



City of Scottsdale

Development Fee Report

March 7, 2018



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CHAPTER 1. INTRODUCTION

Background

The City of Scottsdale (City or COS) has grown from a small community with a population of 2,000 in 1951, to a vibrant community of more than 238,000 persons encompassing an area of 185 square miles. Scottsdale is transitioning from a growth-oriented community to a mature City environment emphasizing economic development, revitalization, and sustainability. Based on current trends, the City's updated 2017 Land Use Assumptions (LUA) estimates Scottsdale's population in 2035 to approach 290,800.

To address the challenges of providing water and wastewater system capacity to new customers and ensure development pays its proportionate share of the capital costs for that capacity, the City has historically charged development fees for water, wastewater, and water resources. Development fees are one-time capital charges to fund the construction of public facilities needed to accommodate new development.

The City last updated its development fees in 2014 under the requirements of Arizona Revised Statutes (ARS) §9-463.05. As part of that update, the City engaged Raftelis Financial Consultants, Inc. (Raftelis) to calculate the fees with an objective of minimizing previous fluctuations in the costs of water and wastewater capacity that resulted from the effects that evolving development trends and legislative changes had on updates to the fees.

In 2011, Arizona enacted Senate Bill (SB) 1525 which required all development fees existing at that time be replaced by August 1, 2014 with fees adopted under new adoption procedures, guidelines, and requirements. As part of the adoption procedures, the legislation requires that fee structures be based on an adopted Land Use Assumptions (LUA) Report and an Infrastructure Improvements Plan (IIP) Report which is a central document disclosing existing infrastructure, available capacity, planning and cost estimates for new infrastructure required to serve development. Finally, the legislation requires this report be prepared to document the methodology used to calculate and assess the development fees to new development.

The City's 2013 LUA Report, 2013 IIP Report, and its collection of the current development fees were the subject of a 2016 independent audit which was performed by Raftelis. The biennial audit is required by ARS §9-463.05 to evaluate the progress of the growth and planning assumptions and to evaluate any inequities in implementing the plan, the amount of the fees assessed, collected, and spent on capital facilities; or in imposing the development fee. The Raftelis audit concluded that both the LUA Report and IIP Report sufficiently addressed and provided the information required by ARS §9-463.05, and that the progress of the plans and the collection and expenditures of the development fees did not result in any inequities.

Statement of Intent – Development of Impact Fees

One mechanism used by the City to fund the infrastructure needed to accommodate new growth is the assessment of development impact fees, which will hereinafter be called development fees in this Development Fee Report (Report). Development fees are one-time payments that represent the “proportionate share” of infrastructure capital costs needed to accommodate new Equivalent Demand Units (EDUs). For the purposes of this Report, the City has 2 development fees.

- **Water Development Fees** provide funds for the cost of new or expanded facilities for the supply, transportation, treatment, purification, and distribution of water, and the pumping and storage infrastructure required by new EDUs within the City’s Service Area. Water Supply is an essential part of Water Services and a portion of the Water Development Fee attributable to new EDUs for Water Supply that pays only for acquiring, transporting, treating, and managing through recharge to, and recovery from, underground aquifers, new or renewable supplies of water required by new EDUs; and
- **Wastewater Development Fees** provides funds for the cost of sewers, lift stations, reclamation plants, wastewater treatment plants and facilities for the collection, interception, treatment, transportation, and disposal of wastewater and any appurtenances for new or expanded facilities required by new EDUs.

Purpose of Development Fee Report

The City must prepare and make public a Development Fee Report that documents the methodology used to determine the fees, the approach used to assess the fees to development, and provides a schedule of fees. This Report meets these requirements and describes the City of Scottsdale's updated water and wastewater development fees which were determined based on the analysis and data documented in the LUA Report adopted on March 6, 2018 and the Infrastructure Improvements Plan (IIP) Report adopted on March 6, 2018. Consistent with the LUA and IIP reports, the updated water and wastewater development fees have been developed for a 10-year period, 2017 to 2027, and must be updated at least every 5 years as part of the update of the LUA and IIP.

As mentioned above, the current fee methodology and 2014 Development Fee Report were prepared by Raftelis. This Report is prepared by Confluence Consulting, LLC (Confluence) in conjunction with Raftelis and by the same key financial consultants that previously assisted the City.

CHAPTER 2. WATER DEVELOPMENT FEES

Chapter 2 of the Development Fee Report documents the methodology used to determine the water development fee. The Necessary Public Services funded by the water development fee includes water treatment, distribution, and water supply.

2.1 Water Service Area

The City's water treatment and distribution system is interconnected and is treated as one integrated system within the City's service area. For more information on the water service area, see the 2017 IIP Report.

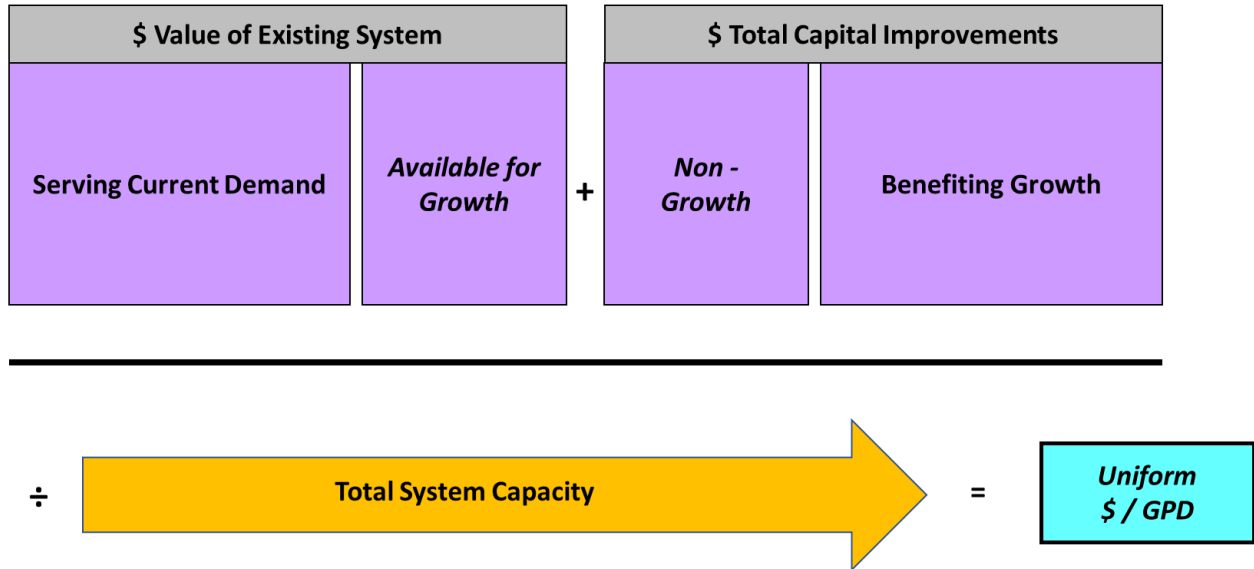
2.2 Current Water Development Fee Methodology

The current water development fee, adopted as part of the 2014 Development Fee Study, was determined based on the system average cost approach which focuses on the total value and total capacity of the utility systems. Specifically, the approach was designed to recover the current value of all existing facilities available to serve existing current demand and anticipated future demand; plus the total capital improvements to those systems needed to serve anticipated future demands. Since the costs recovered under this current approach represents the total system value, it was appropriate to determine the unit cost per gallon per day (gpd) under this approach by dividing the total system costs by the total existing and planned system capacity for the 10-year planning period.

Figure 1 below demonstrates that the total system value was identified and included in the value used to determine the development fees under the current system average cost approach.

**Figure 1:
System Average Cost Approach**

Focuses on Total System Value and Total System Capacity



The above diagram demonstrates the general method used to determine development fees under the current system average cost approach. However, ARS §9-463.05 allows other components such as future interest payments on debt benefiting new customers and requires a debt principal credit on debt that is recovered through monthly customer utility charges.

The current system average cost approach determines the water development fees based on the following:

- Reflects the average costs of current and future facilities based on a 10-year water IIP planning period.
- Excludes capital improvements identified as replacements or upgrades to the existing water facilities in the capital expansion component of the development fee.
- Recovers approximately 15% of the buy-in value for the Advanced Water Treatment (AWT) facilities as a water supply component.
- Integrates the water supply component into the water development fee.
- Excludes the buy-in value for the existing water rights available to serve new EDUs in the costs to be recovered through the water development fee.
- Determines the capacity available for new water EDUs using peak day water usage.

- Determines the system average cost per gpd of water capacity by dividing the costs of existing capacity plus the planned capital improvements benefitting new customers by the total existing and planned water treatment capacity during the 10-year planning period.
- The water buy-in facilities consist of replacement cost new less depreciation (RCNLD) of the city's current facilities necessary to serve new EDUs.
- Includes all planned expansion costs for facilities needed to serve new EDUs.
- A debt principal credit is provided for outstanding principal on funds borrowed, or anticipated to be borrowed, to construct the facilities that benefit new customers but are repaid through the user rates generated by those new customers.
- Includes future interest expense on funds borrowed, or anticipated to be borrowed, to construct the facilities that benefit new customers.
- Excludes facilities contributed by developers and others from the total value eligible to serve new EDUs.

This hybrid approach recognizes that new customers of utility systems benefit from both facilities already in place and planned capital projects required to expand and extend capacity. The development fees are determined to reflect the average unit cost of the planned system capacity based on previous and planned investments in the system divided by the total capacity in those facilities. This hybrid approach essentially puts the unit cost of capacity for existing and future customers on par.

2.3 New Enhancements to Water Development Fee Methodology

The current development fees were developed in 2014 to be consistent with the provisions of ARS §9-463.05. The development fees calculated as part of this update are based on the same methodology used in 2014 and described above, with slight modifications to the components related to recovering future interest payments on debt benefitting new customers and the debt principal credit provided on debt that is recovered through monthly user rates. The modifications to these components of the water development fee include the following:

- The calculation of the interest expense component is now determined based on the total \$40.4 million (see Schedule 1, in Appendix) in outstanding interest payments remaining on debt issues used to finance the construction of infrastructure improvements and facility expansions included in the water IIP and that will be paid for with water development fee funds. The total remaining interest payments are divided by the 25.54 mgd of additional future water demands anticipated during the 20-year amortization period (2017 through 2037) in which those remaining payments will occur. This modification is recommended to ensure the interest component methodology reflects the full cost recovery of the remaining growth-related interest payments. The current interest component methodology does not reflect full cost recovery as it divides the present value of the remaining annual payments by total annual water system demands (existing and future) during that year.

- The calculation of the debt principal credit component will continue to be determined by dividing the remaining annual principal payments on debt issues to be funded through annual user rates by the total annual water system demands (existing and future) during that year. However, to maintain consistency with the modification to the interest expense component, the debt principal calculation will be based on the total \$127.2 million (see Schedule 2, in the Appendix) in outstanding principal payments as opposed to the present value of these annual payments.

2.3.1 Water Treatment/Production Component

The water treatment component includes water treatment facilities, purification, and wells eligible to serve new EDUs. As noted in the table below, the total capacity of the City's existing treatment and production facilities that are eligible to serve new EDUs is 163.78 million gallons per day (mgd) and consists of the Central Arizona Project (CAP) Water Treatment Plant (WTP), the Chaparral WTP, and various groundwater well production sites. Excluded from the City's treatment facilities eligible to serve new EDUs are the Central Groundwater Treatment Facility (CGTF) and the Northern Groundwater Treatment Facility (NGTF) which are funded through private contributions and relate solely to a superfund site. Also excluded is a reserve capacity, as described in Chapter 6 of the City's IIP Report, from the capacity eligible to serve new EDUs. The total RCNLD of the City's existing water treatment facilities eligible to serve new EDUs is \$496.5 million. See Table 2-9 in the IIP Report.

Table 2.3.1 presents the capacity of treatment and production facilities.

**TABLE 2.3.1
CAPACITY OF WATER TREATMENT AND
PRODUCTION FACILITIES**

Facility	Capacity (mgd)
CAP WTP	70.00
Chaparral WTP	27.00
CGTF	12.30
NGTF	3.58
Wells ^a	50.90
Total Existing Capacity	163.78
Less CGTF and NGTF	(15.88)
Less Reserved Capacity	(0.37)
Total Existing Capacity Eligible for New EDUs	147.53
Less Maximum Day Demand	(94.01)
Existing Capacity Available for New EDUs	53.52
Plus: Planned CAP WTP Capacity	20.00
Total Capacity Eligible for New EDUs	73.52

^a Net capacity to be replaced by CAP WTP expansion.

As noted above there is available existing treatment and production capacity of 53.52 mgd to serve new demand. With the addition of 17,136 EDUs and a level of service of 689.3 gpd/EDU noted in section 2.7.3 and 2.8.1 of the IIP, the new EDUs will require only 12.00 mgd of the 53.52 mgd to meet maximum day demand, as stated in section 2.81 of the IIP Report.

As discussed in Section 2.8 Required Capital Facilities in the IIP Report, the CAP WTP is planned for a 20.00 mgd expansion totaling \$30.0 million during the 10-year planning period for the IIP. The plant's 70-mgd capacity is sufficient to meet the average demands of the system throughout the planning period. However, additional groundwater would need to be supplied to meet peak demands in the summer. Expanding the CAP WTP, would close the gap, reduce the reliance on additional groundwater supplies and maintain safe yield as required by state regulations after 2025.

Based on the total value of the water treatment component of \$526.5 million and 167.53 mgd of existing and planned capacity (147.53 mgd of existing capacity plus 20.00 mgd of planned capacity) in treatment facilities eligible to serve new EDUs, the unit cost of treatment is \$3.14 per gpd.

For more information on the City's existing and planned treatment facilities and capacity eligible to serve new EDUs, see Chapter 2 in the City's IIP Report.

2.3.2 Water Distribution Component

The water distribution component includes pumping facilities, transmission structures, distribution reservoirs, and distribution mains eligible to serve new EDUs. These facilities provide total capacity eligible to serve new EDUs equal to the current treatment and production capacity. While the water distribution system consists of a network of individual components, all of which have a unique capacity, many of these components have been designed to accommodate both current and new EDUs beyond the 10-year planning period. Hence, the collective 167.53 mgd capacity of the treatment facilities can be used as a measure of the capacity of the entire water distribution system.

As discussed in Section 2.10 of the IIP Report and shown in Table 2-15 and Table 2-16 of that report, approximately \$48.9 million in water distribution infrastructure is needed during the 10-year planning period. This infrastructure is needed to extend and expand the City's water distribution system to address expanded development and new development in the Wildcat Development, State Land near Legend Trails, East Dynamite, and Crossroads.

As shown in Table 2-9 of the IIP Report, the RCNLD of the existing distribution facilities eligible to serve new EDUs is approximately \$251.6 million and the planned infrastructure during the 10-year IIP planning period is approximately \$48.9 million.¹

Based on the total value of the water distribution component of \$300.5 million and 167.53 mgd of capacity in distribution facilities eligible to serve new EDUs, the unit cost of the distribution system is \$1.79 per gpd.

For more information on the City's existing and planned distribution facilities and capacity eligible to serve new EDUs, see Chapter 2 in the City's IIP Report.

2.3.3 Water Supply Component

The water supply (recharge) component includes approximately 15% of the buy-in value of the City's AWT facilities located at the Water Campus Water Reclamation Facility. The AWT treats effluent from the Water Campus Water Reclamation Facility and recharges a portion of that effluent into the aquifer. This recharged water represents a water supply as it can be withdrawn from the aquifer and treated to meet potable water demands by existing and new EDUs. As shown in Table 2-8 of the IIP Report, the total recharge capacity eligible to serve new EDUs is 13.50 mgd of the total 20.00 mgd of AWT capacity, since 6.50 mgd is reserved for the Reclaimed Water Distribution System (RWDS) which supplies reclaimed water to local golf courses. Chapter 6 of the City's IIP Report describes the reserve capacity of the RWDS. As shown in Table 2-9 of the IIP Report, the RCNLD of the AWT facilities eligible to serve new EDUs and included in the water development fee is approximately \$10.4 million.

¹ The RCNLD of the existing distribution facilities eligible to serve new EDUs of \$251.6 is approximately \$1.3 million less than the amount presented in Table 2-9 of the IIP Report. This immaterial difference relates to assets contributed to the City by a developer after the adoption of the IIP that have been excluded from the RCNLD used to determine the developments fees presented in this report. The exclusion of the contributed assets had an immaterial impact on the calculation of the water development fee.

**TABLE 2.3.3
CAPACITY OF WATER SUPPLY FACILITIES**

Facility	Capacity (mgd)
AWT Available for Use	20.00
Less Reserved Capacity	<u>(6.50)</u>
Total Eligible (unused capacity) for New EDUs	13.50
Less Current Demand (active recharge)*	<u>(5.43)</u>
Existing Recharge Capacity Available for New EDUs	<u>8.07</u>
Plus: Planned Valdose Well Capacity	<u>3.00</u>
Total Capacity Eligible for New EDUs	<u>11.07</u>

*TABLE 2-8 of the IIP Report presents a current recharge demand of 5.84 mgd. However, based on effluent data from the AWT during the winter months of 2014, 2015, and 2016 the three-year average of active recharge at the AWT is 5.43 mgd. This immaterial difference has no effect on the calculation of the development fee nor any material impact on any of the analyses presented in the IIP Report or this Report.

Although the City's available water supply exceeds the future 2025 demand projections and additional acquisitions of new surface water resources are not needed; the City has planned and the IIP includes additional activities related to the recharge of a portion of Scottsdale's available renewable supply of reclaimed wastewater as part of its assured water supply plan. Eight (8) additional reclaimed water vadose zone recharge wells that will add 3.00 mgd of capacity for water recharge are planned for 2020 at a cost of \$3.2 million. Furthermore, to meet additional demands identified in the 2017 IIP, a new well north of Loop 101 near Hayden is planned that requires blending at the Water Campus at a cost of \$4.0 million.

Based on the total value of the water supply component of \$17.6 million and 16.50 mgd of existing and planned capacity (13.50 mgd of existing capacity plus 3.00 mgd of planned capacity) to recharge effluent eligible at the AWT to serve new EDUs, the unit cost of recharge facilities is \$1.07 per gpd as shown in Table 2.3.7.

For more information on the City's existing and planned supply facilities and capacity eligible to serve new EDUs, see Chapter 2 in the City's IIP Report.

2.3.4 Water Interest Expense Component

The water development fee also recovers the interest expense on expansion related debt the City has issued to fund capital improvements benefiting new customers. The interest cost includes annual scheduled interest payments starting as of FY 2017 and continuing through maturity in 2037. The total \$40.4 million in annual interest payments are divided by the 25.54 mgd of additional future water demands anticipated during the 20-year maturity period (2017 through

2037) in which those payments will occur. No interest payments are included for new debt beyond FY 2017 that fund future capital improvements benefiting the new customers.

Based on the total outstanding interest due on debt issued to fund facilities benefitting new EDUs, the average unit cost of water interest expense is \$1.58 per gpd as shown below in Table 2.3.7.

For more information on the water interest expense calculation, see Schedule 1, Calculation of Interest Expense Components in the Appendix.

2.3.5 Annual Principal Credit on Existing Debt Service

The debt principal credit represents the annual principal payments on debt issued to fund existing facilities included in the system buy-in costs that are also included in the revenue requirements recovered through customer utility charges. These annual principal payments do not include principal payments on those debt issues identified as benefiting new customers and eligible to be included in the interest expense component recovered through the development fees. Each of the annual principal payments is divided by the annual system demand that serves as the basis for determining the estimated user rates and charges per gpd for the principal payments. Since new customers will pay for these debt principal payments through their monthly user rates and charges, this credit prevents the new customer from being double charged through the development fee and the user rates and charges. The average unit cost of principal on existing debt service is \$1.91 gpd. This credit is deducted from the sum of the four costs components per gpd to determine the net capital cost per gpd.

For more information on the water debt principal credit calculation, see Schedule 2, Debt Service Principal Credits Calculations in the Appendix.

2.3.6 Proposed Water Development Fee Unit Cost Per GPD

The per unit cost of capacity is \$5.67 per gpd as shown below in Table 2.3.7. This represents the sum of the cost per gpd for the water treatment and production component, water distribution component, water supply (recharge) component, and water interest expense component, less the net present value of annual principal on existing debt service.

2.3.7 Proposed Water Development Fee Cost per EDU

The cost per service unit is determined by multiplying the per unit cost of capacity of \$5.67 times the demand factor for the base service unit/EDU, or the 689.3 gpd peak demand for the typical residential dwelling unit. This results in a water development fee per service unit of **\$3,908**.²

Table 2.3.7 summarizes the unit costs per gpd for each of components of the water development fee and the determination of the proposed water development fee unit cost per gpd and per EDU.

² The water development fee of \$3,908 presented in this report is slightly less than the water development fee of \$3,915 presented in Table 7-1 of the IIP Report. This immaterial difference is the result of approximately \$1.3 million in distribution system assets contributed to the City by a developer which occurred after the adoption of the IIP Report. Although the difference is immaterial, the water development fee presented in this report represents the fee that is proposed for adoption by the City.

**TABLE 2.3.7
WATER DEVELOPMENT FEE COST
PER GPD PER EDU**

<u>Water Impact Fee</u>	<u>Unit Cost</u>
Water Treatment (gpd)	\$ 3.14
Water Distribution (gpd)	\$ 1.79
Water Supply (gpd)	\$ 1.07
Interest Expense (gpd)	\$ 1.58
Total Cost of Capacity (gpd)	<u>\$ 7.58</u>
Less: Debt Principal Offset	\$ (1.91)
Net Cost of Capacity (gpd)	<u>\$ 5.67</u>
Peak Demand Factor per EDU	\$ 689.3
Water Impact Fee Per EDU	<u>\$ 3,908.00</u>

For more information on the water development fee calculation, see Schedule 3, Calculation of Water Development Fee in the Appendix.

2.3.8 Proposed Water Development Fees by Meter Type

The City will assess its water development fees based on the size of the meter needed by the new customer. The maximum water development fees per meter type that may be adopted by the City based on this study are presented below:

Table 2.3.8. Proposed Water Development Fees by Meter Type

Meter Type	EDUs Per Meter	Development Fee
Single Family < = 1"	1.0	\$ 3,908
Single Family = 1.5"	5.0	\$ 19,540
Single Family = 2"	8.0	\$ 31,264
Single Family = 3" Compound	17.5	\$ 68,390
Single Family = 3" Turbine	22.0	\$ 85,976
Multi-Family < = 1"	1.0	\$ 3,908
Multi-Family = 1.5"	5.0	\$ 19,540
Multi-Family = 2"	8.0	\$ 31,264
Multi-Family = 3" Compound	17.5	\$ 68,390
Multi-Family = 3" Turbine	22.0	\$ 85,976
Multi-Family = 4" Compound	30.0	\$ 117,240
Multi-Family = 4" Turbine	42.0	\$ 164,136
Multi-Family = 6" Compound	67.5	\$ 263,790
Multi-Family = 6" Turbine	86.5	\$ 338,042
Multi-Family = 8" Compound	90.0	\$ 351,720
Non-Residential < = 1"	1.0	\$ 3,908
Non-Residential = 1.5"	5.0	\$ 19,540
Non-Residential = 2"	8.0	\$ 31,264
Non-Residential = 3" Compound	17.5	\$ 68,390
Non-Residential = 3" Turbine	22.0	\$ 85,976
Non-Residential = 4" Compound	30.0	\$ 117,240
Non-Residential = 4" Turbine	42.0	\$ 164,136
Non-Residential = 6" Compound	67.5	\$ 263,790
Non-Residential = 6" Turbine	86.5	\$ 338,042

Single-family dwelling units in the City have historically utilized the 5/8" water meter for typical residential water service as it meets the demands of a standard single-family unit. The 1" meter has the additional capability of supporting an increased increment of flow for fire suppression. To standardize its residential meter sizes, the City is adopting the 1" meter as the minimum meter size for a single-family unit. For determining demands for the various meter sizes, it is appropriate, however, to establish the 5/8" meter capacity as the base rate of flow of 10 gpm, with subsequent meter size EDU multipliers based on the potential flow rates of those larger meters in relation to this base flow rate. The City is, therefore, consolidating all meter sizes of 1" or less into a single meter class that is equivalent to one EDU. The meter capacities, or EDU expressed by size and type are based on standards from the American Water Works Association (AWWA).

CHAPTER 3. WASTEWATER DEVELOPMENT FEES

Chapter 3 of the Development Fee Report documents the methodology used to determine the wastewater development fee. The Necessary Public Services recovered through the wastewater development fee includes wastewater treatment and collection.

3.1 Wastewater Service Area

The City's wastewater treatment and collection system is interconnected and is treated as one integrated system within the City's service area. For more information on the wastewater service area, see the 2017 IIP Report.

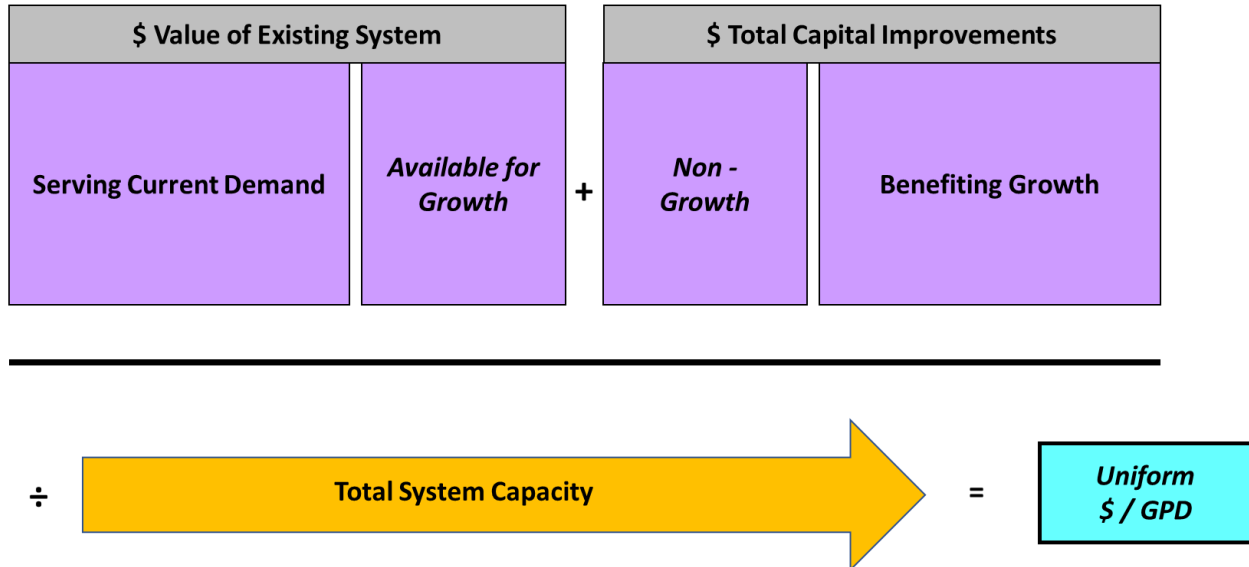
3.2 Current Wastewater Development Fee Methodology

The current wastewater development fee, adopted as part of the 2014 Development Fee Study, was determined based on the same system average cost approach used for the water development fee, which focuses on the total value and total capacity of the utility systems. Specifically, the approach was designed to recover the current value of all existing facilities available to serve existing current demand and anticipated future demand; plus the total capital improvements to those systems needed to serve anticipated future demands. Since the costs recovered under this approach represent the total system value, it was appropriate to determine the unit cost per gallon per day (gpd) under this approach by dividing the total system costs by the total existing and planned system capacity for the 10-year planning period.

Figure 2 below demonstrates that the total system value was identified and included in the value used to determine the development fees under the current system average cost approach.

**Figure 2:
System Average Cost Approach**

Focuses on Total System Value and Total System Capacity



The above diagram demonstrates the general method used to determine development fees under the current system average cost approach. However, ARS §9-463.05 allows other components such as future interest payments on debt benefiting new customers and requires a debt principal credit on debt that is recovered through monthly customer utility charges.

The current system average cost approach determines the wastewater development fees based on the following:

- Reflects the average costs of current and future facilities based on a 10-year wastewater IIP planning period.
- Excludes capital improvements identified as replacements or upgrades to the existing wastewater facilities in the capital expansion component of the development fee.
- Recovers approximately 85% of the buy-in value for the AWT facilities as part of the wastewater treatment component of the wastewater development fee since these facilities allow for disposal of wastewater at the Water Campus Water Reclamation Facility.
- Determines the capacity available for new wastewater EDUs using annual average day demand.
- Determines the system average cost per gpd of wastewater capacity by dividing the costs of existing capacity plus the planned capital improvements benefitting new customers by the total existing and planned wastewater treatment capacity during the 10-year planning period.
- The wastewater buy-in facilities consist of RCNLD of the city's current facilities necessary to serve new EDUs.

- Includes all planned expansion costs for facilities needed to serve new EDUs.
- A debt principal credit is provided for any outstanding principal on funds borrowed, or anticipated to be borrowed, to construct the facilities that benefit new customers but are repaid through the user rates generated by those new customers.
- Includes future interest expense on funds borrowed, or anticipated to be borrowed, to construct the facilities that benefit new customers.
- Excludes facilities contributed by developers and others from the total value eligible to serve new EDUs.

This hybrid approach recognizes that new customers of utility systems benefit from both facilities already in place and planned capital projects required to expand and extend capacity. The development fees are determined to reflect the average unit cost of the planned system capacity based on previous and planned investments in the system divided by the total capacity in those facilities. This hybrid approach essentially puts the unit cost of capacity for existing and future customers on par.

3.3 New Enhancements to Wastewater Development Fee Methodology

The current development fees were developed in 2014 to be consistent with the provisions of ARS §9-463.05. The development fees calculated as part of this update are based on the same methodology used in 2014 and described above, with slight modifications to the components related to recovering future interest payments on debt benefiting new customers and the debt principal credit provided on debt that is recovered through monthly user rates. The modifications to these components of the wastewater development fee include the following:

- The calculation of the interest expense component is now determined based on the total \$37.9 million (see Schedule 1, in Appendix) in outstanding interest payments remaining on debt issues used to finance the construction of infrastructure improvements and facility expansions included in the wastewater IIP and that will be paid for with wastewater development fee funds. The total remaining interest payments are divided by the 6.62 mgd of additional future wastewater demands anticipated during the 20-year amortization period (2017 through 2037) in which those payments will occur. This modification is recommended to ensure the interest component methodology reflects the full cost recovery of the remaining growth-related interest payments. The current interest component methodology does not reflect full cost recovery as it divides the present value of the remaining annual payments by total annual wastewater system demands (existing and future) during that year.
- The calculation of the debt principal credit component will continue to be determined by dividing the remaining annual principal payments on debt issues to be funded through annual user rates by the total annual wastewater system demands (existing and future). However, to maintain consistency with the modification to the interest expense component, the debt principal calculation will be based on the total \$36.6 million (see Schedule 2, in Appendix) in outstanding principal payments as opposed to the present value of these annual payments.

3.3.1 Wastewater Treatment Component

The wastewater treatment component includes wastewater treatment facilities and its Safe Capacity Ownership in the Multi-City Sub-Regional Operating Group Committee (SROG). As noted in Table 3.3.1 below, the total capacity of the City's existing treatment facilities that are eligible to serve new EDUs is 39.51 million gallons per day (mgd). This 39.51 mgd consists of the Water Campus Water Reclamation Facility (WRF) and Scottsdale's capacity ownership in the SROG agreement. The Gainey Ranch Water Reclamation Facility is excluded from the Wastewater Treatment Plants' components since this facility was contributed to the City by the Gainey Ranch development and is used for wastewater treatment solely to produce reclaimed water for irrigation purposes. As such, the Gainey Ranch WRF is not eligible to serve new EDUs. Also, a reserve capacity, as described in Chapter 6 of the City's IIP Report, is also excluded from the capacity eligible to serve new EDUs. As noted in Table 3-4 of the IIP Report the total RCNLD of the City's existing wastewater treatment facilities eligible to serve new EDUs is \$284.8 million.

**TABLE 3.3.1
CAPACITY OF WASTEWATER TREATMENT
AND COLLECTION FACILITIES**

Facility	Capacity (mgd)
Gainey Ranch WRF ^a	1.67
Water Campus ^b	20.00
SROG (Scottsdale Safe Capacity Ownership)	20.25
Total	41.92
Less Gainey Ranch WRF	(1.67)
Less Reserved Capacity	(0.74)
Total Eligible (unused capacity) for New EDUs	39.51
Less Annual Average Day Flow	(21.41)
Capacity Available for New EDUs	18.10

^a Gainey Ranch WRF will not provide capacity to new EDUs.

^b Water Campus includes both the WRP and the AWT facility.

As noted above there is available wastewater treatment capacity of 18.10 mgd to serve new demand. As noted in Table 3-7 of the IIP Report, with the addition of 16,657 EDUs and a level of service of 179.8 gpd/EDU noted in that same report, the new EDUs will require only 3.10 mgd of the 18.10 mgd to meet average day demand. The available capacity exceeds the projected average day demand of the new EDUs; therefore, no projects to expand wastewater treatment capacity are required during the 10-year planning period for this IIP.

Based on the total value of the wastewater treatment component of \$284.8 million and 39.51 mgd of capacity in treatment facilities eligible to serve new EDUs, the unit cost of treatment is \$7.21 per gpd as shown below in Table 3.3.6.

For more information on the City's existing and planned wastewater treatment facilities and capacity eligible to serve new EDUs, see Chapter 3 in the City's IIP Report.

3.3.2 Wastewater Collection Component

The wastewater collection component includes wastewater conveyance infrastructure such as lift stations, gravity sewers and force mains eligible to serve new EDUs. These facilities provide total capacity eligible to serve new EDUs equal to the current treatment capacity. While the wastewater collection system consists of a network of individual components, all of which have a unique capacity, many of these components have been designed to accommodate both current and new EDUs beyond the 10-year planning period. Hence, the collective capacity of the treatment facilities can be used as a measure of the capacity of the entire wastewater collection system.

As discussed in Section 3.14 of the IIP Report and shown in Table 3-8 and Table 3-9 of that IIP Report, approximately \$12.6 million in wastewater collection infrastructure is needed during the 10-year planning period to serve new EDUs. This infrastructure is needed to extend and expand the City's wastewater collection system to address expanded development and new development in the City's wastewater service area.

As shown in Table 3-4 of the IIP Report the RCNLD of the existing collection facilities eligible to serve new EDUs is approximately \$106.2 million and the planned infrastructure during the 10-year IIP planning period is approximately \$12.6 million.³

Based on the total value of the wastewater collection component of approximately \$119.1 million and 39.51 mgd of capacity in collection facilities eligible to serve new EDUs, the unit cost of the collection system is \$3.01 per gpd as shown below in Table 3.3.6.

For more information on the City's existing and planned wastewater collection facilities and capacity eligible to serve new EDUs, see Chapter 3 in the City's IIP Report.

3.3.3 Wastewater Interest Expense Component

The wastewater development fee also recovers the interest expense on expansion related debt the City has issued to fund capital improvements benefiting new customers. The interest cost includes annual scheduled interest payments starting as of FY 2017 and continuing through maturity in 2037. The total \$37.9 million in annual interest payments are divided by the 6.62 mgd of additional future wastewater demands anticipated during the 20-year maturity period (2017 through 2037) in which those payments will occur. No interest payments are included for new debt beyond FY 2017 that fund future capital improvements benefiting the new customers.

Based on the total outstanding interest due on debt issued to fund facilities benefitting new EDUs, the average unit cost of wastewater interest expense is \$5.73 per gpd as shown in Table 3.3.6.

³ The RCNLD of the existing distribution facilities eligible to serve new EDUs of \$106.2 is approximately \$0.3 million less than the amount presented in Table 3-4 of the IIP Report. This immaterial difference relates to assets contributed to the City by a developer after the adoption of the IIP that have been excluded from the RCNLD used to determine the developments fees presented in this report. The exclusion of the contributed assets had an immaterial impact on the calculation of the wastewater development fee.

For more information on the wastewater expense calculation, see Schedule 1, Calculation of Interest Expense Components in the Appendix.

3.3.4 Annual Principal Credit on Existing Debt Service

The debt principal credit represents the annual principal payments on debt issued to fund existing facilities included in the system buy-in costs that are also included in the revenue requirements recovered through customer utility charges. These annual principal payments do not include principal payments on those debt issues identified as benefiting new customers and eligible to be included in the interest expense component recovered through the development fees. Each of the annual principal payments is divided by the annual system demand that serves as the basis for determining the estimated user rates and charges per gpd for the principal payments. Since new customers will pay for these debt principal payments through their monthly user rates and charges, this credit prevents the new customer from being double charged through the development fee and the user rates and charges. The average unit cost of principal on existing debt service is \$1.44 gpd. This credit is deducted from the sum of the three costs components per gpd to determine the net capital cost per gpd.

For more information on the wastewater interest expense calculation, see Schedule 2, Debt Service Principal Credits Calculations.

3.3.5 Proposed Wastewater Development Fee Unit Cost Per GPD

The per unit cost of capacity is \$14.51 per gpd as shown below in Table 3.3.6. This represents the sum of the cost per gpd for the wastewater treatment component, wastewater collection component, and wastewater interest expense component, less the net present value of annual principal on existing debt service.

3.3.6 Proposed Wastewater Development Fee Cost per EDU

The cost per service unit is determined by multiplying the per unit cost of capacity of \$14.51 times the demand factor for the base service unit/EDU, or the 179.8 gpd average day demand for the typical residential dwelling unit. This results in a wastewater development fee per service unit of **\$2,609** as shown in Table 3.3.6.

Table 3.3.6 below summarizes the unit costs per gpd for each of components of the wastewater development fee and the determination of the proposed wastewater development fee unit cost per gpd and per EDU.

**TABLE 3.3.6
WASTEWATER DEVELOPMENT FEE COST
PER GPD PER EDU**

<u>Wastewater Impact Fee</u>	<u>Unit Cost</u>
Wastewater Treatment (gpd)	\$ 7.21
Wastewater Collection (gpd)	\$ 3.01
Interest Expense (gpd)	\$ 5.73
Total Cost of Capacity (gpd)	<u>\$ 15.95</u>
Less: Debt Principal Offset	\$ (1.44)
Net Cost of Capacity (gpd)	<u>\$ 14.51</u>
Annual Average Day Factor per EDU	179.8
Wastewater Impact Fee Per EDU	<u>\$ 2,609.00</u>

For more information on the wastewater development fee calculation, see Schedule 4, Calculation of Wastewater Development Fee in the Appendix.

3.3.7 Proposed Wastewater Development Fees by Meter Type

The City will assess its wastewater development fees based on the size of the meter needed by the new customer. The maximum wastewater development fees per meter type that may be adopted by the City based on this study are presented below:

Table 3.3.7. Proposed Wastewater Development Fees by Meter Type

Meter Type	EDUs Per Meter	Development Fee
Single Family < = 1"	1.0	\$ 2,609
Single Family = 1.5"	5.0	\$ 13,045
Single Family = 2"	8.0	\$ 20,872
Single Family = 3" Compound	17.5	\$ 45,658
Single Family = 3" Turbine	22.0	\$ 57,398
Multi-Family < = 1"	1.0	\$ 2,609
Multi-Family = 1.5"	5.0	\$ 13,045
Multi-Family = 2"	8.0	\$ 20,872
Multi-Family = 3" Compound	17.5	\$ 45,658
Multi-Family = 3" Turbine	22.0	\$ 57,398
Multi-Family = 4" Compound	30.0	\$ 78,270
Multi-Family = 4" Turbine	42.0	\$ 109,578
Multi-Family = 6" Compound	67.5	\$ 176,108
Multi-Family = 6" Turbine	86.5	\$ 225,679
Multi-Family = 8" Compound	90.0	\$ 234,810
Non-Residential < = 1"	1.0	\$ 2,609
Non-Residential = 1.5"	5.0	\$ 13,045
Non-Residential = 2"	8.0	\$ 20,872
Non-Residential = 3" Compound	17.5	\$ 45,658
Non-Residential = 3" Turbine	22.0	\$ 57,398
Non-Residential = 4" Compound	30.0	\$ 78,270
Non-Residential = 4" Turbine	42.0	\$ 109,578
Non-Residential = 6" Compound	67.5	\$ 176,108
Non-Residential = 6" Turbine	86.5	\$ 225,679

CHAPTER 4. FORECAST OF DEVELOPMENT FEE REVENUES AND CASH FLOWS

The City may assess development fees as a means to offset costs associated with providing Necessary Public Services to a development, including the costs of infrastructure, improvements, real property, engineering and architectural services, financing and professional services required for the preparation or revision of development fees, including the relevant portion of the Infrastructure Improvements Plan. Costs that can be included in the development fee calculation and are eligible to be offset by the development fee revenues are projected interest charges and other finance costs on the portion of the bonds, notes or other obligations issued to finance construction of Necessary Public Services or facility expansions identified in the Infrastructure Improvements Plan.

This section forecasts the anticipated development fee revenues and the extent to which those revenues will offset the costs associated with providing the water and wastewater capacity to new EDUs that are included in the water and wastewater IIPs.

4.1 Forecast of Water Development Fee Revenues and IIP Capital Costs

The annual water development fee revenue forecast is based on the assumption in the LUA forecast that an additional 17,136 water EDUs will be added during the 10-year IIP planning period.

The IIP capital costs include the planned capital projects benefitting new EDUs identified in the IIP plus the principal and interest payments on water debt issued to fund infrastructure benefitting growth and included in the development fee calculation.

The forecast of water development fee revenues and 10-year IIP capital cost requirements are presented below:

Table 4.1

	FY 17 - 27
Forecasted Development Fee Revenues ¹	\$ 72,387,239
Planned Capital Projects Benefitting New EDUs	\$ 86,017,200
Water Principal on Growth Related Projects	\$ 48,375,317
Water Interest on Growth Related Projects	\$ 33,303,074
Total 10-Year Water IIP Costs	\$ 167,695,591
Surplus / (Deficit)	\$ (95,308,351)

¹ The FY 2017 development fee revenues are estimated based on the current water development fees since the proposed development fees will not be assessed to development until September 1, 2018.

As Table 4.1 demonstrates, the forecast of water development fee revenue will generate a deficit of approximately \$95.3 million during the 10-year IIP planning period. Since the determination of the water development fee includes the buy-in value of facilities eligible to serve new customers and the available capacity will serve new customers that connect to the system and pay for capacity well beyond the 10-year planning period, the forecast of development fee revenues will not necessarily equal the capital requirements during the 10-year IIP planning period.

For more information on the annual development fee revenues and capital requirements of the IIP, see Schedule 5, Annual Forecast of Water Development Fee Revenues and Capital Requirements in the Appendix.

4.2 Forecast of Wastewater Development Fee Revenues and IIP Capital Costs

The annual wastewater development fee revenue forecast is based on the assumption in the LUA forecast that an additional 16,657 wastewater EDUs will be added during the 10-year IIP planning period.

The IIP capital costs include the planned capital projects benefitting new EDUs identified in the IIP plus the principal and interest payments on wastewater debt issued to fund infrastructure benefitting growth and included in the development fee calculation.

The forecast of wastewater development fee revenues and 10-year IIP capital cost requirements are presented below:

Table 4.2

	FY 17 - 27
Forecasted Wastewater Development Fee Revenues ¹	\$ 46,637,071
Planned Capital Projects Benefitting New EDUs	\$ 12,185,200
Wastewater Principal on Growth Related Projects	\$ 54,372,443
Wastewater Interest on Growth Related Projects	\$ 31,160,112
Total 10-Year Wastewater IIP Costs	\$ 97,717,755
Surplus / (Deficit)	\$ (51,080,684)

¹ The FY 2017 development fee revenues are estimated based on the current wastewater development fees since the proposed development fees will not be assessed to development until September 1, 2018.

As Table 4.2 demonstrates, the forecast of wastewater development fee revenue will generate a deficit of approximately \$51.0 million during the 10-year IIP planning period. Since the determination of the wastewater development fee includes the buy-in value of facilities eligible to serve new customers and the available capacity will serve new customers that connect to the system and pay for capacity well beyond the 10-year planning period, the forecast of development

fee revenues will not necessarily equal the capital requirements during the 10-year IIP planning period.

For more information on the annual development fee revenues and capital requirements of the IIP, see Schedule 6, Annual Forecast of Wastewater Development Fee Revenues and Capital Requirements in the Appendix.

CHAPTER 5. DEVELOPMENT OF UPDATED WATER AND WASTEWATER DEVELOPMENT FEES

The proposed development fees reflect an increase over the current development fees due to updated buy-in values, additional planned infrastructure necessary to accommodate anticipated future demands during the 10-year planning period, and updated interest expenses on growth-related debt.

The current development fees reflected the City's RCNLD buy-in value for existing facilities as of June 30, 2013 while the proposed fees reflect the RCNLD buy-in value as of June 30, 2017 which includes additional infrastructure constructed and amortized depreciation on existing facilities since the previous development fees were determined. As the City completes growth related expansions, the capacity that is added through capital investments to the water and wastewater systems is increased and available for new EDUs. These changes to the asset base are reflected below:

Category	2013 IIP	2017 IIP	Increase/ Reduction
Buy-In - Water	\$692,014,402	\$748,138,285	\$56,123,883
Buy-In - Supply	\$11,068,379	\$10,430,104	(\$638,275)
Buy-In - Wastewater	\$407,179,484	\$391,288,342	(\$16,178,560)
Total	\$1,110,262,265	\$1,151,191,159	\$39,307,048

Additionally, the 2017 IIPs include an additional \$52.5 million in planned water infrastructure, an additional \$4.0 million in water supply infrastructure, and an additional \$7.6 million in planned wastewater infrastructure when compared to planned infrastructure included in the 2013 IIP. The City is required to update LUAs and IIPs, upon which the development fees are based, at least every five years. Therefore, capital projects outside the current 10- year planning period will be captured by the updated IIPs.

The proposed capital projects for growth related expansion projected over the 2017 IIP 10-year period versus 2013 IIP 10-Year planning period used in the previous development fee study has increased the total development fee growth component as follows:

Category	2013 IIP	2017 IIP	Increase/ Reduction
Growth Capital Expansion - Water	\$26,355,500	\$78,867,200	\$52,511,700
Growth Capital Expansion - Supply	\$3,200,000	\$7,150,000	\$3,950,000
Growth Capital Expansion - Wastewater	\$4,970,698	\$12,574,600	\$7,603,902
Total	\$34,526,198	\$98,591,800	\$64,065,602

The net changes to growth related expansions and buy-in used to calculate development fees is as follows:

Category	2013 IIP	2017 IIP	Reduction
Growth & Buy-In - Water	\$718,369,902	\$827,005,485	\$108,635,583
Growth & Buy-In - Supply	\$14,268,379	\$17,580,104	\$3,311,725
Growth & Buy-In - Wastewater	\$412,150,182	\$403,575,525	(\$8,574,658)
Total	\$1,144,788,463	\$1,248,161,114	\$103,372,650

This represents an overall increase of nine percent (9%) in the growth-related expansions and buy-in infrastructure components of the development fees.

The proposed increases in the water, water supply, and wastewater development fees result in part from the changes in the growth-related expansions and buy-in values, but are also attributable in part to changes in the growth-related interest expense component of the fees. The City has issued additional debt since the 2014 development fee study and as mentioned previously, the calculation of the interest expense component is now determined based on the total outstanding interest payments remaining divided by the additional future demands anticipated during the 20-year amortization period in which those payments will occur. This modification ensures full cost recovery of the actual remaining growth-related interest payments and reflects a greater amount of dollars to be recovered than the previous approach which reflected the annual payments at a discounted present value. The difference in total annual interest expense payments recovered through the proposed 2018 development fees and the 2014 development fees is as follows:

Category	2014 (PV)	2017 (Actual)	Difference
Water Interest Expense	\$25,800,978	\$31,361,412	\$5,560,435
Water Supply Interest Expense	\$4,510,659	\$9,046,010	\$4,535,352
Wastewater Interest Expense	\$23,859,388	\$37,938,881	\$14,079,493
Total	\$54,171,025	\$78,346,304	\$24,175,279

5.1 Development Fee Revenue Forecast

The projection of development fee revenue is challenging due to the various uncertainties associated with current residential and commercial development. The City anticipates that the revised development fees which are proposed to be effective starting in fiscal year 2018/19 will result in less development fee revenue primarily due to lower expected growth in new EDUs to be added during the 10-Year planning period. The 2013 IIP anticipated adding 21,275 water and 32,110 wastewater EDUs during the previous 10-year planning period as compared to current estimates of 17,136 water and 16,657 wastewater EDUs. The lower expected growth in EDUs results in approximately \$14.2 million less in water development fee revenues and \$18.4 million less in wastewater development fee revenues during the 10-year period than the revenues that

would be expected based on the higher proposed fees and the previous growth projections. A summary of the proposed increases for each fee category are described below.

5.2 Single Family Residential

Under the proposed development fees, a single-family residential development with a one-inch meter would see an increase of approximately twenty-one percent (21%) for all lot sizes. A single-family residential development with a one and a half inch meter would also see an increase of twenty-one percent (21%). A summary of the single-family fee comparison is presented below:

Single Family Residential Fee Comparison				
Lot Size	Current	Proposed	Increase	% Change
1 Inch Meter				
6,999 SF	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
11,799 SF	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
22,799 SF	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
43,556 SF	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
1.5 Inch Meter				
43,556 SF	\$ 27,035	\$ 32,625	\$ 5,590	20.7%
87,119 SF	\$ 27,035	\$ 32,625	\$ 5,590	20.7%
121,799 SF	\$ 27,035	\$ 32,625	\$ 5,590	20.7%

5.3 Multi-Family Residential

A summary of the multi-family fee comparison based on a represented number of meters for particular multi-family housing developments such as number of units and average densities is presented below:

Multi-Family Residential Fee Comparison				
300 Unit Apartment, Average Density 1,500 SF				
Meters	Current	Proposed	Increase	% Change
Ten 2" Meters	\$ 432,500	\$ 522,000	\$ 89,500	20.7%
100 Unit Apartment, Average Density 1,600 SF				
Meters	Current	Proposed	Increase	% Change
Five 1.5" Meters	\$ 135,175	\$ 163,125	\$ 27,950	20.7%
8 Unit Duplex, Average Density 1,800 SF				
Meters	Current	Proposed	Increase	% Change
One 1.5" Meter	\$ 27,035	\$ 32,625	\$ 5,590	20.7%

5.4 Non-Residential

A summary of the non-residential fee comparison is presented below:

Non-Residential Fee Comparison				
Meter Size	Current	Proposed	Increase	% Change
5/8 Inch	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
1 Inch	\$ 5,407	\$ 6,525	\$ 1,118	20.7%
1.5 Inch	\$ 27,035	\$ 32,625	\$ 5,590	20.7%
2 Inch	\$ 43,256	\$ 52,200	\$ 8,944	20.7%
3 Inch - Compound	\$ 86,512	\$ 114,188	\$ 27,676	32.0%
4 Inch - Compound	\$ 135,175	\$ 195,750	\$ 60,575	44.8%
6 Inch - Compound	\$ 270,350	\$ 440,438	\$ 170,088	62.9%

APPENDIX

Schedule 1
City of Scottsdale Development Fee Model
Calculation of Interest Expense Fee Component

Interest Recovered Through Water Development Fees	20-Year Total	20-Year Remaining Interest Expense (Fiscal Year Ending June, 30)											Cumulative 2028- 2037	
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		
<i>Annual Interest Expense</i>														
Interest Assessed Directly To Water Development Fees														
Water Facilities ¹	78%	\$31,361,412	\$2,617,617	\$3,090,085	\$2,909,208	\$2,765,154	\$2,612,768	\$2,454,778	\$2,290,216	\$2,108,095	\$1,909,585	\$1,693,531	\$1,463,728	\$5,446,649
Water Supply Facilities ²	22%	\$9,046,010	1,084,686	805,228	770,766	733,619	692,733	648,353	600,207	569,401	534,620	495,405	453,291	1,657,701
Total Interest Payments		\$40,407,423	\$3,702,303	\$3,895,313	\$3,679,974	\$3,498,773	\$3,305,500	\$3,103,131	\$2,890,423	\$2,677,496	\$2,444,205	\$2,188,936	\$1,917,019	\$7,104,349
Water Interest Expense (FY 2017 through FY 2037)		\$40,407,423												
Capacity Required to Serve Growth (2017 through 2037) ³		25.54												
		\$1.582												
Interest Recovered Through Wastewater Development Fees														
<i>Annual Interest Expense</i>														
Interest Assessed Directly To Wastewater Fees														
Wastewater Facilities ⁴		\$37,938,881	\$4,018,198	\$3,974,150	\$3,709,794	\$3,431,415	\$3,127,201	\$2,805,133	\$2,464,076	\$2,120,324	\$1,974,813	\$1,840,145	\$1,694,861	\$6,778,769
Wastewater Interest Expense (FY 2017 through FY 2037)		\$37,938,881												
Capacity Required to Serve Growth (2017 through 2037) ⁵		6.62												
		\$5.734												

- 1 Includes annual interest payments through maturity on those debt issues that have been identified with paying for water system facilities benefitting new customers. These annual interest payments have been designated to be funded by the water development fee fund.
- 2 Includes annual interest payments through maturity on those debt issues that have been identified with paying for water supply facilities benefitting new customers. These annual interest payments have been designated to be funded by the water supply fee fund.
- 3 Based on the expected amount of water treatment capacity that will be required to serve new customers connecting to the water system from FY 2017 through FY 2037. Since the water development fee fund and water supply fee fund will be funding these payments, these payments are recovered from new customers connecting to the water system during this twenty-year period. The expected amount of additional capacity is based on growth and demand estimates from the LUA and IIP.
- 4 Includes annual interest payments through maturity on those debt issues that have been identified with paying for wastewater system facilities benefitting new customers. These annual interest payments have been designated to be funded by the wastewater development fee fund.
- 5 Based on the expected amount of wastewater treatment capacity that will be required to serve new customers connecting to the wastewater system from FY 2017 through FY 2037. Since the wastewater development fee fund will be funding these payments, these payments are recovered from new customers connecting to the wastewater system during this twenty-year period. The expected amount of additional capacity is based on growth and demand estimates from the LUA and IIP.

Schedule 2
City of Scottsdale Development Fee Model
Debt Service Principal Credits Calculation

	20- Year Remaining Principal Payments (Fiscal Year ending June, 30)										Cumulative	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028-2037
Water Principal Credit												
Total Water Principal Funded Through User Rates and Charges	\$6,811,118	\$7,902,531	\$8,385,310	\$8,768,647	\$9,167,087	\$9,587,892	\$9,964,692	\$10,414,316	\$5,824,641	\$6,098,349	\$6,386,711	\$37,845,116
Total System Demand (mgd) ¹	60.820	61.555	62.300	63.053	63.815	64.587	65.367	66.158	66.958	67.767	68.586	Varies
Annual Debt Credit (gpd)	\$0.11199	\$0.12838	\$0.13460	\$0.13907	\$0.14365	\$0.14845	\$0.15244	\$0.15742	\$0.08699	\$0.08999	\$0.09312	\$0.52532
Cumulative 20-Year Debt Principal Credit (gpd)	\$1.91141											
Cumulative 20-Year Total Debt Principal Payments	\$127,156,410											
Sewer Principal Credit												
Total Sewer Principal	\$931,958	\$980,531	\$1,023,788	\$1,089,293	\$1,152,364	\$1,206,668	\$1,540,866	\$1,359,795	\$1,456,635	\$1,572,610	\$1,695,690	\$22,549,335
Portion of New Facilities Available for Growth	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total Sewer Principal Funded Through User Rates and Charges	\$931,958	\$980,531	\$1,023,788	\$1,089,293	\$1,152,364	\$1,206,668	\$1,540,866	\$1,359,795	\$1,456,635	\$1,572,610	\$1,695,690	\$22,549,335
Total System Demand (mgd) ¹	21.80	22.10	22.39	22.70	23.01	23.32	23.63	23.95	24.28	24.61	24.94	Varies
Debt Credit (gpd)	\$0.04275	\$0.04438	\$0.04572	\$0.04799	\$0.05009	\$0.05175	\$0.06520	\$0.05677	\$0.06000	\$0.06391	\$0.06799	\$0.84578
Net Present Value Credit (gpd)	\$1.44232											
Cumulative 20-Year Total Debt Principal Payments	\$36,559,533											

¹ Total system demands for water and wastewater are anticipated to increase at escalation rates determined as part of the City's water and wastewater master plans.

**Schedule 3
Calculation of Water Development Fees
City of Scottsdale Development Fee Model**

	Total
Water Treatment Component	
Buy-In Value of Existing System (RCNLD) ¹	\$ 496,520,154
Growth Related Capital Project (IIP)	30,000,000
Total Water Treatment Component	\$ 526,520,154
Component Capacity (MGD) ²	167.53
Cost Per Gallon Per Day of Capacity	\$ 3.140
Water Distribution Component	
Buy-In Value of Existing System (RCNLD) ¹	\$ 251,618,132
Growth Related Capital Project (IIP) ³	48,867,200
Total Water Distribution Component	\$ 300,485,332
Component Capacity (MGD) ⁴	167.53
Cost Per Gallon Per Day of Capacity	\$ 1.790
Water Supply Component	
Buy-In Value of Existing System (RCNLD) ¹	\$ 10,430,104
Growth Related Capital Project (IIP) ⁵	7,150,000
Total Water Distribution Component	\$ 17,580,104
Component Capacity (MGD) ⁶	16.50
Cost Per Gallon Per Day of Capacity	\$ 1.070
Water Rights Component	
Buy-In Value of Existing System (RCNLD) ¹	
Growth Related Capital Project (IIP)	
Total Water Distribution Component	\$ -
Component Capacity (MGD)	67.92
Cost Per Gallon Per Day of Capacity	
Growth Related Interest Expense (gpd) ⁷	\$ 1.580
Total Water System Cost Per Gallon Per Day of Capacity	\$7.580
Less: Net Present Value of Annual Principal Payments Credit (gpd) ⁸	\$ (1.910)
Net Water System Cost Per Gallon Per Day of Capacity	\$ 5.670
Peak Demand Factor Per EDU (Gallons Per Day) ⁹	689.3
Full Cost Water Development Fee Per EDU	\$ 3,908.00

1 From Table 2-9 - Buy-In to Existing Water System, in the IIP Report.
2 From Table 2-6 - Existing Capacity of Production Facilities, in the IIP Report - 147.53 mgd of existing treatment capacity; plus 20.00 mgd of planned capacity from section 2.8.1 Water Treatment/Production, in the IIP Report.
3 From Table 2-15 - Water Distribution Cost Estimates from 2013 IIP, and Table 2-16 Water Distribution Cost Estimates for 2017 IIP; in the IIP Report.
4 From Table 2-6 - Existing Capacity of Production Facilities, in the IIP Report - 147.53 mgd of existing treatment capacity; plus 20.00 mgd of planned capacity from section 2.8.1 Water Treatment/Production, in the IIP Report.
5 From Table 2-13 Water Supply Cost Estimates from 2013 IIP and Table 2-14 Water Supply Costs Estimates for 2017 IIP; in the IIP Report.
6 From Table 2-8 - Existing Capacity of Water Recharge Facilities, in the IIP Report - 13.50 mgd of existing capacity; plus 3.00 mgd of planned capacity.
7 From Schedule 1: Calculation of Interest Expense Fee Component.
8 From Schedule 2: Debt Service Principal Credits Calculation.
9 From Section 2.3 Existing Level of Service in the IIP Report.

Schedule 4
Calculation of Wastewater Development Fees
City of Scottsdale Development Fee Model

	Total
1 Wastewater Treatment Component	
Buy-In Value of Existing System (RCNLD) ¹	\$ 284,797,327
Growth Related Capital Project (IIP)	0
Total Wastewater Treatment Component	\$ 284,797,327
Component Capacity (MGD) ²	39.51
Cost Per Gallon Per Day of Capacity	\$ 7.210
2 Wastewater Collection Component	
Buy-In Value of Existing System (RCNLD) ¹	\$ 106,203,598
Growth Related Capital Project (IIP) ³	12,574,600
Total Wastewater Distribution Component	\$ 118,778,198
Component Capacity (MGD) ²	39.51
Cost Per Gallon Per Day of Capacity	\$ 3.010
Growth Related Interest Expense (gpd) ⁴	\$5.730
Total Wastewater System Cost Per Gallon Per Day of Capacity	\$15.950
Less: Net Present Value of Annual Principal Payments Credit (gpd) ⁵	(\$1.440)
Net Wastewater System Cost Per Gallon Per Day of Capacity	\$14.510
Demand Factor Per EDU (Gallons Per Day) ⁶	179.8
Full Cost Wastewater Development Fee Per EDU	\$ 2,609.00

1 From Table 3-4 - Buy-In to Existing Wastewater System; in the Infrastructure Improvements Plan (IIP) Report.

2 From Table 3-3 - Existing Wastewater Treatment and Collection Facilities; in the IIP Report.

3 From Table 3-8 - Wastewater Collection Cost Estimates from 2013 IIP and Table 3-9 - Wastewater Collection Cost Estimates for 2017 IIP; in the IIP Report.

4 From Schedule 1: Calculation of Interest Expense Fee Component.

5 From Schedule 2: Debt Service Principal Credits Calculation.

6 From Section 3.4 Existing Level of Service in the IIP Report.

Schedule 5
City of Scottsdale Development Fee Model
Annual Forecast of Water Development Fee Revenues and Capital Requirements

Water Demand Projections	Current	Fiscal Year Ending June, 30										IIP Total	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		
Planning Area¹													
Four-Year Average COS Peak Day Water Demand	94.01	95.14	96.29	97.46	98.64	99.83	101.04	102.26	103.49	104.75	106.01		
Total COS EDUs	139,771	141,396	143,041	144,705	146,388	148,091	149,813	151,556	153,319	155,102	156,906		
Annual Water EDU Added	1,611	1,626	1,645	1,664	1,683	1,703	1,723	1,743	1,763	1,783	1,804		
COS Water Development Fee per EDU	\$ 3,365	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908	\$ 3,908		
Annual Water Development Fee Revenue ¹	\$ 5,420,119	\$ 6,353,613	\$ 6,427,517	\$ 6,502,281	\$ 6,577,915	\$ 6,654,429	\$ 6,731,833	\$ 6,810,137	\$ 6,889,351	\$ 6,969,488	\$ 7,050,556	\$ 72,387,239	
Projected IIP Costs													
Annual Water Capital Projects	\$ 5,862,300	\$ 10,032,400	\$ 4,209,000	\$ 9,266,600	\$ 17,045,200	\$ 8,232,400	\$ 1,369,300	\$ -	\$ -	\$ -	\$ 30,000,000	\$ 86,017,200	
Water Principal Development Fees	\$ 3,034,990	\$ 3,541,190	\$ 3,705,130	\$ 3,963,974	\$ 4,163,323	\$ 4,387,400	\$ 4,520,761	\$ 4,805,286	\$ 5,087,583	\$ 5,419,623	\$ 5,746,057	\$ 48,375,317	
Water Interest Development Fees	\$ 3,702,303	\$ 3,895,313	\$ 3,679,974	\$ 3,498,773	\$ 3,305,500	\$ 3,103,131	\$ 2,890,423	\$ 2,677,496	\$ 2,444,205	\$ 2,188,936	\$ 1,917,019	\$ 33,303,074	
Total IIP Costs	\$ 12,599,593	\$ 17,468,903	\$ 11,594,104	\$ 16,729,347	\$ 24,514,023	\$ 15,722,931	\$ 8,780,484	\$ 7,482,782	\$ 7,531,788	\$ 7,608,559	\$ 37,663,076	\$ 167,695,591	
Surplus / (Deficit)	\$ (7,179,474)	\$ (11,115,291)	\$ (5,166,587)	\$ (10,227,065)	\$ (17,936,108)	\$ (9,068,502)	\$ (2,048,651)	\$ (672,645)	\$ (642,436)	\$ (639,071)	\$ (30,612,520)	\$ (95,308,351)	
Total Water Development Fee Revenue	\$ 72,387,239												
Four-Year Average Peak Day Demand	94.01												
Projected 2027 Demand	106.01												
Annual Growth Rate	1.21%												
Current EDU	139,771												
Projected 2027 EDUs	156,907												
Annual Growth Rate	1.16%												

¹ Annual water Development fee revenue for FY 2017 are estimated based on the current water Development fees, since the proposed Development fees will not be assessed until July 1, 2018.

Schedule 6
City of Scottsdale Development Fee Model
Annual Forecast of Wastewater Development Fee Revenues and Capital Requirements

Sewer Demand Projections	Current	Fiscal Year Ending June, 30										IIP Total
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Four-Year COS Sewer Average Day Demand (MGD)	21.42	21.71	22.00	22.30	22.60	22.91	23.22	23.54	23.86	24.18	24.51	
Total COS EDUs	119,309	120,879	122,469	124,080	125,712	127,366	129,042	130,739	132,459	134,202	135,968	
Annual Sewer EDU Added	1,555	1,570	1,590	1,611	1,632	1,654	1,676	1,698	1,720	1,743	1,766	
COS Wastewater Development Fee per EDU	\$ 2,042	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	\$ 2,609	
Annual Wastewater Development Fee Revenue	\$ 3,175,033	\$ 4,095,069	\$ 4,148,943	\$ 4,203,525	\$ 4,258,825	\$ 4,314,853	\$ 4,371,618	\$ 4,429,130	\$ 4,487,398	\$ 4,546,433	\$ 4,606,244	\$ 46,637,071
Projected IIP Costs												
Annual Wastewater Capital Projects	\$ 660,000	\$ 3,230,000	\$ 6,852,300	\$ 777,900	\$ 331,000	\$ 334,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,185,200
Wastewater Principal Development Fees	\$ 5,056,934	\$ 5,390,748	\$ 5,704,232	\$ 6,065,598	\$ 6,435,506	\$ 6,828,040	\$ 7,003,681	\$ 3,105,603	\$ 2,711,141	\$ 2,924,418	\$ 3,146,542	\$ 54,372,443
Wastewater Interest Development Fees	\$ 4,018,198	\$ 3,974,150	\$ 3,709,794	\$ 3,431,415	\$ 3,127,201	\$ 2,805,133	\$ 2,464,076	\$ 2,120,324	\$ 1,974,813	\$ 1,840,145	\$ 1,694,861	\$ 31,160,112
Total IIP Costs	\$ 9,735,132	\$ 12,594,898	\$ 16,266,326	\$ 10,274,913	\$ 9,893,707	\$ 9,967,173	\$ 9,467,757	\$ 5,225,927	\$ 4,685,954	\$ 4,764,563	\$ 4,841,403	\$ 97,717,755
Surplus / (Deficit)	\$ (6,560,099)	\$ (8,499,828)	\$ (12,117,383)	\$ (6,071,389)	\$ (5,634,882)	\$ (5,652,320)	\$ (5,096,139)	\$ (796,797)	\$ (198,556)	\$ (218,130)	\$ (235,159)	\$ (51,080,684)
Total Wastewater Development Fee Revenue	\$ 46,637,071											
Four-Year Average Day Demand	21.41											
Projected 2027 Demand	24.51											
Annual Growth Rate	1.36%											
Current EDU	119,309											
Projected 2027 EDUs	135,967											
Annual Growth Rate	1.32%											

¹ Annual wastewater Development fee revenue for FY 2017 are estimated based on the current wastewater Development fees, since the proposed Development fees will not be assessed until July 1, 2018.