Motels	3,014	0.50 RDE	1,507

7e. Proposed Non-Residential Wastewater System Capacity Charges

As discussed previously, the Town currently assesses non-residential Wastewater System Capacity Charges on the basis of plumbing fixture units. The proposed single-family residential Wastewater System Capacity Charge is $3,014. Therefore, under the Town's current assessment methodology, the non-residential Wastewater System Capacity Charge would be $120.56 per fixture unit ($3,014/25 plumbing fixture units).

8. Discussion of Alternative Assessment Methodologies

The most common approach to assessment of utility capacity charges in Arizona and the rest of the United States is actually meter size rather than fixture units. Therefore, RFC has been tasked to discuss the advantages and disadvantages of these two approaches and then to estimate how the proposed new Charges would operate under a meter size methodology.

8a. Fixture Unit Assessment Methodology

The primary advantage of the fixture unit-based methodology is that it results in new developments being charged Water System Capacity Charges that are linearly correlated to the expected water usage associated with the number and type of fixtures. Thus, costs increase in a linear manner that is directly proportional to the number of fixture units.

The disadvantage of the plumbing fixture-based methodology is that it can be both complex and time-consuming to determine the exact number and type of plumbing fixtures used in a large non-residential property. This makes it difficult to provide estimated charges to potential new businesses. Further, there is no guarantee that actual water usage from each new development will approximate expected water usage no matter how diligently and accurately Town staff analyzes the plumbing fixture units associated with new development.

Fixture units can be correlated to meter size using standardized conversion factors. Table 9 shows the correlation currently used by the Town and the resulting Charge at the proposed non-residential Charge of $62.48 per fixture unit. [Note: the Town has no established correlation for 3/4" meters because 3/4" meters are not currently used by the Town.]

Table 9
Correlation Between Fixture Units and Meter Size -
Current Non-Residential Water System Capacity Charge Assessment Methodology

Fixture Units	Meter Size	Water System Capacity Charge at Proposed Cost of $62.48 per Fixture Unit
25	5/8"	$1,562
N/A	3/4"	N/A
63	1"	3,936
125	1/5"	7,810
200	2"	12,496
400	3"	24,992
625	4"	39,050
1.250	6"	78,100
2.000	8"	124,960

2.875	10"	179,630

8b. Meter Size Assessment Methodology

The primary advantage of using meter sizes to assess both the Water System Capacity Charges and the Wastewater System Capacity Charge is that they are easier to administer. However, it is important to note that the meter size methodology does not relieve communities from the responsibility of maintaining a "plan review" process to ensure that developers purchase a tap adequate for the demands they impose. Further, as is the case with the fixture unit approach, having a thorough plan review process does not provide a guarantee that actual water usage from each new development will approximate expected water usage.

Unlike the Town's current fixture unit methodology, Water System Capacity Charges and Wastewater System Capacity Charges assessed under a meter size approach would be based on meter flow rate equivalencies obtained from the American Water Works Association publication, *Manual of Water Supply Practices M22, Sizing Water Service Lines and Meters*. The specific metric used to establish such Charges would be the meter's maximum flow rate, expressed on a gallons-per-minute basis. The conceptual basis for using maximum flow rates to establish such Charges is that they represent the highest potential instantaneous demand that can be imposed by a customer at each meter size. The utility system must stand ready to meet such a demand and therefore should be compensated for the cost of this capability.

A summary comparison of the fixture unit and meter size approaches is presented in Table 10.

Table 10
Comparison of Fixture Unit and Meter Size Methodologies

Administrative Burden		**How Charge is Calculated?**	
Fixture Units	**Meter Size**	**Fixture Units**	**Meter Size**
Can be complex and burdensome to administer for large non-residential Properties	Easier to administer.	Charges are directly proportional to the number of fixture units.	Charges are same for each meter size regardless of demand. Customers pay the same charge over a range of consumption within an individual meter size
When Additional Charges Must Be Assessed?		**Ease of Customer Understanding**	
Fixture Units	**Meter Size**	**Fixture Units**	**Meter Size**
Additional charges must be assessed whenever fixture units are increases	Additional charges must be assessed only when meter size increases	More difficult to understand	Easy to understand

Table 11 shows the proposed Water System Capacity Charge assessment schedule using a meter size methodology. There are several things to note regarding the information shown in Table 11. First, Charges for meters up to 10" are presented. In actual practice, RFC would not recommend publishing Charges for meters greater than 4". This is because the water usage associated with meters greater than 4" is so large that the Charges for developments requiring a larger meter should be analyzed on a detailed case-by-case basis. Second, the assessment

schedule includes a Charge for 3/4" meters (in case the Town elects to begin using this meter size in the future. To do so would allow for a smaller Charge increase than occurs when going directly from a 5/8" to 1" meter).

Table 11
Proposed Water System Capacity Charges Based on Meter Size Assessment Methodology

Meter Size	Maximum Flow Rate (GPM)	Flow Rate Equivalencies	Proposed Water System Capacity Charges Based on Meter Flow Rate Equivalencies
5/8"	25	1.00	$1,491
3/4"	38	1.52	2,266
1"	63	2.52	3,757
1 1/2"	125	5.00	7,455
2"	200	8.00	11,928
3"	400	16.00	23,856
4"	625	25.00	37,275
6"	1250	50.00	74,550
8"	2000	80.00	119,280
10"	3600	144.00	$214,704

Table 12 shows the proposed Wastewater System Capacity Charge assessment schedule using a meter size methodology.

Table 12
Proposed Wastewater System Capacity Charges Based on Meter Size Assessment Methodology

Meter Size	Maximum Flow Rate (GPM)	Flow Rate Equivalencies	Proposed Wastewater System Capacity Charges Based on Meter Flow Rate Equivalencies
5/8"	25	1.00	$3,014
3/4"	38	1.52	4,582
1"	63	2.52	7,596
1 1/2"	125	5.00	15,071
2"	200	8.00	24,114
3"	400	16.00	48,228
4"	625	25.00	75,356
6"	1250	50.00	150,711
8"	2000	80.00	241,138
10"	3600	144.00	$434,048

8c. Recommendation

RFC recommends that the Town begin assessing both Water System Capacity Charges and Wastewater System Capacity Charges for all types of development based on meter size. This change will allow for enhanced comparability with the comparable charges of other communities. It will also make it easier for the Town's staff to provide estimated Charges to potential new businesses.

[Note: Although, the Town's Water Resources Charge was not analyzed as part of this study, if it chooses to do so the Town could also assess that Charge based on meter size. This is the approach currently used by the Town to assess both the Water System Capacity Charge and the Water Resource Charge for developments that do not have identifiable fixtures.]

9. Cash Flow Forecasts

The last step in the process of developing Water and Wastewater System Capacity Charges is to prepare a forecast of cash flows for the planning horizon in question. This cash flow forecast allows the Town to determine whether the proposed Charges will produce a level of revenue that is adequate to cover the cost of planned infrastructure given the projected growth in new development. Appendix B to this Report shows the forecast level of new development for the FY 2015 - FY 2024 planning horizon. The growth assumptions shown in Appendix B are comparable to those used in other Town planning documents. Appendix C shows the final outcome of the proposed new Water System Capacity Charges. And, Appendix D shows the final outcome of the proposed new Wastewater System Capacity Charges.

Detail of Planned Water CIP Expenditures

Appendix A

Project Description	Year	Cost in 2014 Dollars	% Growth	Paid by Capacity Fees?	Forecast CIP Expenditures										Total CIP	CIP Paid by Capacity Fees	CIP Paid by Other Sources
					FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24			
Wells																	
New well field - transmission main(s) in Zone 10 - Just south of Superstition Drive, Zone 3	2024	$1,466,559	100.0%	Yes										$1,466,559	$1,466,559	$1,466,559	
New well capacity for Upper District System (1,000 gpm)	2017	$1,200,000	100.0%	Yes			$1,200,000								$1,200,000	$1,200,000	
Additional well capacity for Lower District System (1,000gpm)	2023	$1,200,000	100.0%	Yes									$1,200,000		$1,200,000	$1,200,000	
Additional well capacity for Municipal System (1,000gpm)	2016	$1,200,000	100.0%	No		$1,200,000									$1,200,000		$1,200,000
Additional well capacity for Mingus West/Fairgrounds System (500 gpm)	2020	$750,000	100.0%	Yes						$750,000					$750,000	$750,000	
Total Wells		$5,816,559			$0	$1,200,000	$1,200,000	$0	$0	$750,000	$0	$0	$1,200,000	$1,466,559	$5,816,559	$4,616,559	$1,200,000
Tanks																	
Stoneridge Water Tank 2.0 MG	2020	$2,618,856	100.0%	Yes						$2,618,856					$2,618,856	$2,618,856	
Total Tanks		$2,618,856			$0	$0	$0	$0	$0	$2,618,856	$0	$0	$0	$0	$2,618,856	$2,618,856	$0
Booster Pumps																	
Duplex Booster Pump Station Upgrade	2017	$2,330,782	100.0%	No			$2,330,782								$2,330,782		$2,330,782
Total Booster Pumps		$2,330,782			$0	$0	$2,330,782	$0	$0	$0	$0	$0	$0	$0	$2,330,782	$0	$2,330,782
New Mains																	
Zone 7 Improvements (Manzanita Trail and Durham/Piebald) and fire flow (Tapadero Drive)	2018	$1,243,956	0%	No					$1,243,956						$1,243,956	$0	$1,243,956
Zone 2 Improvements (all planned looping mains) and fire flow (Robert Road	2024	$5,368,654	35%	Yes										$5,368,654	$5,368,654	$1,879,029	$3,489,625
Grapevine Growth - 12" and 16" Pipes	2020	$2,252,216	100%	No						$2,252,216					$2,252,216	$0	$2,252,216
Zone 4 Growth-16" main to the northwest of existing Zone 4	2017	$4,857,977	100%	No			$4,857,977								$4,857,977	$0	$4,857,977
Zone 2/Viewpoint/Pronghorn Improvements-including large mains along SR89A	2020	$3,705,681	100%	No						$3,705,681					$3,705,681	$0	$3,705,681
Zone 5 Growth-12" main to extended Zone 5 northwest of existing Zone 5	2017	$1,558,219	100%	No			$1,558,219								$1,558,219	$0	$1,558,219
New Triplex 20" Discharge Main	2018	$1,741,539	50%	Yes				$1,741,539							$1,741,539	$870,770	$870,770
Viewpoint/Pronghorn Improvements includes 12" looping mains and 24" main along SR 89A	2017	$5,964,444	100%	No			$5,964,444								$5,964,444	$0	$5,964,444
Zone 7 Improvements - Parallel tank discharge line and Zone 7 reinforcements	2020	$314,263	0%	No						$0	$314,263				$314,263	$0	$314,263
Zone 10 Improvements - Looping mains along Tonto	2020	$746,374	0%	No						$0	$746,374				$746,374	$0	$746,374
Zone 4 Improvements-Looping mains along Antelope, Bison, Castle, Kings Hwy and Frontage Road	2024	$2,671,233	100%	No										$2,671,233	$2,671,233	$0	$2,671,233
New PRV station at Glassford Hill Road and Lakeshore Drive	2018	$100,826	100%	Yes				$100,826							$100,826	$100,826	
Total New Mains		$30,525,383			$0	$0	$12,380,641	$1,842,365	$1,243,956	$5,957,897	$1,060,637	$0	$0	$8,039,887	$30,525,383	$2,850,624	$27,674,758
Total Water CIP		$41,291,579			$0	$1,200,000	$15,911,422	$1,842,365	$1,243,956	$9,326,753	$1,060,637	$0	$1,200,000	$9,506,446	$41,291,579	$10,086,039	$31,205,540

Forecast of New Development

Appendix B

Land Use	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Single Family Residential - Specific Developments										
StoneRidge	43	45	47	49	51	54	56	59	61	64
Total Developed	1,011	1,056	1,103	1,152	1,203	1,257	1,313	1,372	1,433	1,497
YOY % Growth	4.4%	4.5%	4.5%	4.4%	4.4%	4.5%	4.5%	4.5%	4.4%	4.5%
Pronghorn Ranch	33	34	36	37	39	41	43	45	47	49
Total Developed	772	806	842	879	918	959	1,002	1,047	1,094	1,143
YOY % Growth	4.5%	4.4%	4.5%	4.4%	4.4%	4.5%	4.5%	4.5%	4.5%	4.5%
Granville	58	61	64	67	70	73	76	79	83	87
Total Developed	1,364	1,425	1,489	1,556	1,626	1,699	1,775	1,854	1,937	2,024
YOY % Growth	4.4%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Mingus West	4	4	4	5	5	5	5	6	6	6
Total Developed	107	111	115	120	125	130	135	141	147	153
YOY % Growth	3.9%	3.7%	3.6%	4.3%	4.2%	4.0%	3.8%	4.4%	4.3%	4.1%
Prescott Country Club - 6	3	3	3	4	4	4	4	4	4	5
Total Developed	83	86	89	93	97	101	105	109	113	118
YOY % Growth	3.8%	3.6%	3.5%	4.5%	4.3%	4.1%	4.0%	3.8%	3.7%	4.4%
Viewpoint	56	58	61	63	66	69	72	76	79	83
Total Developed	1,303	1,361	1,422	1,485	1,551	1,620	1,692	1,768	1,847	1,930
YOY % Growth	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.5%	4.5%	4.5%
Quailwood Meadows & Townhomes	29	31	32	33	35	37	38	40	57	0
Total Developed	692	723	755	788	823	860	898	938	995	995
YOY % Growth	4.4%	4.5%	4.4%	4.4%	4.4%	4.5%	4.4%	4.5%	6.1%	0.0%
Single Family Residential Other	187	185	182	180	176	172	169	164	145	197
Total Single Family Residential	413	421	429	438	446	455	463	473	482	491
Multi-Family Residential	181	186	191	197	202	208	213	219	225	232
Mobile Homes	120	124	128	133	138	143	148	153	158	164
Non-Residential										
Incremental Square Footage of Development	139,724	143,833	148,074	152,452	156,972	161,637	166,454	171,428	176,563	181,866
Estimated Fixture Units	377	377	377	402	402	402	427	427	427	427

Water Capacity Charge Fund Cash Flow

Appendix C

Metric	Forecast										Total
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 15- 24
Sources of Funds											
Water Capacity Charge Receipts											
Single Family Residential	$578,849	$652,125	$664,803	$684,306	$696,983	$709,661	$722,338	$740,397	$754,342	$770,999	6,974,803
Multi-Family	202,921	222,040	228,123	235,220	241,303	248,401	254,484	261,581	268,678	276,789	
Mobile Home	134,328	148,026	153,096	158,165	164,249	170,332	176,415	182,498	188,582	195,679	
Non-Residential	21,127	22,484	22,484	23,975	23,975	23,975	25,466	25,466	25,466	25,466	
Total Water Capacity Charge Receipts	937,225	1,044,676	1,068,506	1,101,666	1,126,510	1,152,368	1,178,703	1,209,942	1,237,068	1,268,934	11,325,599
Debt Proceeds											
New Bond Issue	0	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	937,225	1,044,676	1,068,506	1,101,666	1,126,510	1,152,368	1,178,703	1,209,942	1,237,068	1,268,934	11,325,599
Uses of Funds											
Developer Credits	0	0	0	0	0	0	0	0	0	0	0
CIP Expenditures Paid by Capacity Charges											
Wells	0	0	1,200,000	0	0	750,000	0	0	1,200,000	1,466,559	
Tanks	0	0	0	0	0	2,618,856	0	0	0	0	
Booster Pumps	0	0	0	0	0	0	0	0	0	0	
Mains	0	0	0	971,595	0	0	0	0	0	1,879,029	
Total CIP Expenditures Paid by Capacity Charges	0	0	1,200,000	971,595	0	3,368,856	0	0	1,200,000	3,345,588	10,086,039
Total Debt Service	0	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	0	0	1,200,000	971,595	0	3,368,856	0	0	1,200,000	3,345,588	10,086,039
Annual Surplus / (Deficit)	937,225	1,044,676	(131,494)	130,071	1,126,510	(2,216,487)	1,178,703	1,209,942	37,068	(2,076,654)	1,239,560
Beginning Balance	0	937,225	1,981,901	1,850,406	1,980,477	3,106,988	890,500	2,069,204	3,279,146	3,316,214	
Add: Surplus / (Deficit)	937,225	1,044,676	(131,494)	130,071	1,126,510	(2,216,487)	1,178,703	1,209,942	37,068	(2,076,654)	
Ending Balance	$937,225	$1,981,901	$1,850,406	$1,980,477	$3,106,988	$890,500	$2,069,204	$3,279,146	$3,316,214	$1,239,560	

Detail of Planned Wastewater CIP Expenditures

Appendix D

Project Description	Cost in 2014 Dollars	% Growth	Paid by Capacity Fees	Forecast CIP Expenditures										Total CIP	CIP Paid by Capacity Fees	CIP Paid by Other Sources
				FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24			
Collection and Conveyance System																
Collection System Development Along the Highway 89A corridor	$482,361	100.0%	Yes						$482,361					$482,361	$482,361	$0
Roundup Drive Gravity Main Replacements	$452,214	80.7%	Yes	$452,214										$452,214	$364,936	$87,277
Viewpoint Interceptor Gravity Main Replacement	$130,183	88.6%	Yes				$130,183							$130,183	$115,342	$14,841
Gravity Main Additions Serving Granville (off-site up-sizing)	$1,233,310	86.4%	Yes		$1,233,310									$1,233,310	$1,065,580	$167,730
Gravity Mains Replacement East of Ranger Road	$807,133	84.8%	Yes	$807,133										$807,133	$684,449	$122,684
Total Collection and Conveyance CIP	$3,105,200			$1,259,346	$1,233,310	$0	$130,183	$0	$482,361	$0	$0	$0	$0	$3,105,200	$2,712,668	$392,532
Wastewater Treatment																
Headworks Improvements	$1,712,930	50.0%	Yes			$1,712,930								$1,712,930	$856,465	$856,465
	$1,712,930			$0	$0	$1,712,930	$0	$0	$0	$0	$0	$0	$0	$1,712,930	$856,465	$856,465
Total Wastewater CIP	$4,818,131	100.0%		$1,259,346	$1,233,310	$1,712,930	$130,183	$0	$482,361	$0	$0	$0	$0	$4,818,131	$3,569,133	$1,248,998

Wastewater Capacity Charge Fund Revenue Forecast

Appendix E

Metric	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	Total FY 15- 24
Sources of Funds											
Wastewater Capacity Charge Receipts											
Single Family Residential	$1,275,698	$1,324,336	$1,349,957	$1,391,166	$1,416,787	$1,442,408	$1,468,029	$1,505,550	$1,533,733	$1,568,166	14,275,832
Multi-Family	447,282	448,878	461,176	475,523	487,821	502,169	514,467	528,815	543,162	559,560	4,968,853
Mobile Home	185,055	187,032	193,438	199,843	207,529	215,215	222,902	230,588	238,274	247,241	2,127,117
Non-Residential	46,567	45,451	45,451	48,465	48,465	48,465	51,479	51,479	51,479	51,479	488,781
Total Wastewater Capacity Charge Receipts	1,954,602	2,005,697	2,050,022	2,114,998	2,160,603	2,208,258	2,256,877	2,316,432	2,366,649	2,426,447	21,860,584
Debt Proceeds											
New Bond Issue	0	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	1,954,602	2,005,697	2,050,022	2,114,998	2,160,603	2,208,258	2,256,877	2,316,432	2,366,649	2,426,447	21,860,584
Uses of Funds											
Developer Credits	0	0	0	0	0	0	0	0	0	0	0
CIP Expenditures Paid by Capacity Charges											
Collection and Conveyance	1,049,385	1,065,580	0	115,342	0	482,361	0	0	0	0	2,712,668
Treatment Plant	0	0	856,465	0	0	0	0	0	0	0	856,465
Total CIP Expenditures Paid by Capacity Charges	1,049,385	1,065,580	856,465	115,342	0	482,361	0	0	0	0	3,569,133
Debt Service from Existing Debt											
Bond Issuance Costs											0
Principal	694,322	717,309	741,059	773,375	816,969	844,202	872,163	901,049	930,894	969,335	8,260,677
Interest	296,468	272,718	248,180	222,828	196,636	169,574	141,616	112,728	82,882	52,046	1,795,676
Total Existing Debt Service	990,790	990,027	989,239	996,203	1,013,605	1,013,776	1,013,779	1,013,777	1,013,776	1,021,381	10,056,353
Debt Service from Proposed Debt											
Bond Issuance Costs	0	0	0	0	0	0	0	0	0	0	0
Principal	0	0	0	0	0	0	0	0	0	0	0
Interest	0	0	0	0	0	0	0	0	0	0	0
Total Proposed Debt Service	0	0	0	0	0	0	0	0	0	0	0
Total Debt Service	990,790	990,027	989,239	996,203	1,013,605	1,013,776	1,013,779	1,013,777	1,013,776	1,021,381	10,056,353
Total Uses of Funds	2,040,175	2,055,607	1,845,704	1,111,545	1,013,605	1,496,137	1,013,779	1,013,777	1,013,776	1,021,381	13,625,486
Annual Surplus / (Deficit)	(85,573)	(49,909)	204,317	1,003,453	1,146,998	712,120	1,243,098	1,302,655	1,352,873	1,405,066	8,235,097
Beginning Balance	0	(85,573)	(135,482)	68,835	1,072,288	2,219,286	2,931,406	4,174,504	5,477,159	6,830,032	
Add: Surplus / (Deficit)	(85,573)	(49,909)	204,317	1,003,453	1,146,998	712,120	1,243,098	1,302,655	1,352,873	1,405,066	
Ending Balance	($85,573)	($135,482)	$68,835	$1,072,288	$2,219,286	$2,931,406	$4,174,504	$5,477,159	$6,830,032	$8,235,097	