NOTICE OF POSTING

OF INFRASTRUCTURE IMPROVEMENTS PLANFOR WATER AND WASTEWATER DEVELOPMENT FEES

Under ARS §9-463.05, a Necessary Public Service is defined as any facility that has a life expectancy of 3 or more years and that are owned and operated by or on behalf of the city. A city desiring to assess a development fee to offset the cost of providing a Necessary Public Service must adopt a Land Use Assumption Report (separate posting) and Infrastructure Improvements Plan before adopting the Development Fee Report establishing any new development fees.

In the City of Scottsdale, the only Necessary Public Services for which development fees are collected are for Water and Wastewater services.

Posted with this NOTICE is the City of Scottsdale's proposed Infrastructure Improvement Plan.

The Infrastructure Improvement Plan is a written document identifying growth driven water and wastewater infrastructure needs within a 10-year planning period. These needs along with other considerations serve to establish the basis for projected development fees.

The backup documents on which the Infrastructure Improvement Plan is based are available for review at The Administrative Offices of the Water Resources Division, 9379 E. San Salvador Dr., Scottsdale, Arizona.

Contact Gina Kirklin, Enterprise and Finance Director (480) 312-5685 EnterpriseFinance@ScottsdaleAZ.Gov

The Land Use Assumptions Report and the Infrastructure Improvements Plan and a notice of intent to modify development fees is scheduled for adoption at the City Council meeting Tuesday, May 18, 2021 at 5:00 p.m. 3939 Drinkwater Blvd., Scottsdale, Arizona.

SCOTTSDALE WATER

City of Scottsdale

Infrastructure Improvements Plan
Water and Wastewater

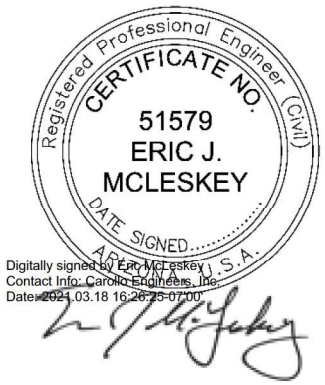
PROPOSED | March 2021

carollo

City of Scottsdale

INFRASTRUCTURE IMPROVEMENTS PLAN
WATER AND WASTEWATER

PROPOSED | March 2021



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Abbreviations

2013 IIP	December 2013 Infrastructure Improvements Plan: Water and Wastewater
2017 IIP	November 2017 Infrastructure Improvements Plan: Water and Wastewater
AACE	Association for the Advancement of Cost Engineering
AAD	annual average daily flow
ADWR	Arizona Department of Water Resources
AFY	acre-feet per year
A.R.S.	Arizona Revised Statutes
ASR	aquifer storage and recovery
AWT	Advanced Water Treatment
AWWA	American Water Works Association
BPS	booster pump station
CAP	Central Arizona Project
Carollo	Carollo Engineers, Inc.
CERCLA	Comprehensive Response, Compensation, and Liability Act
CGTF	Central Groundwater Treatment Facility
City	City of Scottsdale, Arizona
DIAs	Development Intensity Areas
EDU	Equivalent Dwelling Units
ENR-CCI	Engineering News Record 20-Cities Average Construction Cost Index
gpd	gallons per day
gpm	gallons per minute
IIP	Infrastructure Improvements Plan
IWRMP	Integrated Water Resources Master Plan
LUA	Land Use Assumptions
MAG	Maricopa Association of Governments
MG	million gallons
mgd	million gallons per day
NGTF	North Groundwater Treatment Facility
PRV	pressure reducing valve
RCNLD	replacement cost new less depreciation
RWDS	reclaimed water distribution system
SMOC	safe maximum operating capacity
SROG	Sub-Regional Operating Group
SRP	Salt River Project
TGTF	Thomas Groundwater Treatment Facility
VZIW	vadose zone injection wells

WD	Water Distribution
WDUA	Water Delivery and Use Agreement
WEF	Water Environmental Federation
WRF	water reclamation facility
WRMPU	2012 Water Reuse Master Plan Update
WST	Water Supply and Treatment
WTP	water treatment plant
WWC	Wastewater Collection
WWTP	wastewater treatment plant

1.0 Introduction

The City of Scottsdale (City) is a growing, vibrant community of more than 250,000 people encompassing an area of nearly 185 square miles. Growth in Scottsdale includes both residential and non-residential development. The City is actively pursuing opportunities for economic development and revitalization throughout the City, specifically focusing on three Development Intensity Areas (DIAs) that include the Greater Airpark, Downtown, and the Scottsdale/McDowell Road Corridor. The 2019 Maricopa Association of Governments (MAG) growth trends indicate Scottsdale's estimated population will increase to 281,700 by 2030.

The City's Integrated Water Resources Master Plan (IWRMP) is being completed by Carollo Engineers, Inc. (Carollo) in tandem with this Infrastructure Improvements Plan (IIP) and Development Fee Update. The IWRMP contains land use and growth assumptions that form the basis of water demand and wastewater flow projections for the planning period beginning in 2020 through 2055. The IIP uses the same land use assumptions as the IWRMP.

1.1 Statement of Intent – Development of Impact Fees

The City assesses development impact fees, hereinafter referred to as development fees, to fund the infrastructure needed to accommodate new growth. Development fees are one-time payments that represent the "proportionate share" of infrastructure capital costs needed to serve new Equivalent Demand Units (EDUs). The City has two 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 to serve new EDUs. Water supply is an essential part of water services. A portion of the water development fee attributable to new EDUs for water supply pays for acquiring, transporting, treating, and managing recharge to and recovery from underground aquifers, new or renewable water supplies required to serve new EDUs; and
- **Wastewater Development Fees** provide 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 to serve new EDUs.

1.2 Purpose of Infrastructure Improvements Plan (IIP)

The purpose of this document is to meet the requirements of an IIP as defined in A.R.S. 9-463.05 and to serve as the basis for the Development Fee Update. This IIP has been developed for the 10-year period beginning in 2021 through 2030. It is anticipated that the IIP will be updated at least once every five years.

1.3 Prepared by Licensed Professionals

The Infrastructure Improvements Plan was prepared by licensed professionals from Carollo.

2.0 Water Infrastructure Plan

2.1 Water Service Area

The City of Scottsdale water service area largely coincides with the City boundary and is approximately 185 square miles as shown in Figure 1. It encompasses the area within City limits, with two exceptions:

- EPCOR Water (private water company) serves approximately 1,420 customers in the built out area west of the Arizona Canal between Jackrabbit Road and Indian Bend Road, which is about one square mile.
- EPCOR Water serves approximately 200 customers in the built out area near the City boundary with the Town of Fountain Hills.

The City also serves approximately 1,400 customers in the built out area outside the City limits in Maricopa County, north of Dynamite Boulevard, generally between 56th Street and 68th Street.

In addition, the City has agreements with the Tonto Hills Domestic Water Improvement District and Carefree Water Company to treat and deliver their Central Arizona Project (CAP) allocations to areas outside the City limits; however, these customers are subject to the rates, charges, and development fees of their respective utilities.

The City's water treatment and distribution system is interconnected and treated as one integrated system within the City's service area. For City engineering planning purposes, the water service area is subdivided into four regional planning areas and is further subdivided into pressure zones to regulate water pressure for customers across the City's various elevation ranges. The water system is also flexible in that water supplies from the north may be conveyed to the south, and vice versa, although there are some limitations to the amount of water that can be moved north from the Chaparral Water Treatment Plant (WTP) or south from the CAP WTP. This single service area approach is consistent with implementation of the development fees wherein the "system average cost" is used, which focuses on the total value and total demand placed on the water system.

The City's primary water supplies include Colorado River water delivered via the CAP Aqueduct, Salt River Project (SRP) water delivered via the Arizona Canal, and groundwater wells. Some of Scottsdale's groundwater supplies are used to conduct remediation activities at the Central Groundwater Treatment Facility (CGTF), the Thomas Groundwater Treatment Facility (TGTF) and the North Groundwater Treatment Facility (NGTF) in the Southern region.

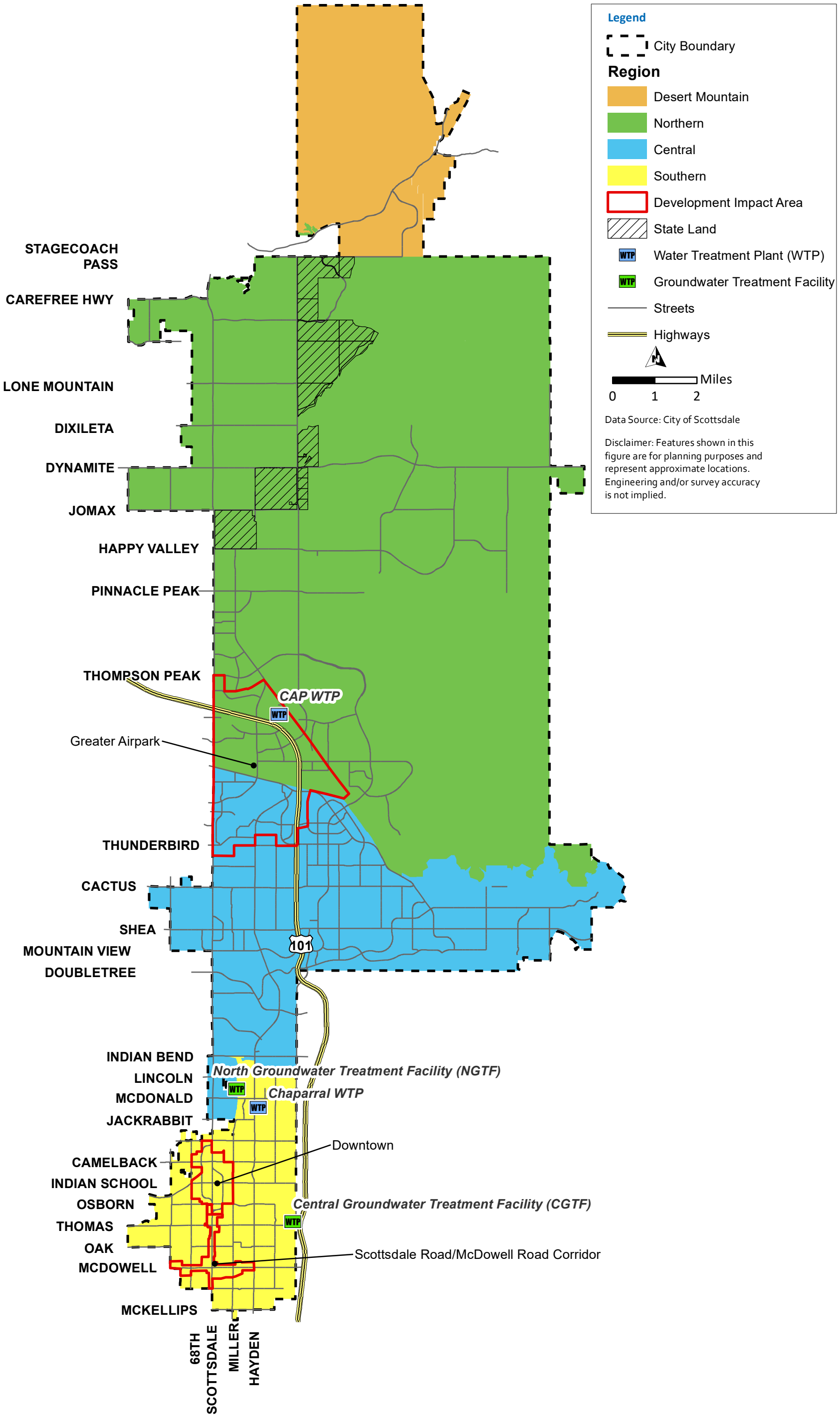

Figure 1 Water Service Area

Water treatment facilities are capable of serving multiple regions in the City, as shown in Table 1, since the water distribution systems are interconnected. Although the CAP WTP, the Chaparral WTP, the CGTF/TGTF and the NGTF represent the primary drinking water supply sources, the City also has additional groundwater wells to supplement supplies in various regions across the water system.

Table 1 Regions Served by Water Treatment Facilities

Water Treatment Facility	Desert Mountain	Northern	Central	Southern
CAP WTP	X	X	X	X
Chaparral WTP (1)	X	X	X	X
CGTF/TGTF			X	X
NGTF			X	X

Note:
(1) SRP water treated at the Chaparral WTP may be conveyed to regions other than the Southern region but must be tracked, so a balance is maintained per the Water Delivery and Use Agreement (WDUA).

The governing policies with respect to the City's water rights are complex and more fully documented in the IWRMP. For purposes of this IIP, a summary of the use restrictions for each surface water supply is provided.

2.1.1 Central Arizona Project (CAP)

The City's CAP water is typically treated at and distributed from the CAP WTP. CAP water can be used anywhere within the City's water service area. CAP water can also be treated and stored in underground aquifers and recovered through groundwater wells throughout the City's service area.

2.1.2 Salt River Project (SRP)

The City's SRP supply is treated at and distributed from the Chaparral WTP and must be used on land within the SRP service area south of the Arizona Canal (On-Project). However, when experiencing maximum day demand conditions, SRP water may be used to supplement water needs Off-Project (locations in the City's water service area not on SRP lands) if a water exchange is made in accordance with the Water Delivery and Use Agreement (WDUA) that the City has in place with SRP. Therefore, by tracking and accounting for deliveries of SRP water, to areas of Scottsdale that are Off-Project, the City can balance available supplies and demands on a monthly and annual basis.

2.2 Land Use

The Land Use Assumptions (LUA) are described and documented separately in an accompanying LUA Report. The LUA includes the City's current demographic estimates, and its projections for future dwelling unit and employment development within the City's service area between 2021 and 2030.

2.3 Existing Level of Service

In order to calculate development fees, various customer types must be standardized into a measure of demand attributable to an individual unit of development termed a service unit. For the water category of Necessary Public Services, as defined by State Statute, service units are translated into an EDU, which is equivalent to the water demand of one detached single-family

dwelling unit. Note that one EDU may differ from one dwelling unit as shown in Table 1 of the LUA. Standardization of other customer types to a single-family dwelling unit applies capacity ratios of associated meter sizes.

Single-family dwelling units within the City have historically utilized the 5/8-inch water meter for typical residential water service as it typically meets demands of a standard single-family unit. One-inch meters have the additional capability of supporting an increased increment of flow and accommodate fire suppression.

For this IIP, it is appropriate to establish the 5/8-inch meter capacity (10 gallons per minute [gpm]) as the base rate of flow, 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 consolidates all meter sizes of one inch or less into a single meter class equivalent to one EDU. Meter capacities expressed in gpm by type and size are based on standards established from the American Water Works Association (AWWA) Manual M1 *Principles of Water Rates, Fees and Charges*, Seventh Edition. Ratios of EDUs by meter size are based on the safe maximum operating capacity (SMOC), which are summarized in Table 2.

Table 2 Water Meter Equivalent Demand Unit Conversions

Land Use Size/Type	Safe Maximum Operating Capacity (1) (gpm)	EDU Multiplier	Unit
Single Family (up to 1" meter size)	20 - 50	1.0	Per Dwelling Unit
Multi Family (individually metered up to 1" meter size)	20 - 50	1.0	Per Dwelling Unit
All Other Land Uses or Additional Meters			
<=1" Turbine	20 - 50	1.0 (2)	Per Meter
1.5" Turbine	100	5.0	Per Meter
2" Turbine	160	8.0	Per Meter
3" Compound	350	17.5	Per Meter
3" Turbine	435	21.8	Per Meter
4" Compound	600	30.0	Per Meter
4" Turbine	750	37.5	Per Meter
6" Compound	1,350	67.5	Per Meter
6" Turbine	1,600	80.0	Per Meter
8" Compound	1,600	80.0	Per Meter

Notes:
(1) Meter Capacities are the safe maximum operating capacity (SMOC) as documented in AWWA M1, Seventh Edition (2017).
(2) In addition to all commercial meters, Single-Family meters greater than 1" and Multi Family meters greater than 1" are accounted for in this section.
(3) The City of Scottsdale has determined that a 1" meter is the minimum sized meter for a new service. A 5/8" or 3/4" meter may be requested for outside irrigation of lawns and gardens. This IIP will account for meter sizes equal to or less than 1" as being equivalent to one EDU.

Using the City's database of water meter records through December 2020, Table 3 summarizes existing EDUs within the City's water service area.

Table 3 Existing Water EDUs

Meter Type	Number of Meters	EDU Conversion	No. of EDUs
Single Family <=1"	80,401	1.0	80,401
Single Family = 1.5"	919	5.0	4,595
Single Family = 2"	105	8.0	840
Single Family = 3" Compound	2	17.5	35
Single Family = 3" Turbine	1	21.8	22
Multi-Family <=1"	1,633	1.0	1,633
Multi Family = 1.5"	1,032	5.0	5,160
Multi Family = 2"	1,813	8.0	14,504
Multi Family = 3" Compound	33	17.5	578
Multi Family = 3" Turbine	3	21.8	65
Multi Family = 4" Compound	25	30.0	750
Multi Family = 4" Turbine	0	37.5	0
Multi Family = 6" Compound	28	67.5	1,890
Multi Family = 6" Turbine	1	80.0	80
Multi Family = 8" Compound	4	80.0	320
Residential Subtotal	**86,000**		**110,873**
Non-Residential <=1"	2,495	1.0	2,495
Non-Residential = 1.5"	1,557	5.0	7,785
Non-Residential = 2"	1,581	8.0	12,648
Non-Residential = 3" Compound	134	17.5	2,345
Non-Residential = 3" Turbine	122	21.8	2,660
Non-Residential = 4" Compound	58	30.0	1,740
Non-Residential = 4" Turbine	19	37.5	713
Non-Residential = 6" Compound	22	67.5	1,485
Non-Residential = 6" Turbine	122	80.0	9,760
Non-Residential Subtotal	**6,110**		**41,630**
Total	**92,110**		**152,503**

For the Water IIP, the existing level of service of the water system is defined as meeting the peak or maximum day demand, which is defined as the highest volume of water used by customers in a single day during the year. In water systems, the maximum day demand typically occurs on a summer day when water usage for outdoor irrigation and other indoor uses are highest. Historical maximum day demands for the last five calendar years are shown in Table 4.

Table 4 Historical Maximum Day Demand

Calendar Year	Maximum Day Demand (gpd)
2015	92,100,000
2016	96,400,000
2017	96,700,000
2018	97,700,000
2019	92,300,000
Average	**95,040,000**

Abbreviation:
gpd = gallons per day

The average maximum day demand between calendar years 2015 and 2019 was 95,040,000 gallons per day (gpd), which is approximately 1 million gallons per day (mgd) higher than the average maximum day demand from the 2017 IIP (based on calendar years 2012 through 2015). This 95.04 mgd value is used to calculate the current number of EDUs served, as water treatment facilities are rated and permitted based on firm treatment/production capacity.

The existing level of service for both residential and non-residential EDUs is calculated using the volumetric flow for each customer class from the City's utility billing database for fiscal year 2020 and the respective number of EDUs or employees, as established in the LUA. A summary of the volumetric flow delivered to residential and non-residential customers in fiscal year 2020 is shown in Table 5. Approximately 79 percent of the City's total water demand is attributed to residential customers while the remaining 21 percent of the City's total water demand is attributed to non-residential customers. These percentages have remained consistent since fiscal year 2013 and remain unchanged from the 2017 IIP.

Table 5 Volumetric Flow Contribution by Customer Class

Fiscal Year	Residential Volume	Residential Percent Use	Non-Residential Volume	Non-Residential Percent Use
2020	17,576,060,698	79%	4,553,614,385	21%

Based on the number of existing residential EDUs as shown in Table 3, the existing residential level of service (meeting maximum day demand) per EDU is shown in the following calculation:

(95,040,000 gpd x 79%) ÷ 110,873 EDUs = 680.8 gpd per EDU

The LUA's estimated number of people employed within Scottsdale is 207,927. The existing non-residential level of service (meeting maximum day demand) per employee is shown in the following calculation:

(95,040,000 gpd x 21%) ÷ 207,927 employees = 94.1 gpd per employee

The water IIP calculations are based on the existing level of service per residential water EDU and expressed as 680.8 gpd per EDU while the existing level of service per employee is expressed as 94.1 gpd per employee.

2.4 Future Level of Service

The future level of service provided to new customers will remain consistent with the existing level of service described above. Any capital improvements proposed for the water system to accommodate new growth will be designed to accommodate maximum day water demands of 680.8 gpd per EDU and 94.1 gpd per employee, respectively.

2.5 Existing Capacity of Water Capital Facilities

The following sections summarize the existing capacity of the capital facilities in the water service area, the utilization of available capacity by existing EDUs, and the available excess capacity to serve new EDUs, including existing and planned commitments or agreements the City has made for use of system capacity. Capital facilities that provide water within the service area include water supply and treatment, water distribution, and water recharge.

2.5.1 Water Supply and Treatment

The City must demonstrate the ability to deliver a 100-year sustainable water supply in compliance with requirements of the Assured Water Supply program, as regulated by the Arizona Department of Water Resources (ADWR). The City's water supply strategy utilizes surface water provided by CAP and SRP and delivered to the City's two surface water treatment plants (CAP WTP and Chaparral WTP, respectively) and groundwater wells that are distributed throughout the water system. The City recharges advanced treated wastewater (recycled water), potable water and surface water to offset groundwater pumping.

The City's water system also includes the CGTF and NGTF, which treat contaminated groundwater as part of clean-up efforts under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). These facilities were not funded by the City; therefore, development fees are not assessed for the capacity they provide. However, they are included in the IIP tables for completeness.

The City's TGTF further treats a partial stream of water produced by the CGTF. This provides improved operational flexibility of wells that supply the CGTF and enhance blended water quality delivered by Site 80, which is co-located with the CGTF and TGTF. Accordingly, development fees are not assessed in association with the TGTF, but it is included in the IIP tables in association with the CGTF for completeness.

The City does not plan to purchase additional water rights within the 10-year planning period and does not currently collect fees on existing water rights available to serve new EDUs identified in this IIP.

2.5.2 Water Distribution

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 capacity of the treatment facilities can be used as a measure of the capacity of the entire water distribution system.

2.5.3 Water Recharge

The City recharges treated wastewater (recycled water), potable water and treated CAP water to offset groundwater pumping. The City has multiple vadose zone injection wells (VZIW) and aquifer storage and recovery (ASR) wells that can be used to manage recharge and recovery efforts.

2.5.4 Summary of Existing Water Facilities Capacity

The existing capacity of the three components of the water system eligible to serve new EDUs and recovered through the water development fee are summarized in Table 6 (Treatment Facilities), Table 7 (Distribution System), and Table 8 (Recharge Facilities).

Table 6 summarizes the existing capacity of water treatment facilities and the net capacity available for new EDUs. The net capacity available to serve new EDUs is the difference between total capacity and deductions for the CGTF/TGTF and NGTF (not eligible for assessing development fees), reserved capacity (see Table 20), which includes the estimated remaining capacity to provide service to the Berneil Water Company, Carefree Water Company, and Tonto Hills Irrigation District and current demand (existing customers). There is 39.75 mgd of net capacity in the City's system to serve new EDUs.

Table 6 Existing Capacity of Water Supply and Treatment Facilities

Facility	Capacity (mgd)
CAP WTP	70.00
Chaparral WTP	27.00
CGTF / TGTF	12.30
NGTF	3.58
Wells (1)	38.16
Total Capacity	**151.04**
Less ineligible: CGTF/TGTF and NGTF	(15.88)
Less ineligible: Reserved Capacity	(0.37)
Total Eligible (unused capacity) for New EDUs	**134.79**
Less: Maximum Day Demand	(95.04)
Capacity Available for New EDUs	**39.75**

Notes:
(1) Available well capacity as of November 2020 per City's Well Operation Summary.

Table 7 summarizes existing capacity of the water distribution system and the net capacity available for new EDUs. The net eligible distribution system capacity available to serve new EDUs is the difference between the total capacity of the distribution system, and deductions for reserved capacity (see Table 20) and current demand (existing customers). There is 39.75 mgd of net capacity available in the City's system to serve new EDUs.

Table 7 Existing Capacity of Water Distribution System

Facility	Capacity (mgd)
Current Pipe Capacity	135.16
Less ineligible: Reserved Capacity	(0.37)
Total Eligible (unused capacity) for New EDUs	**134.79**
Less: Maximum Day Demand	(95.04)
Capacity Available for New EDUs	**39.75**

Table 8 shows existing capacity of the recharge facilities and capacity available for new EDUs. The net eligible recharge capacity available to serve new EDUs is the difference between the total capacity of the Water Campus Advanced Water Treatment Facility (AWT), and deductions for reserved capacity (see Table 20), which includes the estimated remaining capacity to provide service to the Reclaimed Water Distribution System (RWDS), which supplies reclaimed water to golf courses, and current demand. There is 0.55 mgd of net capacity in the City's system to serve new EDUs.

Table 8 Existing Capacity of Water Recharge Facilities

Facility	Capacity (mgd)
Current Water Campus Advanced Water Treatment Facility (AWT) Capacity	20.00
Less ineligible: Reserved Capacity	(6.80)
Total Eligible (unused capacity) for New EDUs	**13.20**
Less: Current Demand (active recharge)	(12.65)
Capacity Available for New EDUs	**0.55**

The net eligible capacity available to serve new EDUs for each component of the water system is the difference between the total capacity and deductions for reserved capacity, and current demands, as follows:

- **Water Treatment and Distribution –** the net capacity available to serve new EDUs is the difference between the total capacity and deductions for reserved capacity and the average maximum day demand for 2015 through 2019, since the water system must be capable of continuing to meet the highest demands from existing EDUs.
- **Water Recharge –** the net capacity available to serve new EDUs is the difference between the total capacity and deductions for reserved capacity and current demand, which is the average annual Water Campus AWT recharge for 2015 through 2019.

2.6 Buy-In to Existing Water System

The buy-in value of the existing water system represents the replacement cost new less depreciation (RCNLD) of each component of the water system. RCNLD is a very common approach in the valuation of assets used by the industry since it represents the estimated fair market value of assets in service at today's cost (based on their estimated remaining service life) which generally would support the overall business activities in providing service. RCNLD is determined by escalating depreciated facility asset values based on the Engineering News Record 20-Cities Average Construction Cost Index (ENR-CCI). The value of any reserved assets, contributed by developers, or other parties, or possessing contractual restrictions, are excluded from the buy-in value of facilities eligible to serve new EDUs. In addition to the RCNLD of water facilities eligible to serve new EDUs, the buy-in component also includes the remaining annual interest payments on the City's existing debt issuances for facilities that benefit development. Interest expense is recovered through the assessed Water Development Fee, and subsequent Water Development Fee revenues may be used to service debt the City has issued to fund facilities that benefit development. Table 9 summarizes the buy-in value of the existing water system.

New connections are required to buy-in to each component of the existing water system as shown in Table 6, Table 7, and Table 8 and are allocated costs based on the portion of existing capacity, for each component, available to serve new EDUs.

Table 9 Buy-In to Existing Water System

Plant Investment – Water System Buy-In	Total Value RCNLD 6/30/20 (1)	Used by Existing EDUs (2)	Available for New EDUs (3)
Water Treatment Plants (4)	$553,666,614	$352,810,943	$200,855,671
Distribution System (5)	$308,805,027	$196,778,693	$112,026,334
Recharge Facilities (6)	$18,468,298	$7,428,360	$11,039,938
Total Water System	**$880,939,939**	**$557,017,996**	**$323,921,943**

Notes:

(1) Represents the total RCNLD value of those facilities eligible to serve new EDUs. The facilities eligible to serve new EDUs do not represent the entirety of the City's water system facilities nor the replacement value of all system assets owned by the City as the values of certain facilities are excluded from the total replacement costs eligible to serve new EDUs. Those facilities excluded from the facilities eligible to serve new EDUs include facilities contributed by developers or other parties, replacements benefiting existing EDUs, and facilities or portions of facilities that will not benefit new development.

(2) Represents the portion of the total RCNLD value for each component of the City's water system that is either reserved or associated with meeting current demands of existing EDUs. The current demand, or level of service, for each component of the system is determined based on five-year average water treatment and customer use data.

(3) Represents the portion of the total RCNLD value for each component of the City's water system that is available to meet anticipated demands of new EDUs (which may be added beyond year 2030). The available capacity in each component of the system is determined by deducting reserved capacity and current demand from the total capacity of the facilities eligible to serve new EDUs.

(4) Water Treatment Plants includes the 70.0 mgd CAP WTP, the 27.0 mgd Chaparral WTP, and 38.16 mgd of available ground water well capacity. The CGTF and NGTF are excluded from the water treatment plants component since these facilities are not eligible to serve new EDUs. The total capacity of the facilities eligible to serve new EDUs in the water treatment plants component is adjusted to reflect reserve capacities. For more information on existing capacity eligible to serve new EDUs, see Table 6.

(5) Distribution System includes pumping facilities, transmission structures, distribution reservoirs, and distribution mains eligible to serve new EDUs. Any Distribution System facilities contributed by developers or other parties have been excluded from the total value eligible to serve new EDUs. These facilities provide total capacity eligible to serve new EDUs equal to the current treatment capacity. For more information on existing capacity eligible to serve new EDUs, see Table 7.

(6) Recharge Facilities includes the Water Campus Advanced Water Treatment (AWT) Facility, which treats effluent from the Water Campus Water Reclamation Facility and recharges a portion of that recycled water 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. For more information on the existing capacity eligible to serve new EDUs see Table 8.

2.7 Grandfathered Capital Facilities

There are no grandfathered capital facilities in the City's water system. Grandfathered capital facilities would have been identified at the time A.R.S. 9-463.05 was enacted, and the City would have been able to continue collecting development fee revenue to pay for pledged debt service associated with the grandfathered facilities. The City did not identify any grandfathered facilities at that time.

2.8 Future EDUs

A summary of the total growth in the Desert Mountain, Northern, Central, and Southern regions between 2020 and 2030, in terms of maximum day demand and EDUs, is shown in Table 10.

Table 10 Maximum Day Water Demand and EDU Projections: 2020 through 2030

Regional Planning Area	2020 through 2030 Maximum Day Demand Increase (mgd)	2020 through 2030 EDU Increase (EDU) (1)
Desert Mountain	3.2	4,730
Northern	7.4	10,899
Central	1.4	2,056
Southern	0.7	1,028
Total by 2030	**12.7**	**18,713**

Note:
(1) One EDU is equal to 680.8 gpd of maximum day demand.

By 2030, it is expected that 18,713 EDUs will be added to the water system, which represents 12.7 mgd of maximum day demand.

The total EDUs that will need to be served in 2030 is 171,216, as summarized in Table 11.

Table 11 Existing and 2030 Maximum Day Demands and EDUs

	Maximum Day Demand (mgd)	EDUs
Existing (1)	95.0	**152,503**
Future (Additional)	12.7	**18,713**
Total by 2030	**107.7**	**171,216**

Note:
(1) Average maximum day demand from 2015 – 2019 (See Table 4).

The total maximum day demand and EDUs the water system will need to serve in year 2030 includes existing and new residential and non-residential EDUs.

2.9 Required Water Capital Facilities and Improvements

2.9.1 Water Supply

The City derives its water supply from a combination of sources including CAP, SRP and the use of groundwater. Scottsdale Water also employs recycled water reuse and recharge, treated CAP water recharge and aquifer storage and recovery as strategies to achieve long-term sustainable supplies and compliance with the requirements of ADWR. Scottsdale is required to maintain its status with ADWR as an Assured Water Supply Provider in accordance with State statutes.

The most recent review of Scottsdale's Assured Water Supply status by ADWR occurred on June 24, 2013. ADWR reviewed relevant information relating to:

- The use of CAP supplies.
- The use of SRP supplies.
- Hydrologic information for proposed groundwater supply utilization.
- Water demands.
- Overall consistency with the ADWR Management Plan.

As a product of this standard review, ADWR issued its findings in a formal Decision and Order and notified Scottsdale of its approval of the City's Designation of Assured Water Supply.

The City's Designation of Assured Water Supply from ADWR, as of June 24, 2013 states the following:

- The annual estimated water demand in 2025 (which is current demand, committed demand and 2025 projected demand) is 130,977 acre-feet per year (AFY). (An acre-foot of water is, one square acre of water, one-foot deep or equivalent to 325,851 gallons).
- ADWR has determined the total volume of available water supply is 140,791.74 AFY. It should be noted that this available supply is based on legal guidelines associated with an Assured Water Supply approved by ADWR and does not necessarily reflect the fact that water management strategies are needed to produce the necessary supply at the right time of year to meet system demands.

As a part of the Water Development Fee, a Water Supply Fund will be established to acquire, transport, treat and manage through recharge to and recovery from underground aquifers, new and renewable supplies of water. The Water Development Fee will be charged as one fee but will be accounted for in two separate funds, one to be used for Water Service and one to be used for Water Supply.

To meet additional demands identified in this IIP, two new (ASR) wells are planned at Site 159 and Site 53.The Site 159 ASR well project was identified in the 2017 IIP as a "well north of Loop 101 near Hayden" that would require blending at the Water Campus. The Site 53 ASR well (53A) is located along Jomax Road at 62nd street. The 2013 IIP identified eight additional recycled water VZIW to allow recharge of recycled water from the Water Campus AWT. These eight VZIW are no longer needed.

2.9.2 Water Treatment/Production

As noted in Table 6, there is available treatment/production capacity of 39.75 mgd to serve new demand. With the addition of 18,713 EDUs and a level of service of 680.8 gpd per EDU, new EDUs will require 12.7 mgd to meet maximum day demand.

Due to this growth, the CAP WTP is planned for a 20 mgd expansion projected at $50 million during the 10-year planning period for this IIP. In recent years, the CAP WTP's 70 mgd capacity has been nearly reached during the high demand summer months. Additional capacity provided by this 20 mgd expansion will allow the City to meet peak system demands using renewable resources, which would otherwise require additional wells. This helps the City maintain safe yield as required by State regulations after 2025.

2.9.3 Water Distribution Improvements

Water distribution system improvements will be needed to provide capacity to serve growth that occurs through 2030. Because additional capacity is anticipated to be required to serve development beyond 2030, the City plans to size the infrastructure to support the ultimate capacity needs of the system. Adjustments are made in allocating costs for the growth that is anticipated to occur within the 10-year planning period of this IIP.

The City published Infrastructure Improvement Plans in 2013 (2013 IIP) and 2017 (2017 IIP). Some of these projects have been partially or fully constructed. The need for the remaining projects was re-evaluated in the current IIP for continuity.

2.10 Water System Projects and Cost Estimates

Cost estimates were developed in accordance with guidelines of the Association for the Advancement of Cost Engineering (AACE) International for a Class 5 estimate. These costs do not include financing costs, interest, the time value of money, or inflation.

Unless otherwise noted, water pipeline project costs were developed assuming pipelines would be upsized, meaning removing the existing pipe and installing a new, larger pipe. Parallel lines may also be an option to augment capacities, but any consideration of pipe replacement versus parallel augmentation would be addressed during project designs.

The allocation of costs associated with rates (existing customers) or development fees (growth) were prepared using the water demands for current customers and the estimated water demands for growth through year 2030. The costs associated with capacity provided by the infrastructure improvements that was estimated to be utilized after 2030, was also accounted for but is not included in the 2021 IIP.

Water supply, treatment, and distribution system project costs by IIP planning period are included in Appendix A-1.

2.11 Water System Summary

Table 12 summarizes the buy-in and necessary water system improvements to serve existing and new EDUs. Project costs are categorized by the year in which they were first included in the IIP. These total costs are used to calculate unit costs to determine the maximum development fee per EDU, which will be presented in the Development Fee Report.

Table 12 Water System Cost Summary

	Estimated Cost
Buy-In	$880,939,939
2021 IIP Water Projects	$68,211,400
2017 IIP Water Projects	$110,756,500
2013 IIP Water Projects	$24,233,000
Total	**$1,084,140,839**

These costs do not include changes or upgrades to serve existing capital facilities in order to meet stricter safety, efficiency, upgrading, updating, expanding, correcting, replacing, or environmental and regulatory requirements for water services provided to existing EDUs.

3.0 Wastewater Infrastructure Plan

3.1 Wastewater Service Area

The City of Scottsdale's wastewater service area largely coincides with the City boundary and is approximately 185 square miles as shown in Figure 2.

In addition to wastewater flows generated within Scottsdale, the City has entered into agreements with neighboring communities and providers to transport and/or treat portions of wastewater originating in those communities and service areas as follows:

- **Phoenix –** Some City of Phoenix wastewater flows enter the Scottsdale collection system through a metering station at Mountain View Road south of Shea Boulevard and pass through the Scottsdale collection system to the Sub-Regional Operating Group (SROG) system per an existing contract. Some Phoenix flows per contractual arrangements can be pumped to the Water Campus Water Reclamation Facility (WRF) for treatment.
- **Paradise Valley –** The Town of Paradise Valley flows enter through numerous connections along the border between the Town and City of Scottsdale.
- **Black Mountain Sewer Company –** Flows from the Black Mountain Sewer Company (owned by Liberty Utilities, a private water and sewer company) enter the City's collection system on North Scottsdale Road near the Carefree Highway.
- **Fountain Hills –** A development in the Town of Fountain Hills discharges to Scottsdale's collection system. There is also a small area within the City limits on the east side at approximately Cactus Road which convey sewer flows to the Fountain Hills Sanitary District facilities.

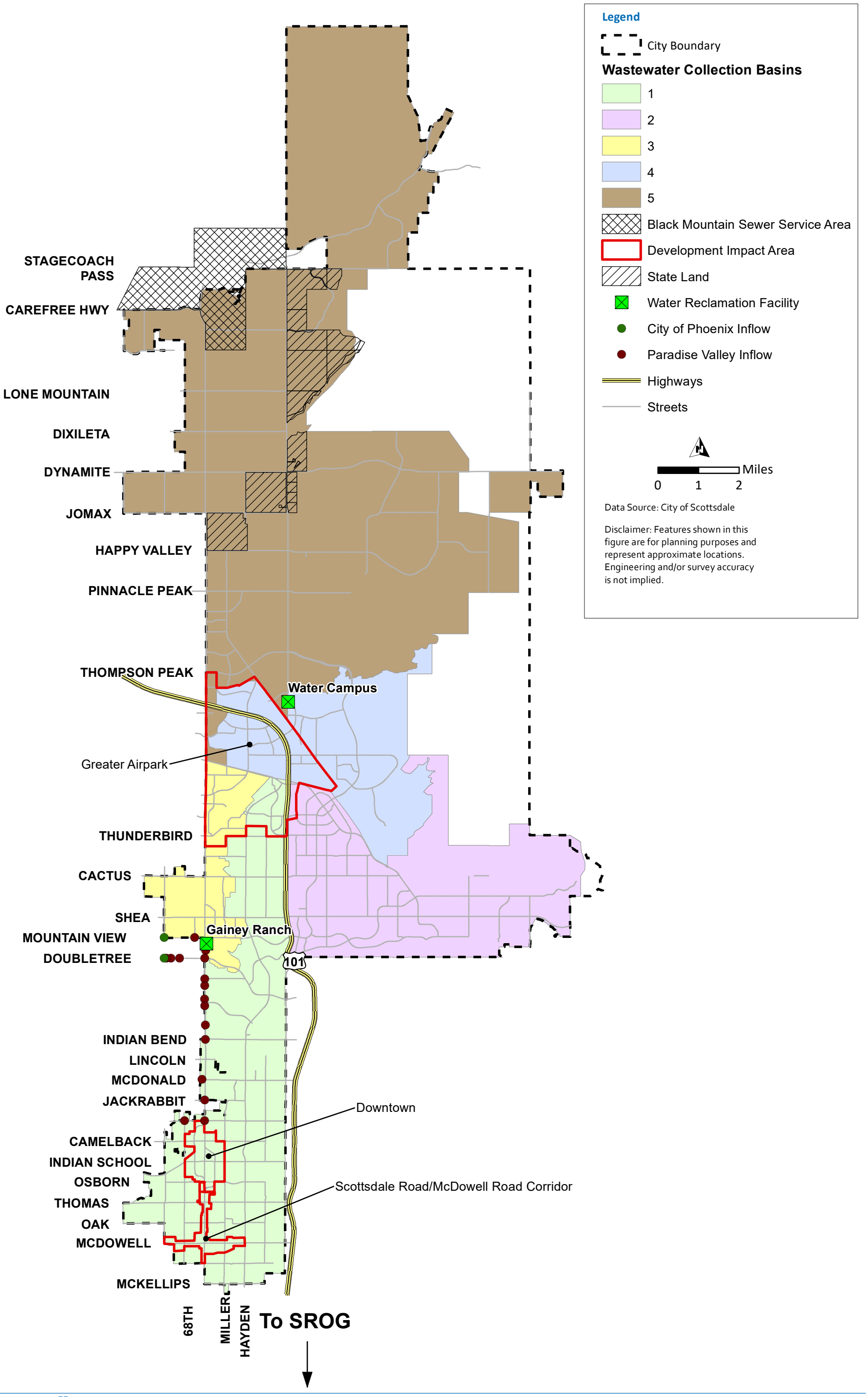

Figure 2 Wastewater Service Area

For collection system planning purposes, the wastewater system is divided into five wastewater flow basins. While there are many ways the collection system can be subdivided, ultimately the entire wastewater system is managed and operated as a single service area. This single service area approach is consistent with implementation of development fees wherein a "system average cost" is used, which focuses on the total value and total demand placed on the wastewater system.

The City's wastewater system includes collection, conveyance, treatment, and reclamation of wastewater for beneficial purposes. The City's wastewater and recycled water systems are treated as a single, integrated system for the IIP.

Wastewater flow projections were developed based on relevant land use assumptions described in the LUA and established City standards related to the conveyance and treatment of wastewater.

3.1.1 Septic System Areas

Some areas in the City have existing septic systems and therefore do not contribute wastewater flows to the collection system or water reclamation facilities. Reclaimed water is a valuable resource to the City of Scottsdale and new IIP projects have been proposed to enable the capture/collection of effluent from these septic areas. The IIP projects involve installing new trunk and interceptor sewer collection pipelines in Major and Minor Collector designated Transportation corridors, as defined in the Scottsdale Transportation Master Plan (July 2016) in each of the septic system areas.

3.2 Land Use

The Land Use Assumptions (LUA) are described and documented separately in an accompanying LUA Report. The LUA includes the City's current demographic estimates, and its projections for future dwelling units and employment development within the City's service area between 2021 and 2030.

3.3 Existing Level of Service

In order to calculate development fees, the usage of various customer types must be standardized into a measure of demand attributable to an individual unit of development termed a service unit. For the wastewater category of Necessary Public Services, service units are translated into an EDU, which is equivalent to the approximate wastewater flow from one detached single-family dwelling unit. Standardization of other customer types to a single-family dwelling unit applies capacity ratios of associated meter sizes.

Based on the approach that overall water usage is a reasonable predictor of wastewater production, and to be consistent with Section 2.3 of the IIP, water meter size is used to determine the existing wastewater EDU level of service.

Single-family dwelling units in the City typically have a meter size less than or equal to one inch. Meter capacities by type and size are listed in Table 13.

Using the City's database of water meter records through December 2020, Table 13 summarizes the calculations of EDUs within the City's wastewater service area.

It is important to note, number of meters featured in this table represent those customers that are provided sewer service by the City, and do not necessarily correlate to the number of water meters. For example, some water customers have septic systems and certain sewer customers are supplied water from a different water service provider.

Table 13 Existing Wastewater EDUs

Meter Type	Number of Meters	EDU Conversion	No. of EDUs
Single Family <=1"	74,410	1.0	74,410
Single Family = 1.5"	657	5.0	3,285
Single Family = 2"	57	8.0	456
Single Family = 3" Compound	1	17.5	18
Single Family = 4" Compound	0	30.0	0
Single Family = 6" Compound	0	67.5	0
Multi-Family <=1"	1,125	1.0	1,125
Multi Family = 1.5"	671	5.0	3,355
Multi Family = 2"	1,296	8.0	10,368
Multi Family = 3" Compound	33	17.5	578
Multi Family = 3" Turbine	3	21.8	65
Multi Family = 4" Compound	25	30.0	750
Multi Family = 4" Turbine	2	37.5	75
Multi Family = 6" Compound	25	67.5	1,688
Multi Family = 6" Turbine	6	80.0	480
Multi Family = 8" Compound	4	80.0	320
Residential Subtotal	**78,315**		**96,972**
Non-Residential <=1"	1,647	1.0	1,647
Non-Residential = 1.5"	1,171	5.0	5,855
Non-Residential = 2"	1,274	8.0	10,192
Non-Residential = 3" Compound	128	17.5	2,240
Non-Residential = 3" Turbine	7	21.8	153
Non-Residential = 4" Compound	55	30.0	1,650
Non-Residential = 4" Turbine	2	37.5	75
Non-Residential = 6" Compound	21	67.5	1,418
Non-Residential = 6" Turbine	12	80.0	960
Non-Residential Subtotal	**4,317**		**24,189**
Total	**82,632**		**121,161**

For purposes of the Wastewater IIP, the existing level of service of the wastewater system is defined as the annual average daily (AAD) wastewater flow. AAD flows are used since wastewater treatment facilities are rated and permitted on AAD flow conditions. Historical AAD for the last several calendar years is shown in Table 14.

Table 14 Historical Annual Average Daily Wastewater Flow

Calendar Year	Annual Average Daily Flow (gpd)
2015	21,400,000
2016	21,300,000
2017	21,400,000
2018	22,400,000
2019	21,600,000
2015 – 2019 Average	**21,620,000**

The City's average AAD from 2015 through 2019 is 21.62 mgd. This average flow rate is used to calculate the current EDU value.

The existing level of service for both residential and non-residential EDUs is calculated using each customer's class of volumetric flow from the City's meter billing database for fiscal year 2020 and the respective number of EDUs or employees, as established in the LUA. Volumetric flow ratios were shown in Table 5.

Based on the number of existing residential EDUs as shown in Table 13, the existing residential level of service (meeting annual average day flow) per EDU is shown in the following calculation:

(21,620,000 gpd x 79%) ÷ 96,972 EDUs = 176.1 gpd per EDU

The LUA's estimated number of people employed within Scottsdale is currently 207,927. The existing non-residential level of service (meeting average annual daily flow) per employee is shown in the following calculation:

(21,620,000 gpd x 21%) ÷ 207,927 employees = 21.8 gpd per employee

The wastewater IIP calculations are based on the existing level of service per residential wastewater EDU and expressed as 176.1 gpd per EDU while the existing level of service per employee is expressed as 21.8 gpd per employee.

While the basis for enumerating the level of service is calculated based on AAD wastewater flow, the infrastructure needed to convey and treat the wastewater considers both peak dry weather and peak wet weather flows.

3.4 Future Level of Service

The level of service provided to new customers will be consistent with the existing level of service described above. Any capital improvements proposed for the wastewater system to accommodate new growth, will be designed to accommodate AAD wastewater flows of 176.1 gpd per EDU and 21.8 gpd per employee, respectively.

3.5 Existing Capacity of Wastewater Capital Facilities

The following sections summarize the existing capacity of the capital facilities in the wastewater service area, the utilization of available capacity by existing EDUs, and the available excess capacity to serve new EDUs, including existing or planned commitments or agreements the City has made for the use of system capacity. This section also identifies those changes or upgrades required to maintain the planned level of service to existing EDUs. Capital facilities described here include the wastewater collection and treatment systems.

3.5.1 Wastewater Collection and Treatment Facilities

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 wastewater treatment facilities can be used as a measure of the capacity of the entire wastewater collection system.

The existing capacity of the treatment and collection systems are the two components of the wastewater system that are eligible to serve new EDUs and have costs recovered through the wastewater development fee, as summarized in Table 15.

Table 15 Existing Wastewater Treatment and Collection Facilities

Facility	Capacity (mgd)
Gainey Ranch WRF (1)	1.67
Water Campus WRF (2)	20.00
SROG (Scottsdale Safe Capacity Ownership) (3)	20.25
Total Capacity	**41.92**
Less ineligible: Gainey Ranch WRF	(1.67)
Less ineligible: Reserved Capacity	(0.74)
Total Eligible (unused capacity) for New EDUs	**39.51**
Less Annual Average Daily Flow	(21.62)
Capacity Available for New EDUs	**17.89**

Notes:
(1) Gainey Ranch WRF will not provide capacity to new EDUs.
(2) Does not include capacity of the Water Campus AWT facility.
(3) Represents liquids stream treatment capacity at the 91st Avenue Wastewater Treatment Plant

The net treatment and collection capacity available to serve new EDUs is the difference between the total capacity of the treatment and collection system and deductions for reserved capacity (see Table 21) and the current flow. The capacity available for use to serve new EDUs is 17.89 mgd.

3.6 Buy-In to Existing Wastewater System

Similar to the water system, the buy-in value of the existing wastewater system represents the RCNLD of both components of the wastewater system. RCNLD is a very common approach in the valuation of assets used by the industry since it represents the estimated fair market value of the assets in service at today's cost(based on their estimated remaining service life) which generally would support the overall business activities in providing service. RCNLD is determined by escalating depreciated facility asset values based on the ENR-CCI. The value of any reserved assets, contributed by developers, or other parties, or possessing contractual restrictions, are excluded from the buy-in value of facilities eligible to serve new EDUs. In addition to the RCNLD of wastewater facilities eligible to serve new EDUs, the buy-in component also includes the remaining annual interest payments on the City's existing debt issuances for facilities that benefit development. Interest expense is recovered through the assessed Wastewater Development Fee, and subsequent Wastewater Development Fee revenues may be used to service debt the City has issued to fund facilities that benefit development.

New connections are required to buy-in to each component of the existing wastewater system as shown in Table 16, and are allocated costs based on the portion of existing capacity in each component available to serve new EDUs.

Table 16 Buy-In to Existing Wastewater System

Plant Investment – Wastewater System Buy-In	Total Value RCNLD 6/30/20 (1)	Use by Existing EDUs (2)	Available for New EDUs (3)
Wastewater Treatment Plants (4)	$329,730,427	$178,677,004	$151,053,423
Wastewater Collection System (5)	$128,962,241	$69,883,108	$59,079,134
Total Wastewater System	**$458,692,668**	**$248,560,112**	**$210,132,556**

Notes:

(1) Represents the total RCNLD value of those facilities eligible to serve new EDUs. The facilities eligible to serve new EDUs do not represent the entirety of the City's wastewater system facilities or the replacement value of all system assets owned by the City as the values of certain facilities are excluded from the total replacement costs eligible to serve new EDUs. Those facilities excluded from the facilities eligible to serve new EDUs include facilities contributed by developers or other parties, replacements benefiting existing EDUs, and facilities or portions of facilities that will not benefit new development.

(2) Represents the portion of the total RCNLD value for each component of the City's wastewater system that is either reserved or associated with meeting current demands of existing EDUs. The current demand, or level of service, for each component of the system is determined based on five-year average wastewater effluent and customer data.

(3) Represents the portion of the total RCNLD value for each component of the City's wastewater system that is available to meet anticipated flows of new EDUs (which may be added beyond year 2030). The available capacity in each component of the system is determined by deducting reserved capacity and existing customer demands from the total capacity of the facilities eligible to serve new EDUs.

(4) Wastewater Treatment Plants includes the 20.0 mgd Water Campus Reclamation Facility and Scottsdale's 20.25 mgd of capacity ownership in the City of Phoenix run Wastewater Treatment Plant through the SROG agreement. Since it benefits wastewater disposal at the Water Campus, 85% of the costs of the AWT are included in wastewater treatment plants. The 1.67 of mgd at the Gainey Ranch Water Reclamation Facility is excluded from the wastewater treatment plants' components since this facility is not eligible to serve new EDUs. The total capacity of the facilities eligible to serve new EDUs in the wastewater treatment plants components is adjusted to reflect reserved capacities. For more information on existing capacity eligible to serve new EDUs, see Table 15.

(5) Wastewater Collection System includes wastewater conveyance infrastructure such as lift stations, gravity sewers and force mains. Any Wastewater Collection System facilities contributed by developers or other parties have been excluded from the total value eligible to serve new EDUs. These facilities provide total capacity eligible to serve new EDUs of 17.86 which is equal to the current treatment capacity. This similar capacity is because the existing Wastewater Collection System has been sized to meet existing and future demands. For more information on existing capacity eligible to serve new EDUs, see Table 15.

3.7 Grandfathered Capital Facilities

There are no grandfathered capital facilities in the City's wastewater system. Grandfathered capital facilities would have been identified at the time A.R.S. 9-463.05 was enacted, and the City would have been able to continue collecting development fee revenue to pay for pledged debt service associated with the grandfathered facilities. The City did not identify any grandfathered facilities at that time.

3.8 Future EDUs

A summary of the total growth in each Flow Basin between 2020 and 2030, in terms of average annual daily flow and EDUs, is shown in Table 17.

Table 17 Average Annual Daily Wastewater Flow and EDU Projections: 2020 through 2030

Flow Basin	2020 through 2030 Average Annual Daily Flow Increase (mgd)	2020 through 2030 EDU Increase (EDU) (1)
Basin 1	0.6	3,407
Basin 2	0.3	1,703
Basin 3	0.1	568
Basin 4	1.0	5,678
Basin 5	2.1	11,923
Total by 2030	**4.1**	**23,278**

By year 2030, it is expected that 23,278 EDUs will be added to the wastewater system, which represents 4.1 mgd of average daily flow.

The total EDUs that will need to be served by 2030 is 144,439 as summarized in Table 18.

Table 18 Existing and 2030 Average Annual Daily Flows and EDUs

	Average Annual Daily Flow (mgd)	EDUs
Existing	21.7	121,161
Future (Additional)	4.1	23,278
Total by 2030	**25.8**	**144,439**

The total average daily flow and EDUs the wastewater system will need to serve in year 2030 includes the existing and new residential and non-residential EDUs.

3.9 Required Wastewater Capital Facilities and Improvements

3.9.1 Wastewater Treatment

There are no planned capacity expansions to the Gainey Ranch WRF, Water Campus or Scottsdale's ownership in the SROG 91st Avenue WWTP to meet existing or future flows through the planning period ending in 2030. There is available capacity in these facilities to accommodate new EDUs.

3.9.2 Wastewater Collection System

Wastewater collection system improvements will be needed to provide capacity to serve growth that occurs through 2030. Because additional capacity is anticipated to be required to serve development beyond 2030, the City plans to size the infrastructure to support the ultimate capacity needs of the system. Adjustments are made in allocating costs for the growth that is anticipated to occur within the 10-year planning period of this IIP.

The 2021 IIP includes some projects that extend sewers into areas that are currently served by septic systems.

The City published Infrastructure Improvements Plans in 2013 and 2017. Some of these projects have been partially or fully constructed since then. The need for the remaining projects was re-evaluated as part of the IWRMP and are carried forward in the current IIP for continuity.

3.10 Wastewater System Projects and Cost Estimates

Cost estimates were developed in accordance with the guidelines of the Association for the Advancement of Cost Engineering (AACE) International for a Class 5 estimate. These costs do not include financing costs, interest, the time value of money, or inflation.

Unless otherwise noted, sewer pipeline project costs were developed assuming pipelines would be upsized, meaning removing the existing pipe and installing a new, larger pipe with cost estimates for bypass pumping. Parallel lines may also be an option to augment capacities, but any consideration of pipe replacement versus parallel augmentation would be addressed during project designs.

The allocation of costs associated with rates (existing customers) or development fees (growth) were prepared using the wastewater flows from current customers and the estimated wastewater flows from growth through year 2030. The costs associated with capacity provided by the infrastructure improvements that was estimated to be utilized after 2030, was also accounted for but is not included in the 2021 IIP.

Wastewater collection and treatment system project costs by IIP planning period are included in Appendix B-1.

3.11 Wastewater System Summary

Table 19 summarizes the buy-in and necessary wastewater system improvements to serve existing and new EDUs. Project costs are categorized by the year in which they were first included in an IIP.

Table 19 Wastewater System Cost Summary

	Estimated Cost
Buy-In	$458,692,668
2021 IIP Wastewater Projects	$53,805,000
2017 IIP Wastewater Projects	$21,596,000
2013 IIP Wastewater Projects	$5,393,000
Total	**$539,486,668**

These costs do not include changes or upgrades to serve existing capital facilities in order to meet stricter safety, efficiency, upgrading, updating, expanding, correcting, replacing, or environmental and regulatory requirements for wastewater services provided to existing EDUs.

4.0 Forecast Revenues from Taxes, Fees, and Assessments

There are no revenues from taxes, fees, assessments, state-shared revenue, highway user revenue, federal revenue, ad-valorem property taxes, construction contracting or similar taxes, or any portion of utility fees attributable to development, or other sources that will be available to fund new or expanded capital facilities. The portion of transaction privilege taxes on utility fees is used exclusively for rehabilitation and maintenance of existing capital facilities.

5.0 Calculated Required Offsets

There are no funds available from offsets to help fund new or expanded capital facilities.

6.0 Reserved Capacity

Reserve capacity in the water and wastewater system refers to system capacity that has already been paid for by an entity or other provider but has not yet been fully utilized. This capacity is deducted from the overall system capacity, prior to calculating the available capacity for new EDUs. Table 20 and Table 21 summarize the reserve capacity in the City's water or wastewater systems for which development fees have already been paid.

Table 20 Water System Reserve Capacity [(1)]

Contract Name	Purchased Water Production & Distribution Capacity (mgd)	Purchased Recharge Capacity (mgd)	Current Production (mgd)	Unused Water Capacity (mgd)	Unused Recharge Capacity (mgd)
Berneil Water Company	0.233		0.001	0.232	
Carefree Water Company	0.401		0.265	0.136	
Tonto Hills	0.032		0.027	0.005	
McDowell Mountain Golf Club			0.351		
Reclaimed Water Distribution System		20.000	13.500		6.8
Total Reserved Capacity	**0.666**	**20.000**	**14.144**	**0.373**	**6.8**

Note:
(1) Wheeling or transportation agreements where capacities have not been purchased are not shown in the above tables.

Table 21 Wastewater System Reserve Capacity

Contract Name	Purchased Wastewater Capacity (mgd)	Current Production (mgd)	Unused Wastewater Capacity (mgd)
Black Mountain Sewer	0.401	0.230	0.171
Paradise Valley	1.030	0.460	0.570
Total Reserved Capacity	**1.431**	**0.690**	**0.741**

Appendix A1

WATER PROJECTS TABLE

Water System Project Summary - PROPOSED
2021 IIP
3/18/2021

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2021 IIP Projects												
W IIP-001	Desert Mountain Water Line	Desert Mountain Parkway from Desert Hills Drive to Tank 90 (T-90)	Add a parallel 16-inch diameter water line in Desert Mountain Parkway to reduce head loss in the existing main to T-90, increase redundancy for the Desert Hills area, and add capacity for future connections.	2025	NA	NA	NA	$ 2,629,500	$ 1,063,500	$ 466,500	$ 1,099,500	
W IIP-002	Stagecoach Pass Road Water Line Improvements	Stagecoach Pass Road from Legend Trail Parkway to 97th Place	Add 12-inch diameter water main and pressure reducing valves from Zone 14-A to Zones 12-C and 13-A to provide additional water supply to support future connections.	2025	NA	NA	NA	$ 2,493,000	$ 420,000	$ 270,000	$ 1,803,000	
W IIP-003	Desert Mountain Redundant Source of Supply	Stagecoach Pass Road, Pima Road, and Cave Creek Road	Add a new booster pump station, storage tank, and transmission main to provide a second source of supply to the Desert Mountain area. This project includes a new 24-inch diameter transmission main from the new site that will connect to the existing transmission main from Site 92B to the Desert Mountain area and will provide capacity for both current and future connections.	2030	NA	NA	NA	$ 28,402,500	$ 11,481,000	$ 5,041,500	$ 11,881,500	
W IIP-004	CAP WTP Pima Road Transmission Main Improvements	Pima Road from Union Hills Drive to Frank Lloyd Wright Boulevard	Add a parallel 36-inch diameter transmission main to supplement the Pima Road transmission main that conveys water from the CAP WTP to Sites 83A and 83B. This will provide capacity for both current and future connections.	2030	NA	NA	NA	$ 18,879,000	$ 1,845,000	$ 2,934,000	$ 14,100,000	
W IIP-005	Zone 12A Improvements	South of Dynamite Boulevard at 108th Way and 111th Way	Add 12-inch diameter water main to increase distribution system looping for maintaining levels of service to current connections and to provide capacity for future connections.	2030	NA	NA	NA	$ 252,000	$ 32,000	$ 40,000	$ 178,000	
W IIP-006	Airpark Transmission Mains	Pima Road from Bell Road to Pima/Princess Drive	Add new water mains to provide capacity for future connections in the Greater Airpark area (Pressure Zone 4)	2030	NA	NA	NA	$ 3,400,000	$ 582,000	$ 1,130,000	$ 1,688,000	
W IIP-007	90th Street / Jomax Transmission Main	North of Jomax Road from Pima Road to 90th Street	Add a new water main to provide capacity for future connections in Pressure Zone 9.	2030	NA	NA	NA	$ 1,254,000	$ 166,000	$ 180,000	$ 908,000	
W IIP-008	Site 146 Zone 11 Pumping Improvement	Site 146	Add pumping capacity to Booster Pump Station 146-Z11 (BPS-146-Z11) to serve current and future connections in Pressure Zones 10-C, 11-C, 12-F, and 13-F.	On-going	NA	NA	NA	$ 914,400	$ 527,400	$ 200,400	$ 186,800	
W IIP-009	Site 148 Tank Rehabilitation	Site 148	Rehabilitate Tank 148 (T-148) to maintain the 0.5 MG capacity provided to serve Pressure Zones 14 through 18.	2025	NA	NA	NA	$ 902,000	$ 365,000	$ 160,000	$ 377,000	
W IIP-010	ASR Well 53A	Site 53	Drill and equip ASR well to increase treated CAP water aquifer storage and recovery capacity for growth. The ASR well will be located at Site 53.	2025	NA	NA	NA	$ 9,085,000	$ 888,000	$ 1,412,000	$ 6,785,000	Costs provided by City. Reference: MGC Aquifer Storage and Recovery Wells - Loop 101 and Hayden 60% Cost Model - Equipping of Well 54C (Aug 7, 2020) and Wilson Engineers Scottsdale Aquifer Storage and Recovery Wells - Phase I Design and Permitting Proposal (Oct 22. 2019) plus land acquisition estimate.
2021 IIP Subtotal								**$ 68,211,400**	**$ 17,369,900**	**$ 11,834,400**	**$ 39,006,800**	

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2017 IIP Projects												
W IIP-011	Zone 8-D Jomax Road Transmission Line	Jomax Road between North Paso Trail and Wrangler Road	Over half a mile of transmission pipeline along Jomax west of Pima Road: For the 2021 IIP, the project definition has reduced to less than one half mile of pipe. Add 12-inch diameter water main along Jomax Road and a PRV to complete distribution system looping to provide capacity for current and future connections.	2030	$ 927,000	$ -	$ 927,000	$ 1,995,000	$ 199,500	$ 322,500	$ 1,474,500	
W IIP-012	Rio Verde/128th Street Transmission Mains	Rio Verde Drive from 122nd Street to 128th Street, continuing south on 128th Street to Ranch Gate Road; 122nd Street, north of Pinnacle Peak Road right of way	BPS upgrade, over 2.5 miles of transmission pipeline east of Alma School Road: Add new 12-inch diameter and 16-inch diameter water mains and pressure reducing valves to provide capacity for future connections. Add one 0.5 million-gallon tank on land to acquire south of Site 145 to replace the existing Site 145 12,000-gallon tank to provide storage capacity for current and future connections.	2025	$ 5,155,700	$ -	$ 5,155,700	$ 17,931,000	$ 3,606,000	$ 13,965,000	$ 358,500	Tank 145 and associated 12-inch diameter water mains determined to be necessary. This infrastructure was added to this previously defined 2017 IIP project.
W IIP-013	Booster Pump Station 42D/E Transmission Capacity Upgrade	Jomax Road west of Pima Road	PRV station and less than half a mile of transmission pipeline along Jomax west of Pima Road: Add new water mains to create a more direct feed from Booster Pump Station (BPS) 42D/E to Zone 8-D to serve future connections south of Jomax Road.	2030	$ 950,000	$ -	$ 950,000	$ 2,302,000	$ 884,000	$ 400,000	$ 1,018,000	
W IIP-014	State Land Near Legend Trails - Water Main	East of Pima Road from Ashler Hills Drive alignment (extended) and 92nd Street alignment (extended), north to Stagecoach Pass Road, and west to Pima Road.	3 miles of transmission pipeline northeast of Pima Road: Add new water mains to support future connections around the Legend Trails Development.	2030	$ 7,284,000	$ -	$ 7,284,000	$ 12,333,000	$ -	$ 3,207,000	$ 9,127,000	
W IIP-015	Zone 8 Jomax Road Transmission Main	Jomax Road west of Pima Road to Hayden Road	About a half mile of transmission pipeline along Jomax west of Pima Road: Add new water main to provide capacity for future connections in Pressure Zone 8 north of Jomax Road.	2030	$ 725,000	$ -	$ 725,000	$ 3,154,000	$ 186,000	$ 206,000	$ 2,760,000	
W IIP-016	Site 42 Tank	Site 42	New 1.5 MG tank and associated yard piping northwest of Jomax and Pima Road: Install new 2.5 MG tank (subsequently upsized from the 2017 IIP due to anticipated growth and demand) and associated yard piping to serve future connections.	On-going	$ 2,920,000	$ -	$ 2,920,000	$ 7,765,000	$ 775,000	$ 1,254,000	$ 5,736,000	Cost provided by City. Reference MGC Site 42 2.5 MG Reservoir Site Expansion GMP (Sep 17, 2020) and GHD Site 42: 2.5 MG Reservoir Site Expansion Planning, Design and Construction Support Services Scope of Services (Nov 9, 2018)
W IIP-017	Crossroads East - Water Transmission Main and Booster Pump Station Improvements	Union Hills Drive alignment (extended) from Booster Pump Station 55A at the CAP WTP west to Hayden Road	BPS upgrade and nearly 1 mile of transmission pipeline east of Hayden Road north of Loop 101: Increase Site 55A booster pumping capacity, and install approximately 4,200 linear feet of 30-inch diameter transmission main to serve current and future connections.	2025	$ 4,550,000	$ -	$ 4,550,000	$ 6,091,500	$ 1,041,000	$ 2,023,500	$ 3,027,000	Site 55A booster pump expansion is not needed. Revised project definition for 2020 IIP only includes transmission main.
W IIP-018	CAP WTP Expansion	City of Scottsdale Water Campus	CAP WTP Expansion: Expand Plant 3 at the CAP Water Treatment Plant (CAP WTP) by 20 MGD to increase the combined plant capacity to 90 MGD. This expansion will provide capacity to meet current and future peak summer demands and will provide capacity for current and future connections.	2025	$ 30,000,000	$ -	$ 30,000,000	$ 50,100,000	$ 4,896,000	$ 7,786,000	$ 37,418,000	2017 IIP cost was for 20-MGD expansion of CAP WTP to 90 MGD. Updated costs for this IIP for a 10-MGD expansion or 20-MGD expansion ($50,100,000) were estimated based on an analysis of information from the schedule of values for Archer Western's final pay request for the Plant 3 expansion completed in 2010 and escalated to January 2021 dollars using ENR 20-Cities Average CCI.
W IIP-019	New Well North of Loop 101 near Hayden (ASR Well 159)	Legacy Boulevard east of Scottsdale Road	New well north of Loop 101 near Hayden: Drill and equip ASR well to increase treated CAP water aquifer storage and recovery capacity for growth. Includes site work (piping, electrical gear, communications, wall, security, etc.)	2025	$ 3,950,000	$ -	$ 3,950,000	$ 9,085,000	$ 888,000	$ 1,412,000	$ 6,785,000	Costs provided by City. Reference: MGC Aquifer Storage and Recovery Wells - Loop 101 and Hayden 60% Cost Model - Equipping of Well 54C (Aug 7, 2020) and Wilson Engineers Scottsdale Aquifer Storage and Recovery Wells - Phase I Design and Permitting Proposal (Oct 22. 2019) plus land acquisition estimate.
2017 IIP Subtotal					**$ 56,461,700**	**$ -**	**$ 56,461,700**	**$ 110,756,500**	**$ 12,475,500**	**$ 30,576,000**	**$ 67,704,000**	

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2013 IIP Projects												
W IIP-020	Crossroads East - Water System Improvements	Vicinity of Loop 101 and Hayden Road	3.5 miles of pipeline and pressure reducing valve stations west of Hayden Road and north of Princess Blvd: Add new water mains and pressure reducing valves to serve current and future connections in the Greater Airpark area. The 2020 IIP analysis identified several mains in this project that require upsizing from the diameters that were previously identified in the 2013 IIP.	On-going	$ 4,606,700	$ -	$ 4,606,700	$ 8,937,000	$ 1,528,000	$ 2,969,000	$ 4,440,000	
W IIP-021	State Land - Water System Improvements	East of Pima Road between Dynamite Boulevard and Ashler Hills Drive	4.5 miles of pipelines and pressure reducing valve stations east of Pima Road between Dynamite and Ashler Hills: Add new water mains and pressure reducing valves to serve future connections in the State lands south of the Legend Trails Development.	2025	$ 5,475,500	$ -	$ 5,475,500	$ 12,309,000	$ 1,228,000	$ 1,988,000	$ 9,093,000	
W IIP-022	East Dynamite/Rio Verde Drive - Transmission Main	North and south of Rio Verde Drive and West of 118th Street, between Pinnacle Vista Drive and Morning Vista Road alignments (extended)	2 miles of pipeline east of 114th Street near Dynamite: Add new water transmission main to provide capacity to serve future connections.	Complete	$ 3,045,000	$ 1,218,000	$ 1,827,000	$ 2,987,000	$ 298,000	$ 483,000	$ 2,207,000	
W IIP-023	Vadose Zone Recharge Wells	Various Locations	Recharge a portion of renewable reclaimed water: Construct eight reclaimed water vadose zone injection wells to increase recharge capacity.	Not Needed	$ 3,200,000	$ -	$ 3,200,000	$ -	$ -	$ -	$ -	Project no longer required.
2013 IIP Subtotal					**$ 16,327,200**	**$ 1,218,000**	**$ 15,109,200**	**$ 24,233,000**	**$ 3,054,000**	**$ 5,440,000**	**$ 15,740,000**	
Grand Total					**$ 72,788,900**	**$ 1,218,000**	**$ 71,570,900**	**$ 203,200,900**	**$ 32,899,400**	**$ 47,850,400**	**$ 122,450,800**	

Appendix B1

WASTEWATER PROJECTS TABLE

Wastewater System Project Summary - PROPOSED
2021 IIP
3/18/2021

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2021 IIP Projects												
WW IIP-001	Camelback Road Sewer Improvement	Camelback Road from 75th Street to Miller Road	Upsize the existing 15-inch diameter sewer in Camelback Road to a 21-inch diameter sewer to increase capacity for current and future connections.	2022	NA	NA	NA	$ 1,234,000	$ 592,000	$ 39,000	$ 603,000	
WW IIP-002	Alma School Parkway Sewer Improvement	Alma School Parkway from Jomax Road to Dynamite Boulevard	Upsize existing 8-inch diameter sewer to a 10-inch diameter sewer to provide capacity for current and future connections. The model predicted depth to diameter (d/D) is greater than 0.75 by year 2025.	2025	NA	NA	NA	$ 4,726,500	$ 1,571,000	$ 1,364,000	$ 1,791,000	
WW IIP-003	Covey Trail Sewer Improvements	Covey Trail from East Skyline Drive to E.A.W Tillinghast Road	Upsize the existing 8-inch diameter sewer main to a 10-inch diameter and 12-inch diameter sewer main to increase capacity to serve current and future connections. The model predicted depth to diameter (d/D) is greater than 0.75 by year 2025.	2025	NA	NA	NA	$ 5,682,000	$ 2,924,000	$ 2,628,000	$ 130,000	
WW IIP-004	Mayo Boulevard Sewer Improvements	Mayo Boulevard from Scottsdale Road to Princess Boulevard	Construct new 8-inch diameter and 10-inch diameter sewer mains to provide capacity for current and future connections.	2025	NA	NA	NA	$ 4,466,000	$ -	$ 1,464,000	$ 3,002,000	
WW IIP-005	Greenway Hayden Loop Sewer Improvements	North of Frank Lloyd Wright Boulevard between Pima Road and Princess Drive	Upsize existing 18-inch diameter sewer by replacing with a 21-inch diameter and 30-inch diameter sewer to provide capacity for current and future connections. The model predicted depth to diameter (d/D) is greater than 0.75 by year 2025.	2025	NA	NA	NA	$ 11,932,500	$ 5,983,000	$ 1,208,000	$ 4,741,000	
WW IIP-006	Madera Drive Sewer Improvements	Madera Drive upstream of Lift Station No. 2972	Upsize the existing 8-inch diameter sewer entering the lift station west of 9514 E Madera Dr to 10-inch diameter. The model predicted depth to diameter (d/D) is greater than 0.75 by year 2025.	2025	NA	NA	NA	$ 1,136,000	$ 305,000	$ 812,000	$ 19,000	
WW IIP-007	Thomas Road Sewer Improvement	Thomas Road between 64th Street and 68th Street	Upsize the existing 8-inch diameter sewer main to a 12-inch diameter sewer main to increase capacity for current and future connections.	2025	NA	NA	NA	$ 2,290,000	$ 2,004,000	$ 116,000	$ 170,000	
WW IIP-008	Scottsdale Road/McKellips Road Sewer Improvements	Scottsdale Road from the alignment with Portland Street, located to the east of Scottsdale Road, to McKellips Road, continuing east to Miller Road	Upsize the existing 12-inch diameter sewer main to a 15-inch diameter sewer main to increase capacity for current and future connections.	2025	NA	NA	NA	$ 6,348,000	$ 2,652,000	$ 204,000	$ 3,492,000	
WW IIP-009	McDowell Road Sewer Improvements	McDowell Road from 67th Place to Scottsdale Road	Upsize the existing 10-inch diameter sewer main to a 15-inch diameter sewer main to increase capacity for current and future connections.	2025	NA	NA	NA	$ 3,968,000	$ 1,216,000	$ 43,000	$ 2,709,000	
2021 Capital Projects Subtotal								***$ 41,783,000***	***$ 17,247,000***	***$ 7,878,000***	***$ 16,657,000***	

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2021 Septic System Projects												
WW IIP-010	64th Street Sewer Improvements	64th Street from Caron Drive to approximately ¼ mile south of Cactus Road; Shea Boulevard east of 64th Street; Cholla Street east of 68th Street; 68th Street north of Cholla	Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	NA	NA	NA	$ 5,124,000	$ -	$ 5,074,000	$ 50,000	
WW IIP-011	Hayden Road Sewer Improvements	Pinnacle Peak Road from 81st Street to 84th Street; Happy Valley Road from Hayden to 84th Street	Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	NA	NA	NA	$ 2,436,000	$ -	$ 2,401,000	$ 35,000	
WW IIP-012	Lone Mountain Road and Granite Reef Road Sewer Improvements	Lone Mountain Road from Hayden Road east and continuing north on Granite Reef Road and Ranch Road	Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	NA	NA	NA	$ 1,383,000	$ -	$ 1,366,000	$ 17,000	
WW IIP-013	Shea Boulevard Sewer Improvements	Shea Boulevard from Scottsdale Road to 78th Street	Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	NA	NA	NA	$ 322,000	$ -	$ 320,000	$ 2,000	
WW IIP-014	84th Street and Shea Sewer Improvements	84th Street from Shea Boulevard to Paradise Drive	Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	NA	NA	NA	$ 2,757,000	$ -	$ 2,225,000	$ 532,000	
2021 Septic System Projects Subtotal								***$ 12,022,000***	***$ -***	***$ 11,386,000***	***$ 636,000***	
2021 IIP Subtotal								**$ 53,805,000**	**$ 17,247,000**	**$ 19,264,000**	**$ 17,293,000**	

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2017 IIP Projects												
WW IIP-015	Dynamite Road Sewer Interceptor	Dynamite Boulevard from Scottsdale Road to 84th Street	About one and a half miles of gravity sewer along Dynamite Road west of Pima Road: Construct 8-inch diameter sewer mains in major and minor roadway collectors to connect area served by septic systems to the City's collection system.	2030	$ 1,857,000	$ -	$ 1,857,000	$ 2,764,000	$ -	$ 2,472,000	$ 292,000	
WW IIP-016	Jomax Road Sewer Improvements	Jomax Road from 56th Street to Scottsdale Road	New lift station, about a half mile of force main along 56th Street north of Jomax, and about three and a half miles of gravity sewer west of 64th Street along Jomax Road with a few extensions to the north of Jomax: For the 2021 IIP the project definition has expanded. Construct 8-inch, 15-inch and 21-inch diameter sewer mains in an area currently served by septic systems to a new lift station at the corner of 56st Street and Jomax Road. Construct parallel 12-inch diameter force mains from the lift station to the 18-inch diameter interceptor in Scottsdale Road.	2025	$ 4,399,000	$ -	$ 4,399,000	$ 15,043,000	$ -	$ 14,692,000	$ 351,000	This project should be completed in conjunction with WST-006 (10-inch diameter pipeline to convey Well 50 water to the Cluster 3 ATF) to avoid repeat of linear construction along Jomax Road.
WW IIP-017	Miccellaneous Wastewater System Improvements	128th Street north of Happy Valley Road	Upgrade Lift Station 52 (Sereno Canyon), about 300 feet of gravity sewer east of Happy Valley Road to serve the lift station, and a new gravity sewer along Chaparral Road west of Scottsdale Road: Expand the Sereno Canyon lift station and force main capacity to 730 gpm. The gravity sewer and original 350 gpm lift station and force main portions of this project are already complete.	2030	$ 766,000	$ -	$ 766,000	$ 2,151,000	$ 62,000	$ 335,000	$ 1,754,000	
WW IIP-018	Crossroads East Sewer Improvements	East of Hayden Road, North of the Loop 101	Less than half a mile of gravity sewer east of Hayden Road: Construct a 12-inch diameter sewer main to convey flow to a new lift station and provide capacity for current and future connections.	On-going	$ 582,000	$ -	$ 582,000	$ 1,638,000	$ -	$ 556,000	$ 1,082,000	
2017 IIP Subtotal					**$ 7,604,000**	**$ -**	**$ 7,604,000**	**$ 21,596,000**	**$ 62,000**	**$ 18,055,000**	**$ 3,479,000**	

2021 IIP Project Number	Project Title	Location	Description 2013 and 2017 IIP Descriptions Underlined	Estimated Start of Construction	Previous IIP Project Cost ($)	Previous IIP Cost for Existing EDUs ($)	Previous IIP Cost for Future EDUs ($)	2021 IIP Project Cost ($)	2021 IIP Costs for Existing EDUs ($)	2021 IIP Costs for New EDUs through 2030 ($)	2021 IIP Costs for New EDUs beyond 2030 ($)	Note
2013 IIP Projects												
WW IIP-019	McCormick Parkway and Northern Avenue Sewer Improvements	McCormick Parkway and Northern east of Scottsdale Road	About 800 feet gravity sewer: Project definition has expanded since the 2013 IIP. Upsize to 12-inch diameter sewer main to increase capacity. Insufficient capacity with d/D greater than 0.75.	No Longer Needed	$ 185,000	$ 160,707	$ 24,293	NA	NA	NA	NA	Project no longer needed. City flow metering in 2017 showed area sufficient capacity. Upstream area is built out.
WW IIP-020	104th Street Sewer Improvements	104th Street from Cactus Road to Shea Boulevard	About half mile of gravity sewer: Project definition expanded from Cholla Drive to Shea Boulevard since 2013 IIP. The existing sewer is approaching its capacity with a flow depth to diameter (d/D) ratio of greater than 0.75. Upsize the existing sewer to a 12-inch diameter and 15-inch diameter sewer main to increase capacity for current and future connections.	2035	$ 570,000	$ 448,994	$ 121,006	NA	NA	NA	NA	2013 IIP project need deferred to year 2035 based on updated flow projections.
WW IIP-021	78th Street and Coolidge Street Sewer Improvements	78th Street from Chaparral Road to Coolidge Street, continuing east to Hayden Road	About half a mile gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity.	No Longer Needed	$ 570,000	$ 487,569	$ 82,431	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-022	Avalon Drive Sewer Improvements	Avalon Drive from 61st Street to 68th Street	One mile gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 1,324,000	$ 1,178,405	$ 145,595	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-023	68th Street Sewer Improvements (North of Camelback)	68th Street from Camelback Road to Highland Avenue	About a quarter mile gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 299,000	$ 245,651	$ 53,349	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-024	68th Street Sewer Improvements (South of Camelback)	68th Street from Monterosa Street to Roma Avenue	Less than half a mile gravity sewer: Upsize existing sewer to 15-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 502,000	$ 339,955	$ 162,045	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-025	128th Street Sewer Improvements	128th Street from Shea Boulevard to Desert Cove	About 800 feet gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 181,000	$ 149,908	$ 31,092	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-026	Redfield Road Sewer Improvements	Redfield Road from 96th Street to Frank Lloyd Wright Boulevard	About a quarter of a mile gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 249,000	$ 211,682	$ 37,318	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-027	Cactus Road Sewer Improvements	Cactus Road from 104th Street to Frank Lloyd Wright Boulevard	Nearly one mile of gravity sewer: Upsize existing sewer to 12-inch diameter sewer main to increase capacity for current and future connections.	No Longer Needed	$ 1,035,000	$ 813,431	$ 221,569	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-028	Via Linda Sewer Improvements	Via Linda from Loop 101 to the west	About 500 feet of gravity sewer: Construct new 24-inch diameter sewer to provide capacity for current and future connections.	No Longer Needed	$ 262,000	$ -	$ 262,000	NA	NA	NA	NA	Hydraulic model updates including correcting connectivity, identifying manhole flow splits, and updated inflows developed for the IWRMP result in this project being no longer needed.
WW IIP-029	Crossroads East Lift Station	Northeast of the corner of Loop 101 and Hayden Road	New lift station: Construct a 2.2 mgd lift station to convey flows from Hayden Road to Hualapai Drive.	On-going	$ 2,300,000	$ -	$ 2,300,000	$ 4,081,000	$ -	$ 1,384,000	$ 2,697,000	Cost provided by City. Reference: Haydon Crossroads East Sewer Lift Station GMP-2, 12/11/2020 and Wilson Engineers Crossroads East Sewer Lift Station and Sewer Lines Construction Phase Scope of Services 12/2/2020.
WW IIP-030	Crossroads East Force Main	Northeast of the corner of Loop 101 and Hayden Road	About one mile of force main: Construct a 10-inch diameter force main to convey flows from the Crossroads East Lift Station to Hualapai Drive.	On-going	$ 1,530,000	$ -	$ 1,530,000	$ 1,312,000	$ -	$ 445,000	$ 867,000	Cost provided by City. Reference: Haydon Crossroads East Sewer Lift Station GMP-2, 12/11/2020 and Wilson Engineers Crossroads East Sewer Lift Station and Sewer Lines Construction Phase Scope of Services 12/2/2020.
2013 IIP Subtotal					**$ 9,007,000**	**$ 4,036,302**	**$ 4,970,698**	**$ 5,393,000**	**$ -**	**$ 1,829,000**	**$ 3,564,000**	
Grand Total								**$ 80,794,000**	**$ 17,309,000**	**$ 39,148,000**	**$ 24,336,000**	