APPENDIX A
SUMMARY INFORMATION OF THE CITY OF PHOENIX WASTEWATER SYSTEM

ORGANIZATION AND ADMINISTRATION

The City of Phoenix has two separate sewer systems – storm drains and sanitary sewers. The City's sanitary sewers, or Wastewater System (the *"System")* has been operated as a financially self-supporting municipal utility service since July 1, 1980. It is organized as a functional division of the City's Water Services Department (the "*Department*"). The Department also contains Water Operations as a separate functional division that also acts as a completely self-supporting utility service. The Department's authority and responsibility is derived from the Phoenix City Charter and City Council adopted ordinances and resolutions. The Department is required to prepare and submit an annual budget for the Water and Wastewater Systems to the City Council prior to the beginning of each fiscal year. The City Council is required to hold a public hearing on the proposed budget and a specified notice of this hearing must be given to any bondholder who requests such notice in writing. If for any reason a budget is not adopted, the budget of the preceding fiscal year shall apply. The City Council adopts both the water and wastewater budgets, establishes water and wastewater rate structures and sets overall policy for the Department.

The Water Services Director currently reports to a Deputy City Manager. The four Assistant Water Services Directors for the Administration, Water, Wastewater and Technical Services Divisions report to the Water Services Director.

Karen L. Peters, Deputy City Manager, joined the City in 2005 after 18 years of practice as an attorney and former partner with Squire Sanders & Dempsey LLP (now Squire Patton Boggs (US) LLP). She received her J.D. from the Georgetown University Law Center in 1987 and B.S. summa cum laude from Arizona State University in 1984. Currently, Ms. Peters serves as a Trustee for The Nature Conservancy, Arizona Chapter. Ms. Peters has served as a member and Past President of the Arizona State University College of Liberal Arts and Science Alumni Board, the Board of Directors of Phoenix Day Child and Family Learning Center, the State Bar of Arizona Environmental and Natural Resources Law Section, and the Board of Directors of the Arizona League of Conservation Voters. She co- chaired the Arizona Groundwater Cleanup Task Force which made recommendations for reform in 1997 of Arizona's State Superfund laws. Ms. Peters is a member of Valley Leadership Class XXVI and Arizona Town Hall.

Troy Hayes, Water Services Director — Water, has over 25 years of civil engineering and management experience in the water and wastewater industry. Prior to becoming the Water Services Director, he served as Assistant Water Services Director and Deputy Water Services Director for the Water Production Division. He holds a bachelor's degree in Chemical Engineering from the University of Arizona, a master's degree in Business Administration from the University of Phoenix and is a licensed professional civil engineer in the states of Arizona and Colorado. He also holds Arizona Department of Environmental Quality Grade 4 Operator License in all disciplines of water and wastewater.

Brandy Kelso, Assistant Water Services Director — Water, has over 25 years of civil engineering and management experience in the water and wastewater industry. In her current role, Ms. Kelso oversees the Water Utility which includes the Water Production Division, Water Distribution Division, Water Meter Division, and Water Engineering and Construction Division. These divisions manage the treatment and delivery of safe, reliable drinking water to the City's 1.7 million customers. Prior to becoming the Assistant Water Services Director, she served as Deputy Water Services Director for Water Resources and Development Planning Division. She holds a bachelor's and master's degree in Civil Engineering from Arizona State University and is a licensed professional civil engineer in the state of Arizona.

Nazario Prieto, Assistant Water Services Director — Wastewater, has over 18 years of civil engineering and management experience in the water and wastewater industry. Prior to becoming an Assistant Water Services Director, he served as a Deputy Water Services Director for the Assets and Development Planning Division. He holds a bachelor's degree in Civil Engineering from the University of Texas at El Paso and is a licensed professional civil engineer in the State of Arizona.

Holly Rosenthal, Assistant Water Services Director — Finance & Administration, has over 20 years of private and public sector executive management experience, including operating and capital budget oversight, rate setting and finance. She served as Treasurer and Deputy Executive Director of the Onondaga County Water Authority and Executive Director of the Onondaga County Metropolitan Water Board through successful consolidation of the two regional water utilities. Ms. Rosenthal holds a

bachelor's degree in Landscape Architecture/Environmental Studies and is completing a master's in public administration from Syracuse University's Maxwell School. She is an accredited professional in Leadership in Energy and Environmental Design and a licensed landscape architect.

Jim Swanson, Assistant Water Services Director – Technical Services, has over 30 years of water/wastewater operations, regulatory, water resources, and management experience across the water and wastewater industry. In his current role, Mr. Swanson oversees Technical Services which includes the following divisions: Environmental Services, Assets and Development Planning, Infrastructure Records, and Process Control. These divisions manage various aspects of the Departments water quality compliance, regulatory compliance, water resources and conservation, development planning, master planning, safety and training, security, GIS records, and process control across the City's water and wastewater systems. Prior to becoming the Assistant Water Services Director, he served as Deputy Water Services Director over the Water Distribution Division and the Water Meter Division. Mr. Swanson holds a bachelor of science degree in Geology from Arizona State University, a grade 4 certified Water Distribution System Operator license, and a Water Treatment System Operator license from the State of Arizona.

FINANCIAL PLANNING AND RATES DEVELOPMENT

Financial planning and wastewater rates development are provided by the Finance Department in coordination with the Water Services Department. In addition, the Finance Department reviews the timeliness and accuracy of the billing services, provides all financial reporting and financial information, establishes financial policies, and recommends rates and fees. Wastewater rates are set to recover the direct and indirect costs of service.

In addition, the Water/Wastewater Rate Advisory Committee acts in an advisory capacity to the City Manager and City Council on water rate and fee structure. The committee is charged with annually reviewing the Department's Capital Improvement Program, revenue requirements and operations and maintenance budget as they impact future water and wastewater rates.

BILLING AND COLLECTION RESPONSIBILITY

The Water Services Department is responsible for a combined municipal services bill for water, sanitary sewer, and solid waste services along with a jail tax, storm water management program tax and other general applicable taxes. Water meters are read, and all accounts are billed monthly. Payment of a regular bill is due 21 days after the bill issuance date. If payment is not received within three days after the due date, a late payment charge is assessed to the outstanding account balance. All customers receive one notice of nonpayment indicating a pending turnoff if not paid. If the total amount due is not received within ten days from the date of notice of nonpayment, the process to suspend water service to the premises begins and a turn-off fee of $55.00 plus tax is charged to the customer's account. The total amount of the bill, including all fees, is collected before water service is restored.

The Department bills more than 421,521 accounts in an approximately 543 square mile service area for a service population of approximately 1,642,656 Approximately 381,755 (90.6%) of the accounts are single family residential, 17,013 (4.0%) multi-family residential, and 22,547 (5.3%) non-residential. For fiscal year 2019-20, the Department billed 62,762,788 hundred cubic feet (ccf) of wastewater flow of which 33,993,776 ccf (54.1%) was from single family residential accounts, 13,341,104 ccf (21.2%) from multi-family accounts, and 12,990,746 ccf (20.7%) from non-residential accounts. The largest single wastewater customer is Shamrock Foods, which accounted for 1.2% of wastewater rate revenue. The top ten customers accounted for $16,147,228 (7.8%) of total wastewater rate revenue.

WASTEWATER RATE STRUCTURE

Wastewater rate schedules are adopted by the Mayor and City Council by ordinance, subject to certain statutory restrictions on rates charged to non-residents. Since July 1, 1980, wastewater rates have been reviewed annually, in accordance with the Council's adopted policy. The City's principal consideration in adjusting wastewater rates is to maintain the System's operations as a completely self-supporting enterprise. Within the last twenty years, the City has approved thirteen rate revenue adjustments, with the last increase of 2.0% effective March 1, 2017.

The following table summarizes the effective dates of these adjustments and the corresponding annualized percentage change in wastewater rate revenue:

Effective Date	Annualized % Change in Wastewater Rate Revenues (1)
April 1, 2001	5.0
March 4, 2002	3.5
March 3, 2003	8.0
March 3, 2004	7.0
March 2, 2005	9.0
March 2, 2006	9.0
March 2, 2007	9.5
March 3, 2008	7.0
March 3, 2009	5.0
March 1, 2010	4.5
July 1, 2012	-7.5
March 1, 2016	2.0
March 1, 2017	2.0

(1) There were no rate revenue adjustments in 2011, from 2013 through 2015 or since March 1, 2017.

SEWER SERVICE CHARGES

Sewer Volume and Monthly Charges

The City's current wastewater (sewer) rate structure includes several customer classes with rates for each customer class based on the relative strength of the sewage discharge. The higher the customer's sewage strength, the higher the rate will be. The strength-based volume charges recover most costs except for costs associated with billing and collection and environmental compliance. The costs of billing and collection are recovered through a fixed monthly charge of $1.00 per account. There is a minimum charge of $4.50 per billing per month for all customers.

For sewer system customers, except industrial customers and self-service laundries, a percentage of winter (January through March) water usage is used to estimate sewage flows and calculate monthly bills. Estimated sewage flows for each customer are updated annually in July based on the current year's winter usage.

The annual estimated sewage flows for all customers, except industrial, are adjusted as necessary based on a sewer flow stabilization factor in order to ensure that the overall base level of revenue is achieved.

Environmental Charge

An environmental charge, which is assessed to recover the annual cost of complying with new environmental standards, was implemented on December 1, 1992. The current rate of $0.5511 per ccf became effective on July 1, 2017. The charge is indicated as a separate line item on the customer's bill. Revenues from this charge are used to cover all operation, maintenance, replacement, administrative and capital expenses necessary for water treatment processes and facilities to meet federal, state and county environmental regulations.

Industrial Wastewater Charges

In addition to the sewer service charges, industrial customers pay fees to recover the annual cost of the Industrial Pretreatment Program. Cost recovery for this program is through a pretreatment monitoring charge of $0.2918 per ccf of sewage discharged to all industrial users and an annual pretreatment permitting fee of $1,009 per location to the significant industrial users.

Commercial Inspection Fee

A commercial inspection fee of $19.53 per month is applied to commercial and self-service laundries, car washes, bakeries, restaurants, service stations/auto repair shops, and all commercial customers with dining facilities. The fee recovers costs incurred by the Environmental Services Division to inspect and monitor the facilities.

DEVELOPMENT OCCUPATIONAL FEE

The Development Occupational Fee was established in May 1982 to be applied to new and existing water and wastewater service connections when the water meter size is increased, or additional meters are installed. The fee is currently $600 for each single-family service connection and varies by meter size for other types of connections. The use of revenues from this fee is restricted to the funding of projects listed in the approved infrastructure financing plan adopted by City Council related to water and wastewater growth capital improvement projects or debt service on outstanding water and wastewater obligations issued for growth related purposes.

DEVELOPMENT IMPACT FEE

Development Impact Fees were established at various times in growth areas beginning in the late 1980s and are applied to new and existing water service customers when the water meter size is increased, or additional meters are purchased. The fee is charged in the northern and southern growth areas where the majority of new development in the City is now occurring. There are separate charges for the northern area and the southern area. Fees for other meters vary according to size and maximum capacity. The fee is collected at the time the developer pays for building permits. Developers may be given Development Impact Fee credits or pay reduced fees if capital projects are constructed and contributed by the developer that typically are the responsibility of the City. The use of revenues from this fee is restricted to the funding of projects listed in the approved infrastructure financing plan adopted by City Council related to water and wastewater growth capital improvement projects or debt service on outstanding water and wastewater obligations issued for growth related purposes.

CONNECTIONS TO PUBLIC SEWERS, SEWER EXTENSIONS

All users of the System must obtain a permit prior to connecting to the System. Industrial users must satisfy more stringent permit requirements than residential and other users. Plans of the design and specifications, quantity, location, method of connection and size of all sewer connections are submitted for review and approval before a permit is issued.

For new subdivisions and developments within the City, public sewers are authorized by the Development Services Department Director. For new subdivisions and developments outside the City, public sewers are authorized by the Water Services Director. Such public sewers are to be constructed at the developer's expense in accordance with the City building codes and approved by the respective Director. The costs for the preparation and review of plans and specifications, the staking of the location of the new public sewers, the cost of inspecting the construction, the cost of acquiring rights-of-way and easements and preparation of as-built plans are the responsibility of the developer. The ownership of all public sewer lines, lift stations, treatment facilities, equipment and other appurtenances to the System which are maintained or accepted for maintenance by the Department is vested in the City.

The main sewer extension policy for areas beyond present City trunk lines requires the developer to pay all costs for engineering, design and construction of main sewers. The main sewers must be of such size as to afford adequate capacity and service for their specific service areas to be served by City trunk sewers. The design and engineering are required to be in accordance with the specifications of the City and approved by the Water Services Director prior to construction. Upon completion, the main sewer line becomes the property of the City, and the City has exclusive control of connections to the proposed main sewer line.

PRIVATE SEWERAGE SYSTEMS

Except as provided in the Phoenix City Code, it is unlawful to construct or maintain within the City or an area of the City jurisdiction a private sewer system, including any privy, privy vault, septic tank, cesspool, onsite wastewater treatment system, or other facility intended or used for the disposal of sewage. However, where a public sanitary sewer is not available, a building may be connected to a private sewage disposal system. The private sewer system must be designed, installed, maintained, and operated or used at all times in strict conformance with State and County private sewer system requirements. When a public sewer becomes available for connection, the home or building must discontinue its use of the private sewer disposal system and connect to the public sewer.

INDUSTRIAL USERS, INDUSTRIAL PRETREATMENT PROGRAM

As part of its coordinated efforts to meet federal and state standards, the City requires industrial users of the System to meet certain requirements, obtain special permits and to participate in the City's Industrial Pretreatment Program (IPP). There are 167 permitted industrial users of which 96 are designated as a significant industrial user (SIU) and are required to obtain a Class A permit prior to discharging industrial waste into the System. Significant industrial users must assist the Water Services Director in determining the exact concentration and volume of any pollutant intended for discharge to the System, and upon request, must allow the examination and copying of all relevant records or documents available to the user and the inspection of the user's business locations. Additionally, the user must provide the Water Services Director with self-monitoring reports relating to the user's industrial discharge and must allow the Department to take and remove samples of wastewater discharged to the System. The Water Services Director has authority to carry out a sampling program and perform the necessary analyses. If the testing shows that a variation exists between the user's certified data regarding discharge and the data monitored by the Department, the City may adjust charges to that user. Users found not to be in compliance with required standards are issued notices to conform to the proper standards. In some cases, civil monetary penalties have been assessed and collected when conformance has not been reached within the prescribed time frame.

WASTEWATER SYSTEM - FACILITIES

The System currently consists of two Wastewater Treatment Plants ("*WWTP*") — the 23rd Avenue WWTP, and the 91st Avenue WWTP, and one Water Reclamation Plant ("*WRP*") — the Cave Creek WRP. The 23rd Avenue WWTP has the capacity to treat 63.00 million gallons per day (mgd) of City of Phoenix-only flows, and the 91st Avenue WWTP has the capacity to treat 230.00 mgd of combined flow from the five participating cities. After the allocation of the increased capacity from the Unified Plant Expansion 2005, the City of Phoenix share of total capacity is 112.80 mgd.

To meet future anticipated wastewater flows in the northern areas, the City has the Cave Creek WRP. The facility can serve areas of new development north of State Route 101 and outside the service areas of the 91st Avenue and 23rd Avenue WWTPs. The first 8.00 mgd of capacity for the Cave Creek WRP became operational in December 2001, but the plant was shut down in October 2009 until flows return to higher levels. Opening and expansion of the Cave Creek WRP is currently under design to increases treatment requirements need to service new development in the north. The Cave Creek WRP can be expanded to a capacity of 32.00 mgd.

Collection System

The wastewater collection system, which does not include the storm water system, contains more than 4,900 miles of sewers. These sewers range in size from 4 inches to 90 inches in diameter. There are 99,299 manholes and 8,291 cleanouts available for access to the main sewer system.

23rd Avenue Wastewater Treatment Plant

The 23rd Avenue WWTP provides wastewater treatment for central Phoenix and is located on a 55-acre site between Durango Street and Lower Buckeye Road at the extended alignment of 23rd Avenue. The plant is surrounded by various government maintenance and operation facilities. In general, the boundaries of the service area can be described as follows: the south boundary is Buckeye Road and Sky Harbor International Airport, the north boundary is Cactus Road, the east boundary is 56th Street, and the west boundary is the Black Canyon ("*I-17*") Freeway. The plant's service area includes the downtown sections of Phoenix and various residential neighborhoods near the central business district. The area is extensively developed with growth coming from redevelopment, including the conversion of older neighborhoods to commercial business or high density residential.

The original 23rd Avenue WWTP was built in 1931; however, most of the original facilities have been replaced. The current plant consists of facilities constructed in 1960 that have been doubled in size and were significantly modified and upgraded in 1994. The plant presently operates as an advanced wastewater treatment process. The plant is designed to treat a capacity of 63.00 mgd. The plant consists of a series of unit processes that remove pollutants from wastewater. Removed pollutants fall into two main categories, total suspended solids ("*TSS*") and organics as measured by a chemical oxygen demand ("*COD*") test. The treated water is disinfected to destroy disease-causing organisms. The treatment unit processes at the plant consist of preliminary screening and grit removal; primary sedimentation; secondary treatment consisting of biological activated sludge with nitrification and denitrification followed by secondary sedimentation; tertiary treatment consisting of chemical addition, flocculation and filtration; and chlorination/dechlorination (disinfection). A large portion of the treated water is utilized by the Roosevelt Irrigation District ("*RID"*) to irrigate crops and the remainder is discharged to the Salt River. The residual solids, which are by-products of the aforementioned primary and secondary unit processes, are treated on site in anaerobic digesters. The digested solids are dewatered by centrifuges on site and then are trucked off site to be applied as a soil amendment to agricultural land, processed into a compost product, or landfilled.

91st Avenue Wastewater Treatment Plant

The 91st Avenue WWTP is located on a 560-acre site just east of 91st Avenue, south of Broadway Road and on the north side of the Salt River. Within a two-mile radius, the plant is surrounded by rural-agricultural development. Within a two-to-four- mile radius, scattered new residential developments are occurring mainly in the area to the north. The Gila River Indian Community is located on the south bank of the Salt River channel, approximately one mile south of the existing plant location. The 91st Avenue WWTP provides regional wastewater treatment for the multi-city Subregional Operating Group ("*SROG*"), including the City of Phoenix except for the central area served by the 23rd Avenue WWTP. The City of Phoenix participates with the cities of Glendale, Mesa, Scottsdale, and Tempe in the joint exercise powers agreement ("*JEPA"*) for the construction, operation, and maintenance of jointly used facilities, including the 91st Avenue WWTP, the Salt River Outfall Sewer ("*SRO"*), the Southern Avenue Interceptor ("*SAI*"), 99th Avenue Interceptor, and other related transportation facilities. As lead agency, the City is responsible for the planning, budgeting, construction, operation and maintenance of the plant. The City provides all management personnel and accepts federal grants on behalf of the participants. The other cities pay for costs of operation and maintenance based on sewage flows and strengths, and for purchased capacity in plant and related transportation facilities based on approved engineering billing schedules.

The original 91st Avenue WWTP was built in 1958; however, most of the original facilities have been replaced. The portions of the plant as they are used today have been modified and upgraded since the original construction. The present day plant operates as an advanced wastewater treatment process consisting of a nitrification/denitrification activated sludge treatment process. The treatment unit processes at the plant consist of preliminary screening and grit removal; primary sedimentation; secondary treatment consisting of biological activated sludge with nitrification and denitrification followed by secondary sedimentation; and chlorination/ dechlorination (disinfection). A large portion of the effluent is used by the Palo Verde Nuclear Generating Station for cooling reactors. A minimal amount is discharged into the Salt River for the Buckeye Irrigation District ("*BID*") to withdraw downstream for crop irrigation. The remaining effluent is discharged to the Tres Rios wetlands for additional treatment, ground recharging and effluent reuse. The wetlands also provide flood control, ecosystem restoration, wildlife habitat and education components. The residual solids, which are by-products of the aforementioned primary and secondary unit processes, are treated on site in anaerobic digesters. Centrifuges on site dewater approximately 99% of the digested solids, and the remaining 1% is dewatered in solar drying beds. The dewatered solids are trucked off site to be applied as a soil amendment to agricultural land, processed into a compost product, or landfilled. In 2019 the City of Phoenix in partnership with Ameresco began commercial operations to convert biogas into renewable natural gas ("*RNG*"). The biogas is cleaned and compressed and then injected into a high pressure natural gas pipeline and used as a renewable energy commodity. The biogas-to-RNG facility is capable of processing 3,250 standard cubic feet per minute ("*scfm*") of the digester gas produced at the plant.

The 91st Avenue WWTP Unified Plant Expansion project series, which creates a unified plant rather than a series of individual plants, adds operational flexibility and dependability, and increases the total plant capacity. The first project, Unified Plant Expansion 2001 ("*UP01*") was completed at the end of 2008 and increased capacity from 179.25 mgd to 204.50 mgd. The second project, Unified Plant Expansion 2005 ("*UP05*") increased capacity to 230.00 mgd (the City's capacity share is 112.80 mgd) and improved overall plant operational performance. Design and construction on UP05 were divided into two phases. Phase A was completed in 2010 and connects the effluent stream to the Tres Rios Wetlands. Construction of Phase B was completed in 2012 and improves the digestion and thickening processes.

Cave Creek Wastewater Reclamation Plant

The Cave Creek WRP provides wastewater treatment in the northeast area of Phoenix. The plant is located on a 116-acre plant site at the northeast corner of Deer Valley Road and Cave Creek Road. The plant began operations in December 2001 with an initial design capacity of 8.00 mgd. The plant can be expanded to a capacity of 32.00 mgd.

The Cave Creek WRP is a conventional activated sludge wastewater treatment plant with advanced treatment using nitrification/denitrification processes, and filtration. The plant consists of screening, primary clarification, nitrification/denitrification, secondary clarification, filtration, ultra-violet disinfection, and reclaimed water storage facilities. Sludge from the treatment plant is transferred through existing sewer pipelines to the 91st Avenue WWTP for further treatment and disposal. All process basins are covered and ventilated to control and scrub odors.

Due to lower wastewater flows resulting from prior economic conditions, the plant was shut down in October 2009, until flows return to higher levels. Currently, the lower flows are bypassed to the 91st Avenue WWTP where sufficient capacity exists to process the additional load. This temporary change results in more efficient operation of the System. Although currently shut down, the plant could provide additional water resources by treating wastewater and producing reclaimed water for irrigation of turf facilities larger than five acres in the service area and retractable groundwater recharge in the northeast area of Phoenix. The reclaimed water could then be delivered to turf facilities through a separate reclaimed water distribution system. During the shutdown of the plant, turf facilities previously using reclaimed water from the Cave Creek WRP will be delivered raw CAP water. Long-term analysis of the System has determined a need to expand treatment capacity and return the plant to service. Before Cave Creek WRP is operational, the physical treatment process for the plant requires modification to meet advanced treatment requirements to use effluent discharge for recharge and reuse. The current plan is to rehabilitate and expand the plant treatment capacity to 16 mgd and return the plant to service in Fiscal Year 2025-26. However, in the event that additional flows are identified in the service area, an accelerated schedule to return the plant to service will be initiated.

HISTORICAL ANNUAL SEWAGE FLOW

The average annual City of Phoenix-only flows collected by the sewers and treated at the two WWTPs and the Cave Creek WRP for the past ten years in million gallons per day are as follows:

Fiscal Year	23rd Avenue	91st Avenue	Cave Creek	Total
2011-12……...	30.44	83.69 (1)	— (1)	114.13
2012-13……...	30.45	84.43 (1)	— (1)	114.88
2013-14……...	33.06	84.11 (1)	— (1)	117.17
2014-15……...	32.00	83.50 (1)	— (1)	115.50
2015-16……...	32.15	80.75 (1)	— (1)	112.90
2016-17……...	33.61	80.33 (1)	— (1)	113.94
2017-18……...	32.13	83.76 (1)	— (1)	115.89
2018-19……...	31.48	81.87 (1)	— (1)	113.35
2019-20……...	32.69	83.52 (1)	— (1)	116.21
2020-21……...	32.17	87.05 (1)	— (1)	119.22

(1) The Cave Creek WRP was shut down in October 2009, until flows return to higher levels. Flows are bypassed to the 91st Avenue WWTP.

ENVIRONMENTAL COMPLIANCE

The System must meet federal, state, and county regulations which are implemented through the permit programs administered by the responsible agencies. The Department has obtained or has applied for the required System permits. The System currently satisfies applicable water quality parameters.

OUTSTANDING WASTEWATER SYSTEM OBLIGATIONS

City of Phoenix Civic Improvement Corporation Senior Lien Wastewater System Revenue Debt

The City entered into city purchase agreements with the City of Phoenix Civic Improvement Corporation for the purpose of acquiring and constructing additional wastewater treatment facilities at the 23rd Avenue WWTP and System improvements at various locations in the City. The City of Phoenix Civic Improvement Corporation issued bonds for acquiring and constructing additional facilities and various other improvements, and the City made a senior lien pledge of net operating revenues of the System for the payment of principal and interest on the bonds. Amounts due on the bonds and pursuant to the purchase agreements are as follows:

City of Phoenix Civic Improvement Corporation
Senior Lien Wastewater System Revenue Bonded Debt Outstanding

Issue Date	Original Issuance	Purpose	Maturity Dates	Average Interest Rate	Bonds Outstanding As of 1-1-22
06-19-18	$84,295,000	Wastewater System Refunding	7-1-19/24	5.00%	$50,980,000
Total Senior Lien Wastewater System Revenue Bonded Debt					$50,980,000

City of Phoenix Civic Improvement Corporation
Schedule of Annual Debt Service Requirements
Senior Lien Wastewater System Revenue Bonded Debt Outstanding

Fiscal Year	Principal	Interest	Total
2021-22	$12,190,000	$2,549,000	$14,739,000
2022-23	18,945,000	1,939,500	20,884,500
2023-24	19,845,000	992,250	20,837,250
	$50,980,000	$5,480,750	$56,460,750

City of Phoenix Civic Improvement Corporation Junior Lien Wastewater System Revenue Bonds

The City entered into purchase agreements with the City of Phoenix Civic Improvement Corporation for improvements to the System. The City of Phoenix Civic Improvement Corporation issued bonds for odor control facilities, process improvements and capacity expansions of the 91st Avenue WWTP, laboratory building improvements at the 23rd Avenue WWTP, purchase of land and construction of water reclamation facilities in the northern service area, new sewers and lift stations in growth areas and rehabilitation and replacement of sewers throughout the System. The City made a junior lien pledge of net operating revenues of the System ("*Designated Revenues*") for the payment of principal of and interest on the bonds. Amounts due on the bonds and pursuant to the purchase agreements are as follows:

City of Phoenix Civic Improvement Corporation
Junior Lien Wastewater System Revenue Bonded Debt Outstanding

Issue Date	Original Issuance	Purpose	Maturity Dates	Average Interest Rate	Bonds Outstanding As of 1-1-22
12-22-11	$118,290,000	Wastewater System Refunding	7-1-14/24	4.72%	$38,030,000
04-15-14	127,810,000	Wastewater System Refunding	7-1-15/29	4.84	81,770,000
11-16-16	225,325,000	Wastewater System Refunding	7-1-17/35	5.00	187,750,000
06-19-18	133,270,000	Wastewater System Revenue	7-1-25/43	4.64	133,270,000
Total Junior Lien Wastewater System Revenue Bonded Debt					$440,820,000

City of Phoenix Civic Improvement Corporation
Schedule of Annual Debt Service Requirements
Junior Lien Wastewater System Revenue Bonded Debt Outstanding

Fiscal Year	Principal	Interest	Total
2021-22	$33,955,000	$21,587,800	$55,542,800
2022-23	29,445,000	19,957,950	49,402,950
2023-24	30,955,000	18,491,200	49,446,200
2024-25	25,155,000	16,955,950	42,110,950
2025-26	26,470,000	15,698,200	42,168,200
2026-27	27,850,000	14,374,700	42,224,700
2027-28	29,310,000	12,982,200	42,292,200
2028-29	30,835,000	11,516,700	42,351,700
2029-30	19,805,000	9,974,950	29,779,950
2030-31	20,865,000	8,984,700	29,849,700
2031-32	21,980,000	7,941,450	29,921,450
2032-33	23,160,000	6,842,450	30,002,450
2033-34	24,405,000	5,684,450	30,089,450
2034-35	25,715,000	4,464,200	30,179,200
2035-36	7,505,000	3,178,450	10,683,450
2036-37	7,885,000	2,803,200	10,688,200
2037-38	8,275,000	2,408,950	10,683,950
2038-39	8,690,000	1,995,200	10,685,200
2039-40	9,040,000	1,647,600	10,687,600
2040-41	9,365,000	1,321,200	10,686,200
2041-42	9,835,000	852,950	10,687,950
2042-43	10,320,000	361,200	10,681,200
	$440,820,000	$190,025,650	$630,845,650

City of Phoenix Junior Lien Wastewater System Revenue Debt

The City entered into loan agreements with the Water Infrastructure Finance Authority of Arizona ("*WIFA*") to finance the replacement of the Broadway Road Interceptor, rehabilitate approximately 41,000 linear feet of small diameter sewer and construct relief sewers in the southwest portion of the City. WIFA loaned funds derived in whole or in part from the United States Environmental Protection Agency pursuant to the federal American Recovery and Reinvestment Act of 2009 (the "*Recovery Act*"). The City made a junior lien pledge of Designated Revenues of the System for the payment of principal and interest on the loans. Amounts due on the loans pursuant to the loan agreement are as follows:

City of Phoenix
Junior Lien Wastewater System Revenue Debt Outstanding

Issue Date	Original Issuance	Purpose	Maturity Dates	Average Interest Rate	Bonds Outstanding As of 1-1-22
08-03-10	$6,286,996	Wastewater System Improvements	7-1-18/26	2.97 %	$3,691,955
06-01-11	3,909,270	Wastewater System Improvements	7-1-26/29	2.97	3,909,270
Total Junior Lien Wastewater System Revenue Bonded Debt					$7,601,225

City of Phoenix
Schedule of Annual Debt Service Requirements
Junior Lien Wastewater System Revenue Debt Outstanding

Fiscal Year	Principal	Interest	Total
2021-22	$861,827	$225,604	$1,087,431
2022-23	887,406	200,025	1,087,431
2023-24	913,744	173,687	1,087,431
2024-25	940,864	146,567	1,087,431
2025-26	968,790	118,642	1,087,432
2026-27	997,543	89,889	1,087,432
2027-28	1,027,150	60,282	1,087,432
2028-29	1,003,901	29,796	1,033,697
	$7,601,225	$1,044,492	$8,645,717

WASTEWATER FINANCIAL PLANNING PROCESS AND CAPITAL IMPROVEMENT PROGRAM

The City has a long-standing practice of updating the five-year Wastewater Capital Improvement Program (the "*Wastewater CIP"*) and financial forecast each year for review by the City Council as part of the financial planning process. The Wastewater CIP, financial forecast and associated proposed wastewater rates are updated through a coordinated process between the Water Services Department and the Finance Department. The two departments recommend rates necessary to maintain wastewater revenue bond debt service coverage of 2.0 times or greater, a minimum available fund balance equal to annual total revenue bond debt service and long-term sustainability of the System. The most recent CIP was approved by the City Council per the adopted budget in June 2021 and indicates that no increase in wastewater rates is required for fiscal year 2021-22.

The Wastewater CIP for fiscal years 2022-23 through 2025-26 totals $1.38 billion. In addition, $248.9 million was programmed in the fiscal year 2021-22 for a total CIP of $1.629 billion. In general, the Wastewater CIP includes projects for system studies; modifications at the 91st Avenue and 23rd Avenue Wastewater Treatment Plants; improvements to odor control facilities and transmission mains; and rehabilitation and replacement of sewer mains throughout the system. The total Wastewater CIP for fiscal years 2021-22 through 2025-26 is shown on the following page.

City of Phoenix Wastewater System
Capital Improvement Program Summary

	2021-22	2022-23	2023-24	2024-25	2025-26	5-year Total
Uses of Funds						
Treatment:						
91st Avenue WWTP (1)	$ 56,842,996	$ 42,335,000	$ 53,997,000	$ 57,590,800	$ 62,792,000	$ 273,557,796
23rd Avenue WWTP	24,040,859	11,512,000	11,930,000	11,895,000	12,365,000	71,742,859
Tres Rios Wetlands	1,800,000	4,010,000	650,000	550,000	28,050,000	35,060,000
Subtotal Treatment	82,683,855	57,857,000	66,577,000	70,035,800	103,207,000	380,360,655
Collections:						
Lift Stations	33,796,754	53,240,000	15,826,000	19,725,000	13,320,000	135,907,754
North Phoenix Sewers	13,453,000	10,000	250,000	200,000	1,660,000	15,573,000
South Phoenix Sewers	8,238,000	-	-	-	-	8,238,000
Main Replacements	97,151,991	278,318,616	74,373,618	85,433,617	84,731,456	620,009,298
Multi-City Main Replacements	3,728,556	18,410,000	64,130,000	14,190,000	19,140,000	119,598,556
Sewer Other	1,685,000	200,000	250,000	220,715,000	13,100,000	235,950,000
Subtotal Collections	158,053,301	350,178,616	154,829,618	340,263,617	131,951,456	1,135,276,608
Other:						
Buildings	2,600,000	51,279,500	5,249,500	6,749,500	3,329,500	69,208,000
Automation	5,311,876	13,130,565	7,504,288	7,065,765	11,134,565	44,147,059
System Studies	-	5,000	5,000	5,000	5,000	20,000
Percent for Arts	254,605	-	-	-	-	254,605
Subtotal Other	8,166,481	64,415,065	12,758,788	13,820,265	14,469,065	113,629,664
Total Uses	$ 248,903,637	$ 472,450,681	$ 234,165,406	$ 424,119,682	$ 249,627,521	$ 1,629,266,927
Sources of Funds						
Operating Funds:						
Wastewater Revenue	$ 64,359,435	$ 75,511,590	$ 52,537,314	$ 64,935,591	$ 80,467,946	$ 337,811,876
Subtotal Operating Funds	64,359,435	75,511,590	52,537,314	64,935,591	80,467,946	337,811,876
Other Financing:						
CIC - Wastewater Future Bonds (2)	111,732,224	367,844,566	121,933,509	329,284,252	126,602,400	1,057,396,951
Other Cities (3)	32,715,155	29,094,525	59,694,583	29,899,839	42,557,175	193,961,277
Development Impact Fee (4)	40,096,823	-	-	-	-	40,096,823
Subtotal Other Financing	184,544,202	396,939,091	181,628,092	359,184,091	169,159,575	1,291,455,051
Total Sources	$ 248,903,637	$ 472,450,681	$ 234,165,406	$ 424,119,682	$ 249,627,521	$ 1,629,266,927

(1) Represents total costs for all SROG cities for the 91st Avenue WWTP.
(2) Consists of existing and future City Council bond authorizations.
(3) Represents contributions from the other SROG cities for the 91st Avenue WWTP and other cities for non-SROG CIP.
(4) Development Impact Fees are used as a source only when accumulated funds are available.

City of Phoenix Wastewater System
Comparative Statement of Revenues, Expenditures, Encumbrances, Debt Service, Debt Service Coverage and Changes in Fund Balance (Non-GAAP Budgetary Basis)

	2016-17	2017-18	2018-19	2019-20	2020-21
Revenues:					
Sewer Service Charges (2)	$ 159,993,277	$ 166,104,000	$ 167,747,962	$ 170,072,070	$ 170,683,821
Environmental Charges	33,211,084	34,471,474	35,031,558	35,291,695	35,775,034
Development Occupational Fees	3,578,370	3,751,410	4,048,020	5,151,900	5,722,710
Interest	2,149,392	3,461,295	3,984,140	6,047,194	2,673,964
Industrial Pretreatment Fee	950,880	847,782	937,985	965,829	1,040,341
Other (1)	5,864,001	6,943,474	7,448,324	9,187,975	11,974,499
Total Revenues	205,747,004	215,579,435	219,197,989	226,716,663	227,870,369
Operation & Maintenance Expenditures and Encumbrances:					
Administration	16,178,231	17,410,391	19,388,459	20,295,668	19,622,120
23rd Avenue WWTP	11,900,680	13,900,951	11,913,414	10,677,545	13,894,891
Reclamation Plants	958,810	969,590	981,082	817,619	805,496
Transfer to SROG Fund	22,214,769	22,690,625	23,689,468	23,320,624	23,143,503
Pollution Control	5,778,275	5,845,173	5,413,508	4,201,530	4,953,992
Sewer Maintenance and Collection	17,561,005	17,936,459	19,445,162	19,439,701	18,814,190
Total O&M Expenditures and Encumbrances	74,591,770	78,753,189	80,831,093	78,752,687	81,234,192
Net Operating Revenues Available for Senior Lien Revenue Bond Debt Service (Net Operating Revenues)	131,155,234	136,826,246	138,366,896	147,963,976	146,636,177
Senior Lien Revenue Bond Debt Service	21,685,550	16,687,854	14,870,242	14,834,000	14,786,750
Senior Lien Revenue Bond Debt Service Coverage	6.05	8.20	9.30	9.97	9.92
Net Operating Revenues Available for Junior Lien Bond Debt Service (Designated Revenues)	109,469,684	120,138,392	123,496,654	133,129,976	131,849,427
Junior Lien Revenue Bond Debt Service	47,502,246	52,334,931	58,879,005	56,540,581	56,586,581
Junior Lien Revenue Bond Debt Service Coverage	2.30	2.30	2.10	2.35	2.33
Revenues Available After Junior Lien Revenue Bond Debt Service	61,967,438	67,803,461	64,617,649	76,589,395	75,262,846
Other Expenditures, Encumbrances and Transfers:					
G.O. Bond Debt Service	1,080,507	727,778	1,266,750	1,412,150	390,000
Capital Outlay	-	-	2,435,554	2,161,329	2,263,884
Plant Additions and Improvements	79,989,320	31,605,461	1,160,932	20,635,790	27,773,423
Transfer from Other Funds:					
Wastewater Capital Project Funds	(105,423)	-	(68,595)	(5,710,019)	-
Transfer to Other Funds:					
Staff and Administrative Charges	3,705,039	4,481,177	4,059,513	3,901,195	4,586,579
In-Lieu Property Tax Payments	8,786,573	9,097,799	9,193,575	9,579,045	9,833,881
Pay Down of Unfunded Pension Liability (3)	-	70,000,000	-	-	-
Other	2,287,197	-	-	-	59,500
Total Other Expenditures, Encumbrances and Transfers	95,743,213	115,912,215	18,047,729	31,979,490	44,907,267
Net Increase (Decrease) in Fund Balance	(33,775,775)	(48,108,754)	46,569,920	44,609,905	30,355,579
Fund Balance, Beginning of Year	115,315,275	81,539,500	33,430,746	80,000,666	124,610,571
Fund Balance, End of Year	81,539,500	33,430,746	80,000,666	124,610,571	154,966,150
Reserved for:					
Development Occupational Fees	30,774,114	34,900,026	39,644,867	32,596,041	38,685,384
Reserved Fund Balance, End of Year	30,774,114	34,900,026	39,644,867	32,596,041	38,685,384
Unreserved Fund Balance, End of Year	50,765,386	(1,469,280)	40,355,799	92,014,530	116,280,766
Wastewater Reserve Fund	53,000,000	53,000,000	53,000,000	53,000,000	53,000,000
Available Fund Balance, End of Year	$103,765,386	$ 51,530,720	$ 93,355,799	$145,014,530	$169,280,766

(1) Other includes revenue from sources such as sales of by-products, penalties, test fees, and other miscellaneous revenues.

(2) Sewer rates increased on March 1, 2016 and March 1, 2017.

(3) In fiscal year 2018, City coucil authorized the use of Wastewater Funds to pay down the COPERS unfunded pension liability.