

Water/Sewer Systems Concession Lease Agreement

2021 Annual Report



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• INTRODUCTION

The eighth full year of the Concession Lease Agreement between the City of Allentown (City) and Lehigh County Authority (LCA) was commemorated in 2021. This report will specifically review the year of 2021 from January 1 through December 31.

In August 2020, the City and LCA reached a resolution that ended years of disputes and litigation while solidifying their partnership of the Allentown Water and Sewer Utility System Concession and Lease Agreement (Lease) of Allentown's water and sewer utility systems through 2063. The settlement terms and conditions end a number of disputes that were in various stages of resolution. The settlement also includes compromises on issues that developed over time due to differing interpretations of terms included in the Lease.

The settlement ensures that the exceptional quality of drinking water and treated sewage effluent serving the city and suburban customers are continuously maintained. It ensures funding from all beneficiaries is available for all necessary capital improvements to the water and sewer systems and provides for LCA's continuous and financially sustainable operation of the system.

Also dominating 2021 was the COVID-19 global pandemic whose influences were felt system-wide and that may account for out of normal data. Despite the difficulties created by Covid-19 challenges, LCA met all regulatory and Operating Standards requirements and the agility of both the City and LCA organizations made for nearly seamless communication through virtual media platforms.

• HISTORY

The City and LCA signed the Lease on May 1, 2013. In addition to the terms and conditions, the Lease includes the Operating Standards (OS) manual, which contains definitions, metrics, and performance requirements to which LCA must comply. The OS focuses on water quality for drinking water and sewage effluent, customer service, and operation and maintenance of the facilities to ensure that all the systems are properly and continuously maintained throughout the term of the Lease. LCA's actual tenancy of operation of the utility systems started on August 8, 2013.

The City's Office of Compliance (OoC) was established to oversee LCA's performance and compliance with the Lease, OS, and regulatory requirements. In addition to conducting the COA/LCA Regular Compliance meetings, the OoC reviews all reports, permits, and is empowered to conduct reviews and inspections. The OoC can assess operational liquidated damages (penalties) if LCA does not comply with its obligations under the Lease or OS.

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REPORTING - LCA is required to submit to the OoC copies of all regulatory reports, as well as those reports that are required by the OS or Lease (Exhibits A & B).

All copies of correspondences between LCA and regulatory agencies are to be submitted to the OoC. The OoC reviews submissions to determine, verify, or confirm that the requirements of the Lease and OS are being followed. As holder of water and wastewater permits, the City must meet regulatory requirements included in the permits. The OoC consults with LCA and regulatory authorities regarding these conditions. The OoC also reviews all water/sewer applications relevant to construction, permit renewals, etc., and advises the Director of Public Works of its findings.

This annual report is formatted and presented to provide the reader with specific information regarding the performance standards and associated metrics, LCA's performance relative to compliance with the required standards, significant issues during the reporting period, and other information relative to the water and sewer systems operations under the terms of the Lease. Performance standards documented throughout the report include annual performance measures and any exceedance credits from prior years.

- **WASTEWATER TREATMENT**

The Kline's Island Wastewater Treatment Plant (KIWWTP) is designed to treat 40 million gallons per day (MGD) of sewage and is operated under the National Pollutant Discharge Permit Elimination System (NPDES) Permit #PA0026000. The annual average daily volume of sewage treated at the KIWWTP in 2021 was 32.25 MGD, which was similar to the 32.28 MGD treated in 2020.

As required by the Lease, the KIWWTP is staffed 24 hours a day, seven days a week. Operational decisions and guidance are provided primarily by a manual of standard operating procedures (SOP). A Computerized Systems and Data Acquisition system (SCADA) allows operations personnel to monitor treatment processes, adjust pump rates, etc. from a centralized operations control room.

LCA utilizes a computerized maintenance management system (CMMS), which is basis for scheduling, recording, and issuing work orders for predictive, preventative, and repair maintenance. All equipment is catalogued and assigned a discrete identification number. Information from the data plate, product literature, and the entire maintenance history including references to specific work orders is on file.

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A noteworthy KIWWTP project was the replacement of the liquid chlorination system with a sodium hypochlorite (NaOCl) system for effluent disinfection. Even though the liquid chlorine was reliable in the treatment process, it reached the end of its useful life which posed significant public health and employee safety risks. As part of the KIWWTP Master Plan it was recommended to discontinue liquid chlorine and switch to NaOCl. After the switch to NaOCl, it was discovered that it was more difficult to meet current effluent residual chlorine limits and knowing that stricter limits are expected in the future, a de-chlorination pilot system will be installed. The combination of the two systems will allow the plant to meet fecal coliform and chlorine residual discharge limits and meet fecal and chlorine permit limits.

FLOW METERS – Sewage flow meters throughout the KIWWTP are tested and calibrated quarterly by in-house personnel and annually by an independent third party. The communities and Authorities (Sewer Signatories) which have sewage treated at KIWWTP test and calibrate their own meters. All calibrations and certifications are provided to the OoC.

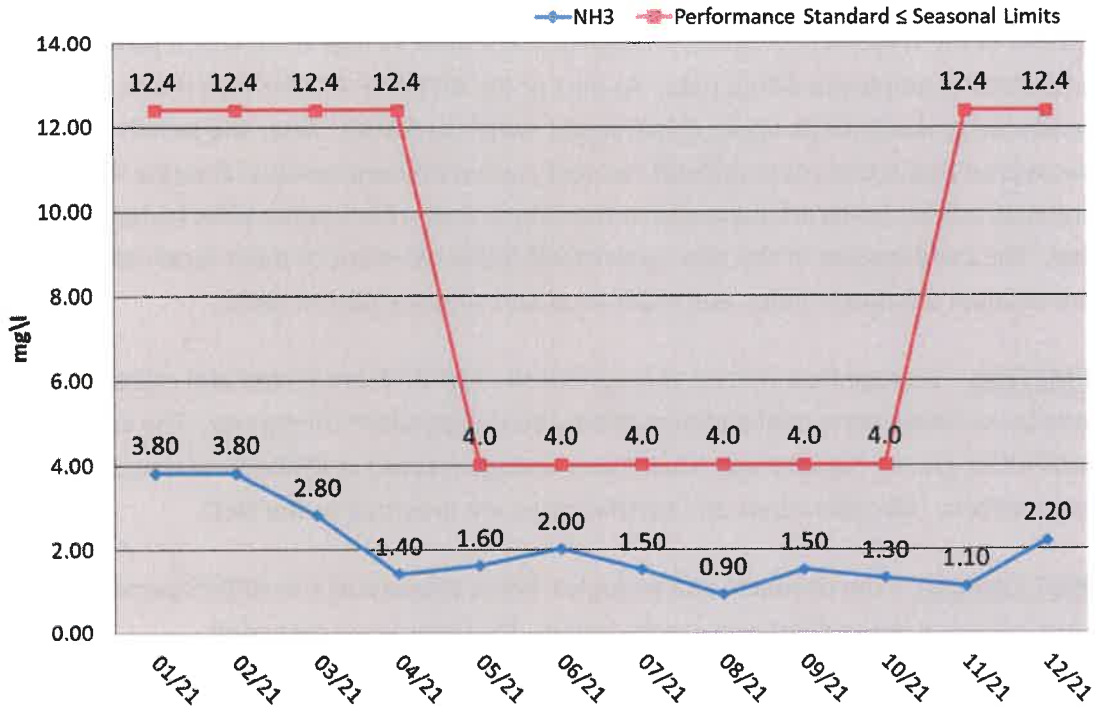
EFFLUENT QUALITY - The chemical and biological limits allowed by the NPDES permit and the Lease are indicated in the chart and graphs below. No limits were exceeded.

EFFLUENT PARAMETERS

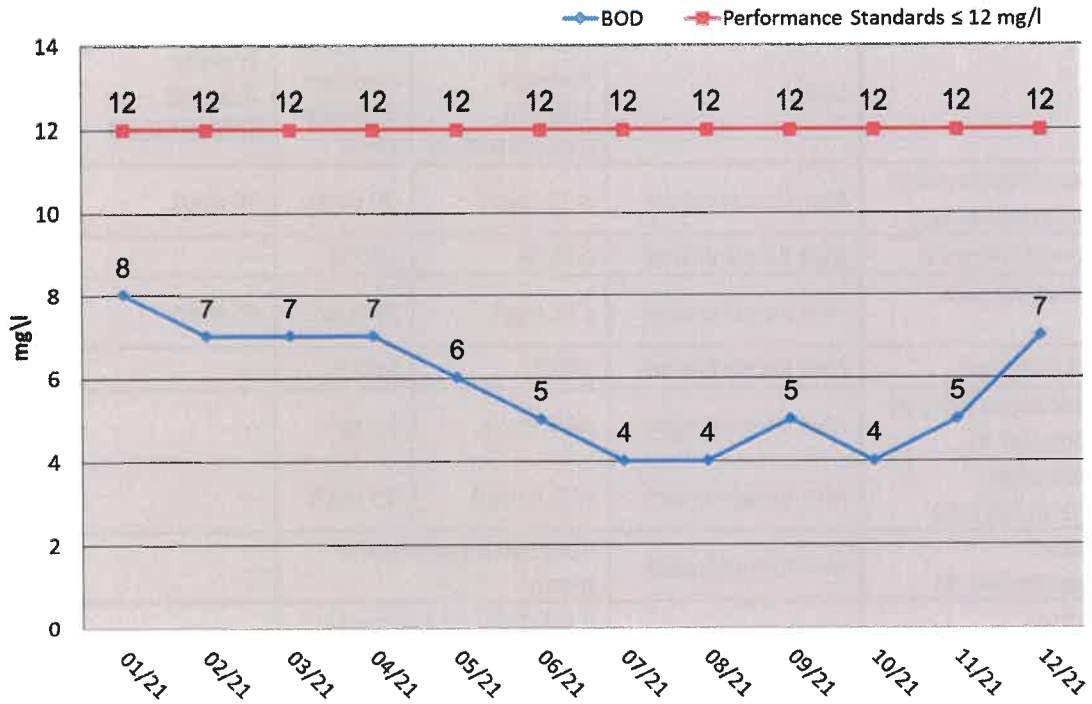
Parameter	LCA	Performance Standards	NPDES Discharge Permit Effluent Limitations		
		Monthly Average Effluent Concentration	Monthly Average Effluent Limit	Weekly Average Effluent Limit	Instantaneous (Daily) Maximum Effluent Limit
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)	Met Requirement	≤ 12 mg/L	20 mg/L	30 mg/L	40 mg/L
CBOD5 Percent Removal	Met Requirement	≥ 90 %	≥90 %	---	---
Total Suspended Solids (TSS)	Met Requirement	≤12 mg/L	30 mg/L	45 mg/L	60 mg/L
TSS Percent Removal	Met Requirement	≥90 %	≥90 %	---	---
Ammonia Nitrogen (NH ₃ -N) May 1 to October 31	Met Requirement	≤4.0 mg/L	5 mg/L	---	10 mg/L
Ammonia Nitrogen November 1 to April 30	Met Requirement	≤12.4 mg/L	15 mg/L	---	30 mg/L
Fecal Coliform May 1 to September 31	Met Requirement	200/100 ml geometric mean		---	---
Fecal Coliform October 1 to April 30	Met Requirement	2,000/100 ml geometric mean		---	---
Residual Chlorine	Met Requirement	≤0.5 mg/L		---	---
pH	Met Requirement	6.0 to 9.0 SU		---	---
Dissolved Oxygen	Met Requirement	5.0 mg/L minimum		---	---

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Ammonia Nitrogen

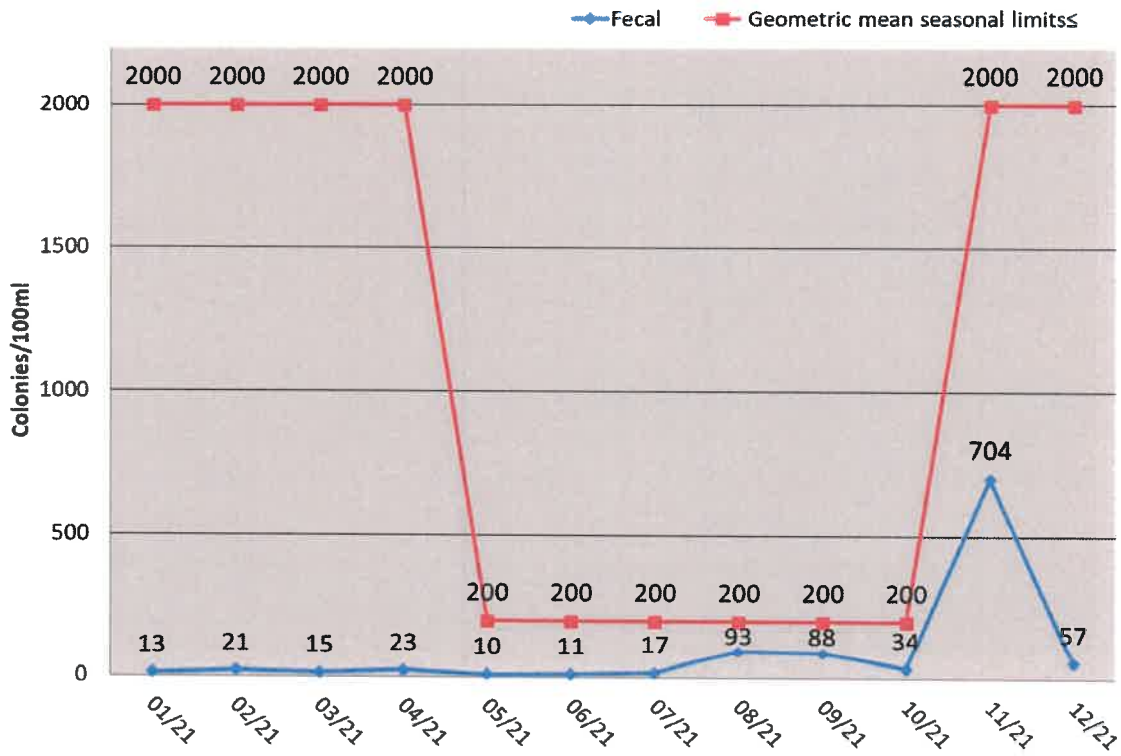


Carbonaceous Biochemical Oxygen Demand

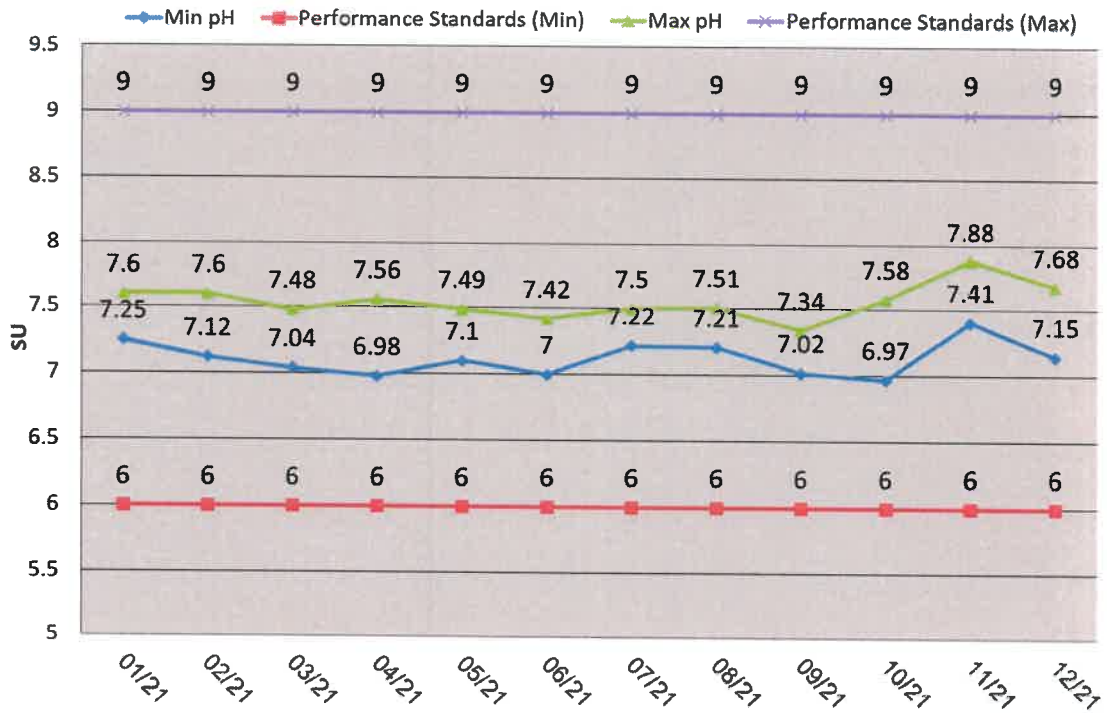


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Fecal Coliform

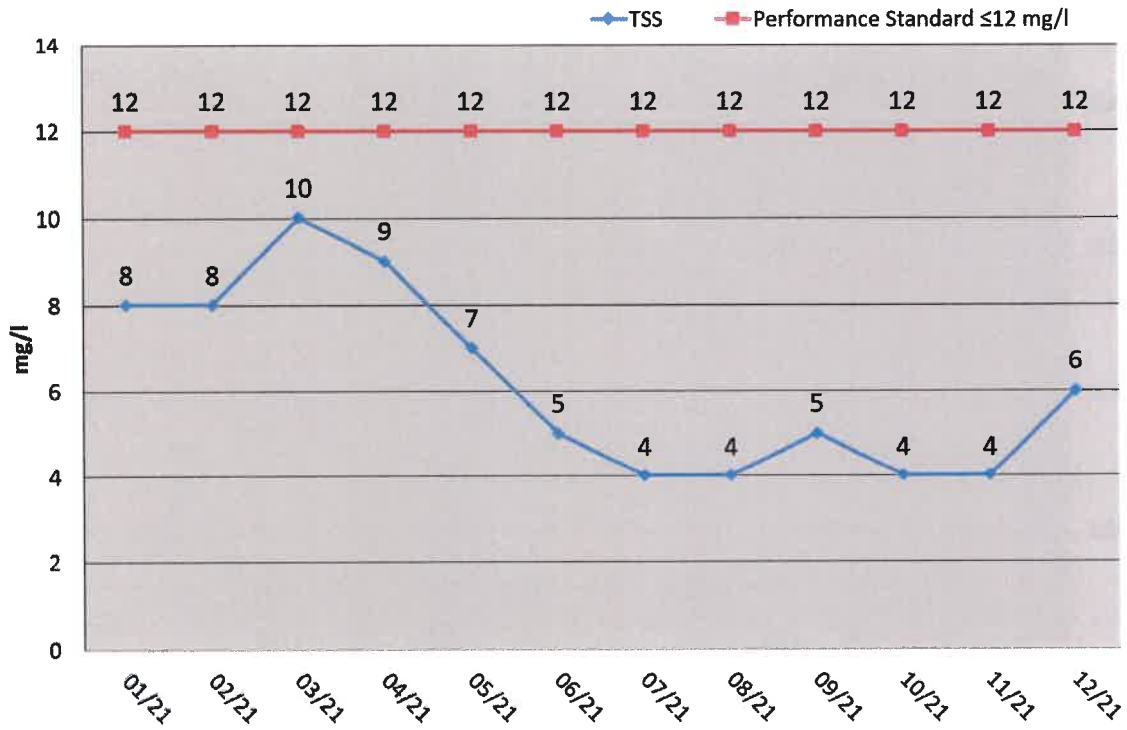


pH Max and Min Limits

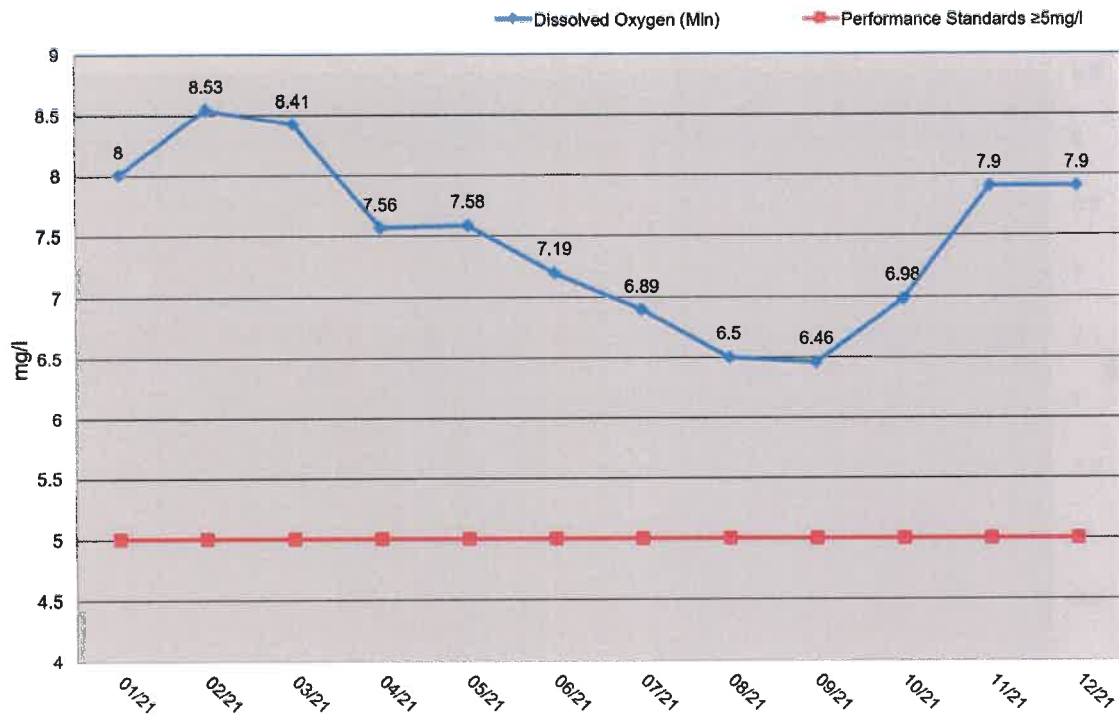


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Total Suspended Solids



Dissolved Oxygen



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HAULED WASTE - Septage and landfill leachate are hauled into the KIWWTP for treatment. The total volume of hauled wastes treated at the KIWWTP in 2021 was approximately 40% less than in 2020. Septic Hauler volumes increased slightly. The leachate volume decreased by about 51%.

	2021	
HAULED WASTES		GALLONS
Septic Haulers		2,326,000
Leachate		5,258,956
Total Hauled Waste		7,584,956

No wastewater from fracking operations was treated at the KIWWTP. The OS limits volumes of hauled waste.

HEADWORKS (OUTFALL 003) BYPASS – Two bypasses occurred at the KIWWTP Headworks in 2021.

On March 27, 2021, approximately 24 gallons of wastewater was discharged from Outfall 003. The discharge was the result of substantial debris or a foreign object causing the climber screen at the plant's headworks to fault and stop running. The stopped climber screen did not trigger its fault alarm. Due to the blockage, the wet well level rose to 10 feet which triggered a wet well level alarm at 11:38am, but due to operator error to investigate the alarm, the overflow was not observed until 12:16pm when the wet well level reached 12 feet. The operators on duty were retrained on the responsibilities of acknowledging alarms and communicating such actions as well as investigating critical alarms. Additional alarms are being considered to prevent this from reoccurring.

On September 1, 2021 approximately 1.5 MGD of sewage was discharged from Outfall 003 due significant wet-weather event from Tropical Storm Ida in which six inches of rain fell over a 20-hour period.

ODORS - No odor complaints were received in 2021.

COMBINED HEAT AND POWER FACILITY - A combined heat and power (CH&P) facility located at the KIWWTP uses methane from the digesters to produce electricity for PPL and provides heat needed for the KIWWTP digesters. In 2021, the CH&P facility produced 4,991,300 kWh accounting for approximately 41% of the KIWWTP total energy needs.

BIOSOLIDS DISPOSAL - In 2021, land application was utilized for the disposal of 2287.8 Dry Metric Tons (DMT) of biosolids.

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The benefits of land application are documented in the United States Environmental Protection Agency's *Biosolids Technology Fact Sheet Land Application of Biosolids* [Fact Sheet: 832-F-00-064 September 2000].

As noted in the fact sheet: "Recycling biosolids through land application serves several purposes. It improves soil properties, such as texture and water holding capacity, which make conditions more favorable for root growth and increases the drought tolerance of vegetation. Biosolids application also supplies nutrients essential for plant growth, including nitrogen and phosphorous, as well as some essential micronutrients such as nickel, zinc, and copper. Biosolids can also serve as an alternative or substitute for expensive chemical fertilizers. The nutrients in the biosolids offer several advantages over those in inorganic fertilizers because they are organic and are released slowly to growing plants. These organic forms of nutrients are less water soluble and, therefore, less likely to leach into groundwater or run off into surface waters." For more information visit www.epa.gov "land application of Biosolids."

PERMIT RENEWAL - In June 2014, a NPDES (National Pollutant Discharge Elimination System) permit renewal application was filed with the Pennsylvania Department of Environmental Protection (PaDEP) listing the City and LCA as co-permittees. A draft permit was received from PaDEP; and on 7/24/2014, a joint response letter was submitted. On 10/2/2016, PaDEP responded and provided another draft permit for review. On 11/17/2016, a joint response letter was submitted. The Permit is currently under review by PaDEP. It is anticipated that a new NPDES permit will be issued for review after submission of the Regional 537 Plan.

INSPECTIONS – U.S. Army Corps of Engineers (USACE) conducted an annual eligibility inspection of the Allentown Federal Flood Risk Management Project along the Lehigh River on September 7, 2021. The inspection received a Minimally Acceptable Rating. During the inspection, damages were discovered at two sections of the levee as a result of extreme high water and high flow conditions from Tropical Storm Ida. The City of Allentown, Project Sponsor, requested PL 84 99 Rehabilitation Assistance due to damages to the Federal Levee Flood Risk Management Project as inspected under the USACE Inspection of Completed Works Program. The rehabilitation project is fully funded by the USACE and is planned to begin in 2022.

An air quality inspection occurred at the KIWWTP on 5/26/2021. The inspection report noted no air quality violations.

PaDEP conducted a sewage compliance inspection of the KIWWTP on 10/21/2021. The inspection was executed by PaDEP's Clean Water Program for NPDES and WQM (Water Quality Management) permitted wastewater facilities. No violations were reported. Any information

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requested by PaDEP was provided. Non-compliances noted on inspection form for this period were: Unauthorized bypass occurred- (25 Pa. Code 92a.41(a)(13)) and Discharges from an SSO are prohibited- (25 Pa. Code 92a.47(c)).

INDUSTRIAL PRETREATMENT PROGRAM - Under the Lease, LCA is responsible to administer the Industrial Pretreatment Program (IPP) in accordance with federal regulations, guidance from EPA, and the City Sewer Ordinance. Forty-one industries were permitted to discharge to the system-wide collection system in 2021. Thirty-seven industrial inspections were conducted by LCA in 2021 and 35 discharges were sampled by LCA. The sampling conducted by LCA is in addition to the sampling and testing that each of the permitted industries is required to perform as a condition of the industry's discharge permit. Seven Notices of Violation (NOV) and three Significant Non-Compliant (SNC) violations were issued to industries in 2021. LCA is required to prepare and submit an annual IPP report to EPA.

- **SEWAGE COLLECTION SYSTEM**

Allentown's sewage collection system consists of approximately 285 miles of pipe, about 80% of which is eight to ten inches in diameter. There are approximately 7,100 manholes. Similar to the drinking water system, most of the collection system was installed prior to 1970:

Time Frame	Percent Installed
1910-1930	21%
1930-1950	34%
1950-1970	36%
1910-1970	91%

The collection system is maintained by a variety of systematic programs. These programs assist in the prevention of surcharges and sanitary system overflows (SSO) by eliminating blockages and minimizing extraneous flows.

Inflow and infiltration (I&I) from significant precipitation, snowmelt, and elevated ground water levels contribute to extraneous flows. City sewage is conveyed by gravity to the KIWWTP. Velocities within most of the gravity collection system are slow for a significant amount of the time and result in the settling of materials. This settling causes blockages. Customers compound the problem by improperly disposing of materials, principally fats, oils, and grease (FOG), which congeal and promote blockages. Tree roots are also responsible for blockages. SSOs, which are caused by blockages typically, occur within smaller diameter pipes. To address maintenance of the collection system for the issues noted, in compliance with the Lease, LCA developed a Collection System Inspection and Maintenance Plan (CSIMP) to provide a systematic approach

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for inspecting, televising, cleaning, and flushing the collection system. The CSIMP includes daily weekly, and monthly preventative maintenance to flush and jet areas where blockages are known or predicted to occur. Additional collection system areas are added to the preventative maintenance program based on inspections and televising the lines.

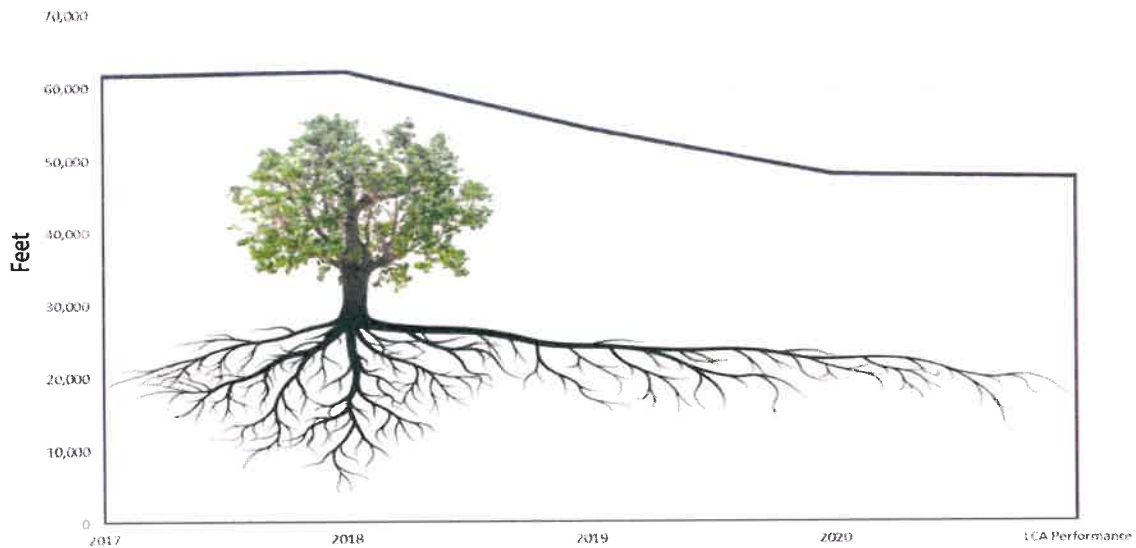
FATS, OILS, AND GREASE (FOG) - LCA continued the dedicated FOG abatement program with Residential and commercial awareness to reduce the levels of grease found in the sanitary sewers.

SANITARY SEWER OVERFLOWS (SSO) – In 2021, two public collection system SSOs were caused by blockages in the sanitary line. The blockages were cleared and the SSOs remediated by LCA personnel. LCA supplied the required notification and reporting to PaDEP.

ROOT INTRUSION - Root intrusion is addressed by the application of a specially formulated chemical. The OS require that 40,000 to 50,000 linear feet of areas where root intrusion was found to be treated annually. Treatment will typically last a few years and then a re-application is necessary.

Root Control Application	
Requirement	Linear Feet
OS Annual	40,000 to 50,000
LCA Performance	47,577

Root Control Application

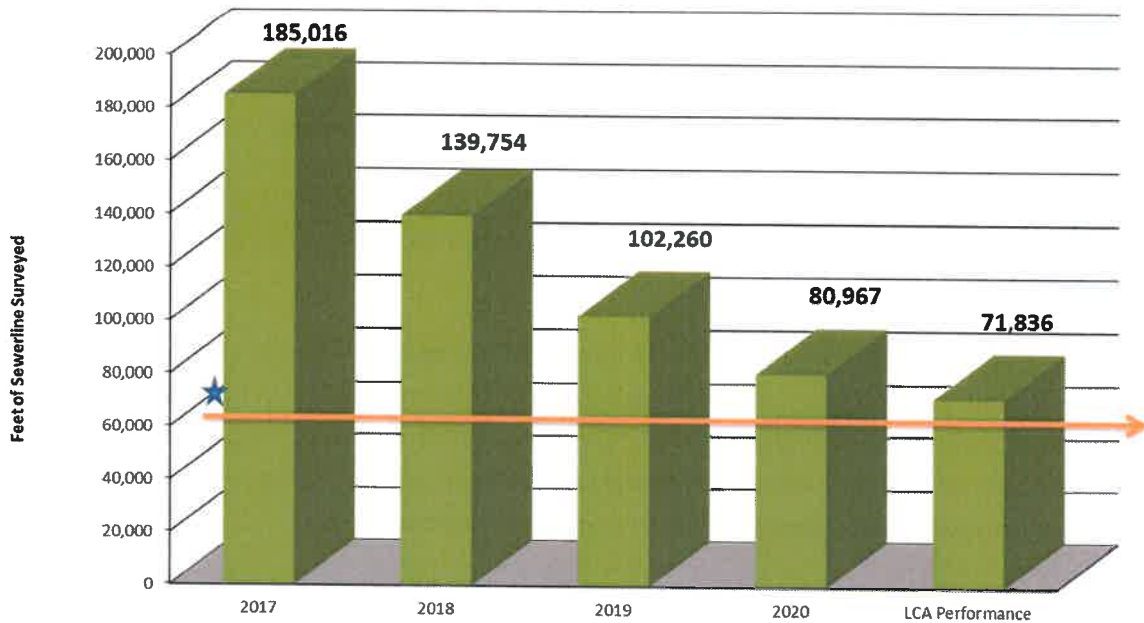


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TELEVISION COLLECTION SYSTEM - Skilled personnel operating specialized vehicles and equipment with closed circuit television (CCTV) perform analytical assessments of the internal condition of collection system pipes. The operators televise the lines after they have been flushed to look at structural conditions, signs of leakage, sags in the lines, FOG accumulations, accumulations of materials, etc. The televised footage is preserved in the Geographical Information System (GIS) for closer review and for future reference. The televising process is a key component of the Collection System Inspection and Maintenance Plan and is the source for determining the need for remedial repairs and added preventive maintenance. The OS requires that LCA televise at least 55,000 linear feet of the collection system annually.

Sewer Lines Televised	
Requirement	Linear Feet
OS annual	55,000
LCA Performance	71,836

Sewer Line Televised



★ Performance Requirement - 55,000

Per Operation Standards A.18.0 and B.14.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements.

Similar to the pipes in the collection system, the manholes are old and are often the source of leaks. Over time, the sidewalls become porous and/or the upper sections are no longer able to

withstand the hydraulic forces during surcharging. LCA inspects and rates the condition of manholes. Repairs were made where indicated.

Also included in the collection system program are the inspection of new lines and participation in the City's Streets Program. Major resurfacing projects under the City's Streets Program require the collection system pipes be televised and cleaned. Any damaged or leaking sections of the lines need to be repaired or replaced. Manhole rim elevations must be aligned with the new street elevation.

• DRINKING WATER TREATMENT AND PRODUCTION

The City's permits allow the discharge of 39 million gallons of drinking water a day with a maximum of 30 million gallons a day being treated at the Water Filtration Plant (WFP). Allentown's drinking water sources are Schantz Spring (SS), Crystal Spring (CS), the Little Lehigh Creek (LLC), and the Lehigh River (LR). In 2021, approximately 50% of the finished water originated from the two springs. Raw water from the LLC and the LR require treatment at the WFP before entering the distribution system. The LR supply is engaged periodically to ensure it is available if needed. The LR supplied a half percent of the drinking water in 2021.

In 2021, the volume of drinking water discharged from the WFP averaged 22.41 MGD, a slight increase over last year. In compliance with the *Amendment to Water Supply Agreement*, 7.30 million gallons of the discharge was delivered to LCA's Suburban system.

As part of the Safe Drinking Water regulations a comprehensive monitoring plan assures that all sources, purchased interconnections, and entry points are included in compliance monitoring at the entry points and within the distribution system.

Removing contaminants during water treatment employs two basic processes. Chemical addition, mixing, and settling removes the majority of contaminants from the raw water which results in the generation of sludge. The sludge is removed from the settling basins and transported to the KIWWTP where it is dewatered and subsequently disposed. Approximately 87 dry weight tons were generated in 2021, within a half-ton from 2020.

The second process is filtration of the clarified effluent from the settling process through filter beds using anthracite and sand as the primary filtering agents. This method removes smaller particulate matter not previously removed. The quality of the effluent from filtration is based on turbidity, which measures the clarity of the water or analogously the absence of materials that would impede the passage of light during analytical testing procedures. Since 2016, the WFP has been permitted to use polyaluminum chloride (PACl) as the primary coagulant. The filters are routinely backwashed, and the waste is discharged to the KIWWTP for treatment. The filtered

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water is chlorinated, fluoridated, and then discharged to the distribution system and finished water storage reservoirs.

SCADA - The operation of the WFP is similarly guided by a manual of SOPs. The WFP's facilities and equipment are maintained using a CMMS (. When the WFP was upgraded in 1998, a Supervisory Control and Data Acquisition system (SCADA) was incorporated into the design. The SCADA system allows operations personnel to monitor treatment processes, control chemical feed rates, adjust various flow rates, pump rates, etc. from a centralized operations control room. The SCADA system also records information throughout the treatment facility. The WFP is staffed 24 hours a day, 7 days a week and the operators make routine checks and inspections of the facilities and the processes. Operator training includes running all operations manually.

INSPECTIONS –PaDEP conducted a Water Supply Inspection on 5/26/2021. The inspection noted a minor deficiency relating to the depth of the filter media layers. The WFP filter Rehabilitation capital project is in design and expected to be completed by spring 2025. Other deficiencies were corrected previously or scheduled to be corrected during the year.

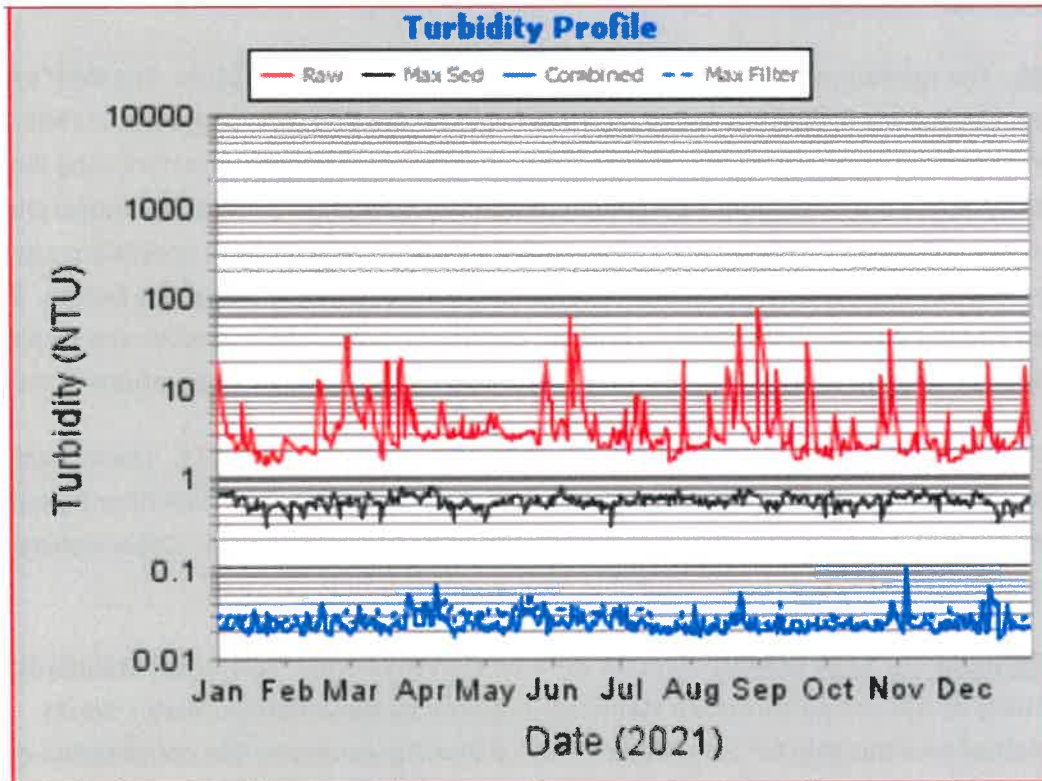
PARTNERSHIP for SAFE WATER - The OS were written to provide “Allentown Standards” which essentially mirror the performance standards required by the American Water Works Association’s Partnership for Safe Water. The Partnership promotes the optimization of operations to produce drinking water quality to much higher standards than required under state or federal laws.

TURBIDITY - The more stringent turbidity standards require LCA to conduct a significant amount of sampling, rigorously oversee operations (particularly filtration), and complete required reporting obligations. LCA has complied with all the requirements of the OS.

Turbidity

ANNUAL DATA	Avg (NTU)	Min (NTU)	Max (NTU)	RSQ	95% (NTU)	Opt. Goal % Values	Reg % Values
Raw Turbidity	5.03	1.37	74.22	n/a	18.56	n/a	n/a
Max. Settled Turbidity	0.54	0.29	0.78	0.01	0.68	100	n/a
Max. Filtered Turbidity	0.028	0.018	0.052	0.01	0.038	100	n/a
Combined Filtered Turbidity	0.024	0.016	0.097	0.19	0.036	100	100

RSQ = Correlation Coefficient for two selected data sets.
 95% = 95th Percentile value for data set.
 Opt. Goal = % of values in data set that are less than or equal to the selected optimization turbidity goal.
 Reg. = % of values in data set that are less than or equal to the regulated turbidity requirement.



CONTAMINANT TESTING - Nearly 100 chemicals, called Primary Contaminants, must be tested on an annual basis per Pennsylvania Code Title 25 and Environmental Protection, Chapter 109 Safe Drinking Water. No maximum contaminant levels were exceeded in 2021. Information about water quality is supplied to all customers in the annual *Consumer Confidence Report (CCR)*. The CCR is posted to the LCA and City websites.

WATER AESTHETICS - As required in the OS, LCA must also address and record all customer complaints regarding the aesthetic qualities of the water such as odor, discoloration, or taste. No complaints about aesthetics were received in 2021. Most complaints can be resolved over the phone by suggesting that the customer let the water run, check other taps, etc. Periodically it is necessary to visit the customer's property to verify through testing and inspection the cause of the water quality issue. In 2021, no on-site inspections were required.

PRIMARY FLOW METERS - All primary flow meters at the WFP are tested and calibrated annually. Bulk water users (South Whitehall Township, Salisbury Township, Hanover Township, Whitehall Water Authority, and LCA) test and calibrate their meters annually. All calibration and meter certification information are provided to the OoC.

• DRINKING WATER DISTRIBUTION SYSTEM

Allentown's water distribution system is extensive and contains numerous components. Maintenance, renovation, and updating of the distribution system is critical to the supply of drinking water from both a day-to-day perspective and relative to maintaining the system's integrity into the future.

The water distribution system includes:

- Approximately 325 miles of pipe.
- Approximately 8,060 valves ranging in size from 3 to 36 inches.
- Approximately 33,400 service connections.
- Four booster pump stations, which provide adequate pressure to service connections in higher elevations.
- Three finished water storage reservoirs with a combined storage capacity of 50 million gallons. These reservoirs store water to meet customer demands, provide the water system's operating pressure, and ensure an adequate supply for fire protection.

Requirements for the booster stations and reservoirs include maintenance of system components, annual external inspections, periodic internal inspections, and hydrostatic testing of the reservoirs.

SAMPLING - A distribution system-sampling plan is maintained by LCA. Samples are collected routinely and tested by a certified laboratory to verify that the water is safe and meets regulatory requirements as revised. Sampling results, which do not comply with regulations and necessitate re-testing, must be reported to the OoC.

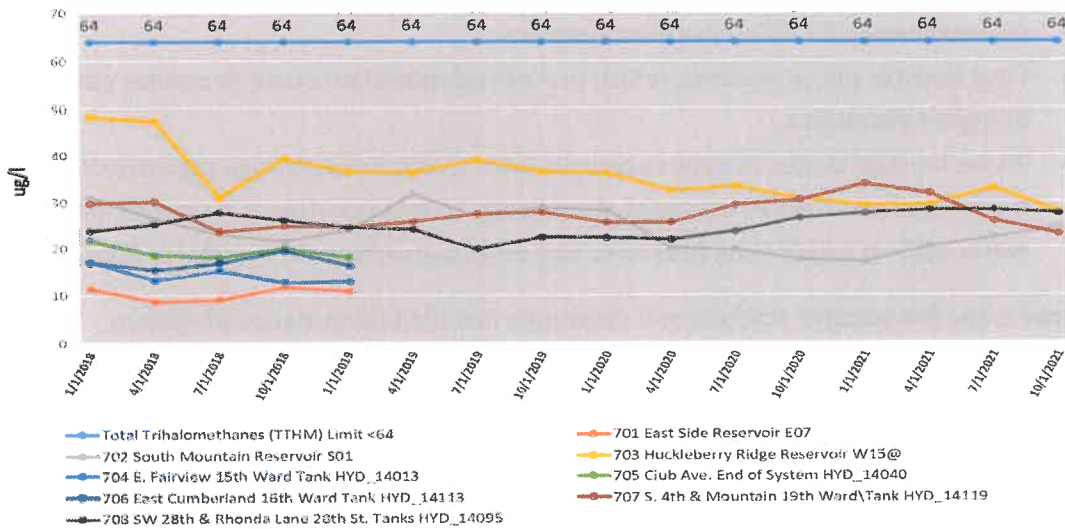
BOIL ADVISORY - A Boil Water Advisory is a public notice in the case of a loss of positive pressure in any portion of the distribution system where there is evidence of contamination or where a water supplier suspects a high risk of contamination with the potential to cause adverse health effects. In 2021, no boil water advisories were issued.

FLUSHING THE SYSTEM - As with any water utility, LCA is required to ensure that both chlorine residuals for continued disinfection and minimum operating pressures are maintained throughout the distribution system. To achieve this objective, LCA has developed a program of flushing distribution system pipes. Flushing typically leads to the disturbance of sediment in the lines, causing cloudy or brownish water, which can appear at the customer's tap for a brief period. LCA provides the "flushing schedule" on its website and in billing mailers. Although it is difficult to determine exactly where discolored water might migrate, efforts are made to advise residents in the immediate area. In 2021, LCA's program included flushing approximately 54% of the hydrants and the use of automatic flushing stations.

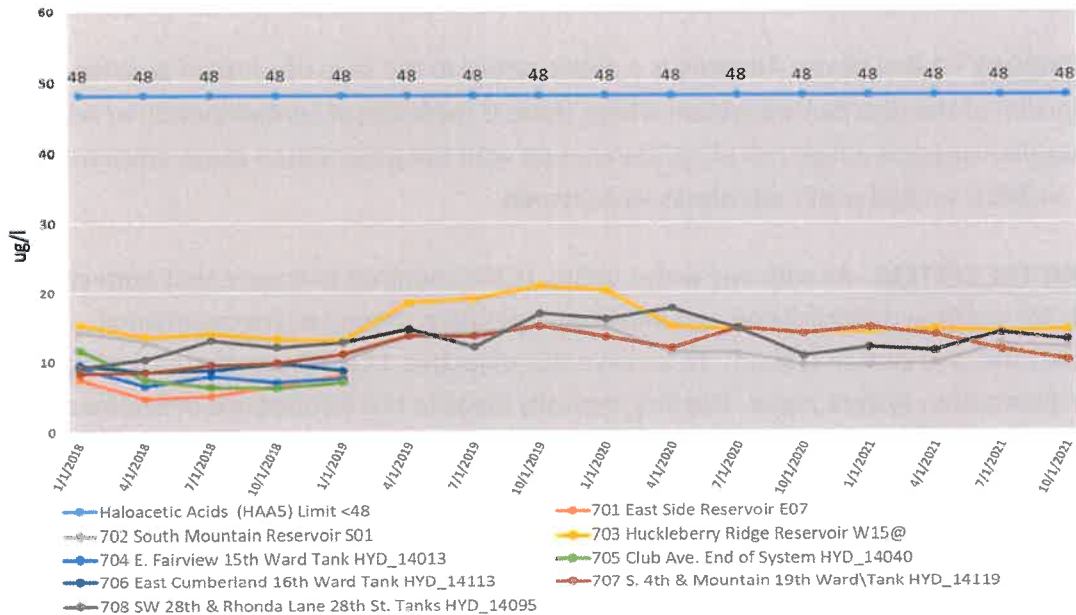
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DISINFECTANT BY PRODUCTS - OS Part A 4.1 Performance Requirements stipulate that the maximum four-quarter running average calculated at each required distribution system sample location is 64 parts per billion (ppb) for total Trihalomethanes (TTHM) and 48 ppb for Haloacetic Acids (HAA5). TTHM and HAA5 contaminants are disinfection by-products. Since 2017, the City Division has met the requirements for reduced monitoring due to TTHM and HAA5 results below the threshold. The *Locational Running Annual Average* for 2021 at all sites remained below PaDEP and Lease limits.

Total Trihalomethanes (TTHM) Locational Running Annual Average Calculated Quarterly Per Site



Haloacetic Acids (HAA5) Locational Running Annual Average Calculated Quarterly Per Site



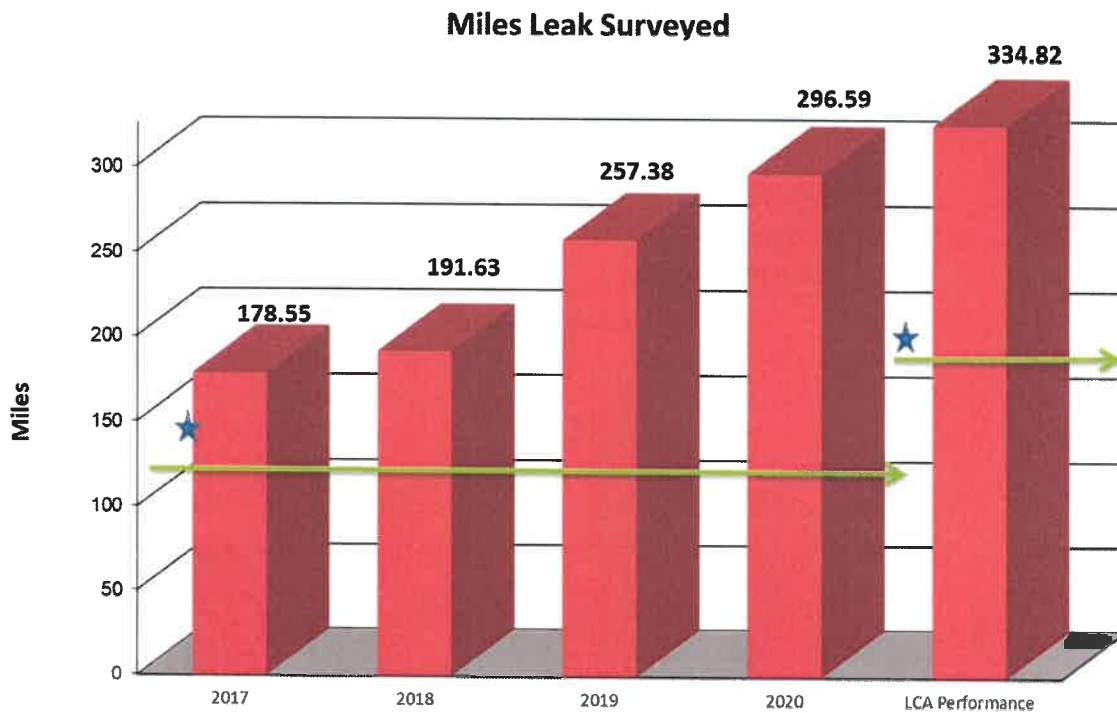
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Annual Performance Requirements

The requirements and LCA's efforts in meeting OS annual performance standards are as follows:

LEAK DETECTION AND WATER LOSSES - In 2021, per the Settlement Agreement, LCA's requirement for leak detection is increased to 165 miles annually, resulting in the entire distribution system being checked every two years. Finding and repairing leaks is cost effective, reduces unaccounted for water loss, and can prevent property damage. Any identified leaks are to be further investigated to determine the nature and severity of the leak. In 2021, LCA identified and repaired 14 leaks.

Leak Detection	
Requirement	Miles
OS annual	165.00
LCA Performance	334.82



★ New Performance Requirement - 165

Per Operation Standards A.18.0 and B.14.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements.

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An estimated 29,485,057 gallons of water were saved in 2021. This estimate is calculated by determining the volume of each leak repaired multiplied by the number of days remaining in the year.

ANNUAL WATER AUDIT - In addition to the Leak Detection Program, LCA is required to complete and submit an Annual Water Audit to the Delaware River Basin Commission to document and demonstrate its efforts in controlling water loss. The purpose of this report is to track and evaluate water loss trends.

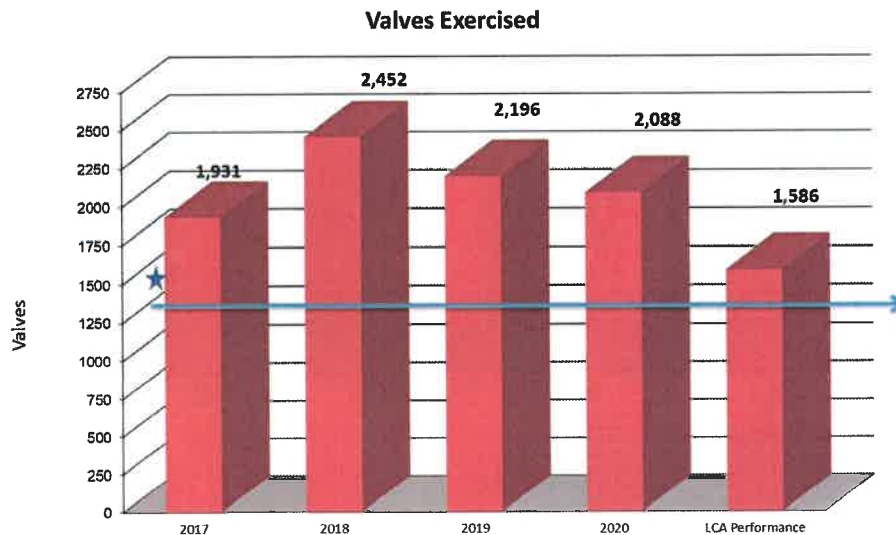
VALVE EXERCISING PROGRAM - Water main valves in the distribution system typically remain in the open position for years. Eventually, a valve may need to be closed to facilitate addressing breaks, repairs, and pipe replacements. The ability to close valves to isolate pipe sections and redirect the flow of water becomes critical. Too often in many utilities, the inability to close valves, particularly in freezing weather when most breaks occur, can lead to significant problems.

LCA is required to exercise all valves between 4 and 12 inches at least once every five years. These are the valves within the distribution system, which directly serve customers. Any valve, which is found to need repair or replacement, must be addressed within one year of the initial identification.

In 2021, as a result of this program:

- 13 valves were repaired or replaced.

Valves Exercised	
Requirement	# of Valves
OS annual	1,224
LCA Performance	1,586



★ Performance Requirement - 1224
Per Operation Standards A.15.0 and B.1A.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements.

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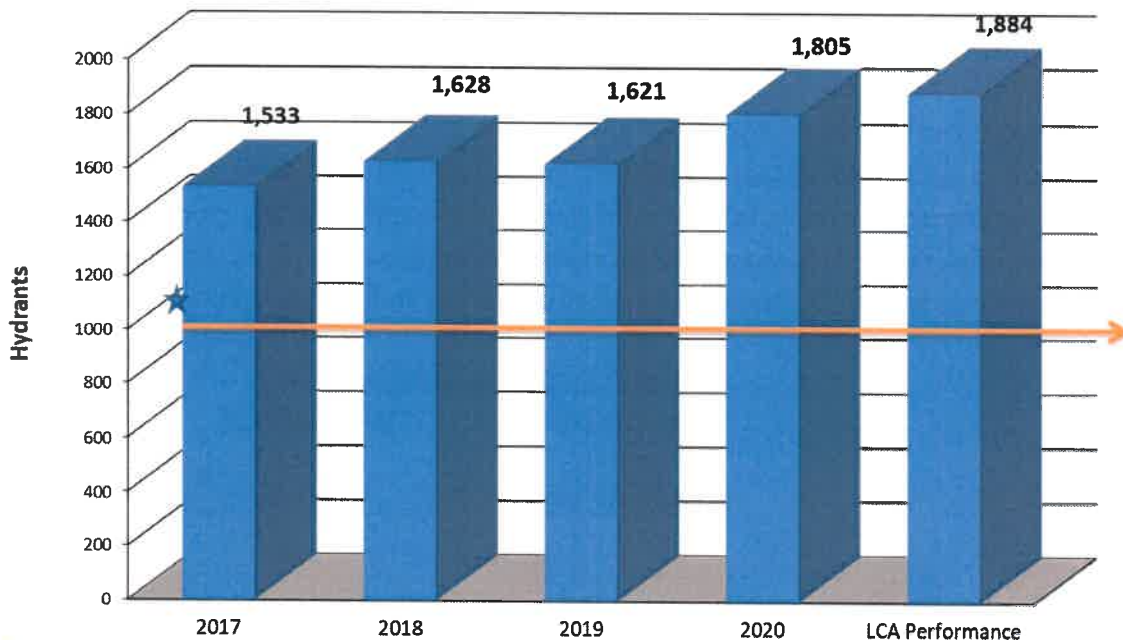
HYDRANT MAINTENANCE AND TESTING – There are approximately 1,800 Allentown fire hydrants throughout the City. It is always critical that fire hydrants be serviceable. LCA is required to inspect, test, and monitor pressure and flow on 900 hydrants annually. This requirement will result in every hydrant being checked at least every two years. Hydrants which require repair or replacement must be completed within six months of the problem(s) being identified. Hydrants reported by the Fire Department as not functioning properly are handled similarly. After inspection, hydrants are also painted to ensure visibility.

In 2021, as a result of this program:

- 172 hydrants were repaired or replaced.

Hydrants Inspection & Testing	
Requirement	# of Hydrants
OS annual	900
LCA Performance	1,884

Hydrants Inspected & Tested



★ Performance Requirement - 900

Per Operation Standards A.18.0 and B.14.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements.

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PIPE ASSESSMENT PROGRAM – The City’s distribution system includes approximately 325 miles of water distribution pipes of which 49% were installed between 1870 and 1944. Between 1944 and 1963, the City utilized spun cast iron pipe, which accounts for another 19% of the system pipes. Unfortunately, this type of pipe has been shown to be the most prone to breakage. Replacement of the spun cast iron pipe has been a City priority for several years. Of the 21 main breaks in 2021, 16 involved spun cast pipe.

LCA is required to develop an assessment program that looks at variables such as age of pipe, type of pipe, and breakage history to determine which pipe segments should be replaced most immediately. Spun cast iron pipes and pipes over 100 years old were to be prioritized along with consideration for dovetailing main replacement into the City’s Streets Program. When a street is to be resurfaced, the pipe underground will be replaced to minimize the potential for a water line break in a newly resurfaced street.

In 2021, due previous to multiple main breaks on 17th Street occurring along a 36” ductile iron transmission line feeding the north end of Allentown and Huckleberry Ridge Reservoir, LCA commissioned a condition assessment study to determine the root cause of these failures and recommend preventative action. The study was inconclusive but includes recommendations for further study of soil conditions, pressure testing, and an electric resistivity survey.

WATER MAIN REPLACEMENT – The Amended and Restated OS requires that beginning in 2021, LCA is to replace a total of four miles of water main replacements through 2024. Service lines are also replaced and information on all the new lines are to be entered into the Geographic Information System (GIS) so that information on the City’s infrastructure is kept current. To proactively monitor the impact of this reduction in replacement mileage, information including the revised leak detection program will be reviewed every four (4) years, with the first being 2024 and the second 2028, by representatives of the City and the Concessionaire.

Water Main Replacement Program	
Requirement	Miles of Pipe
OS annual	1.00
LCA Performance	1.14

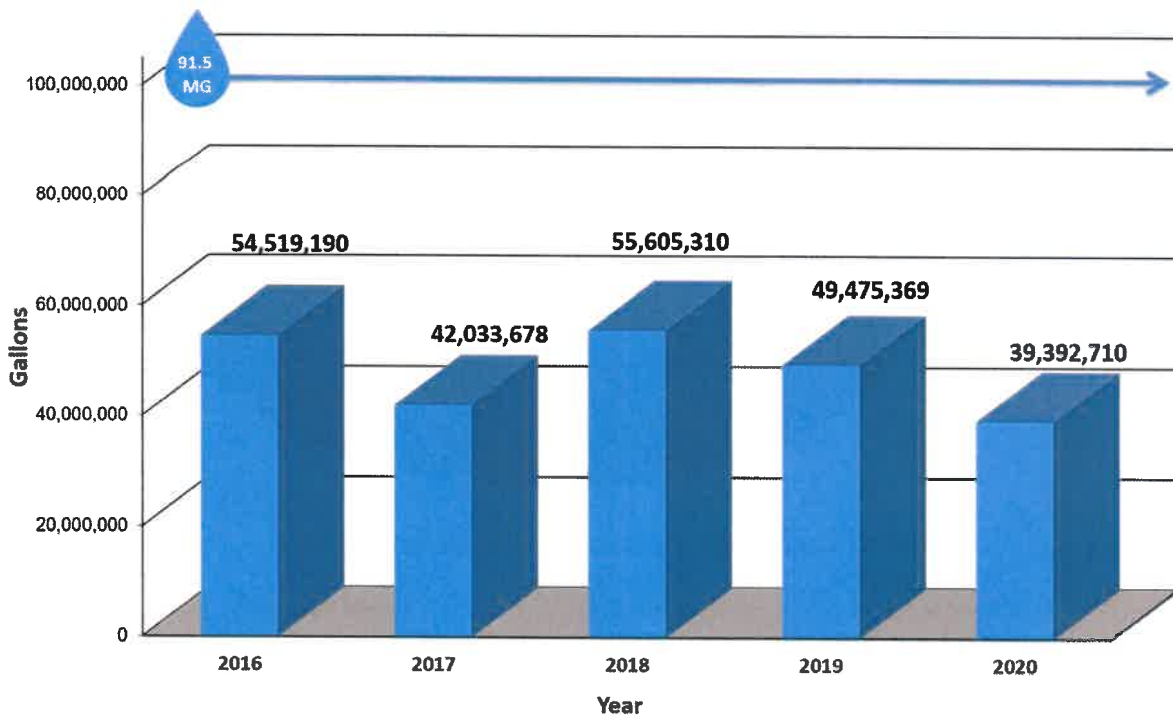
METERING - All customer metering devices must follow American Water Works Association guidelines. In 2012, before the Lease, the City began a major residential meter replacement program to replace the existing meter with an Automatic Meter Reader (AMR). These meters are more accurate and have greater data collection capabilities, which allow for information on water use patterns to be determined. Meter reading is accomplished by driving past a

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customer's property with a specially equipped vehicle, eliminating the need for entry onto property. Approximately 28,000 customers have been converted to AMRs under the original contract. The City and LCA through a close out agreement, concluded this last Uncompleted Works project in the fall of 2021. As part of the agreement, LCA personnel are responsible to install the approximately 80 remaining water meters.

CITY WATER USE UNDER FREE SERVICE - Section 3.22 (b) of the Lease allows the City 91,500,000 gallons per calendar year free of service and consumption charges. The total amount of water allocated for this use in 2021 was 40,806,902 an increase of 1.4 MGD over 2020. Note: The figures below include the City's Fire Department usage which is not to be included in the aggregate for all City water usage.

C3.22(b) Water Service to City



• CUSTOMER SERVICE

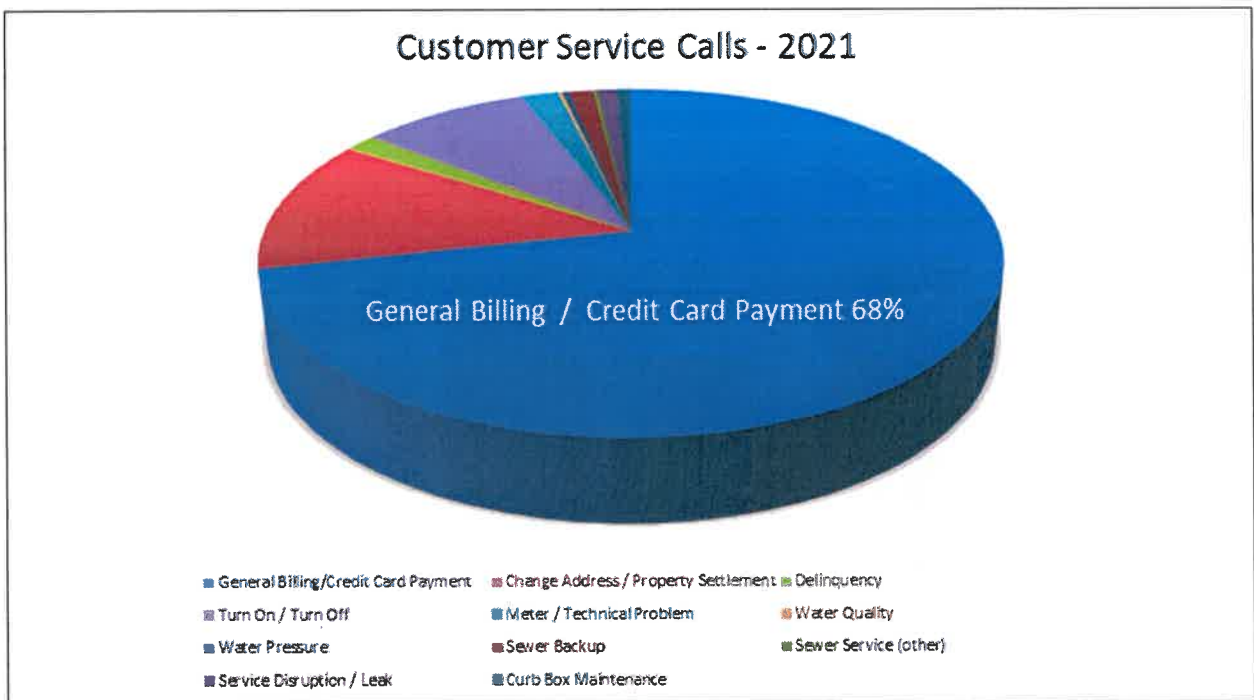
CUSTOMER SERVICE CENTER - As required by the Lease, LCA established an office within the City at the Water Filtration Plant at 1300 Martin Luther King Jr. Drive. Typically, the Customer Service Center (CSC) is open from 8:15 am until 4:45 pm Monday through Friday except holidays. CSC staff fielded an average of 150 calls per month, which include bill payments, complaints, requests for water or sewer services, emergencies, and other inquiries. Several of the staff are

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fluent in Spanish. Records are maintained of all calls and responses, which may include dispatching service technicians.

Financial Assistance for City ratepayers: Help is available for City ratepayers who need assistance paying their water utility bills. Reference the LCA website and City of Allentown Office of Compliance site for current information.

All calls are classified into categories depending on the subject of the incoming call. LCA received 9,923 calls in 2021 of which 6,545 (66%) were inquiries about billing or credit card payments. LCA is required by the OS to track the calls by categories for the present and prior two years to look for trends. LCA call volumes dropped again in 2021 by 18% over 2020 in part due to a process change in how termination notice calls are managed.



CUSTOMER SURVEYS - LCA is required by the lease to conduct customer surveys to measure customer satisfaction. The 2021 Allentown customer survey satisfaction rate was 89.7%. A slight decrease over 2020.

CUSTOMER CONCERNS - All customer questions or concerns are directed to the CSC. LCA has specific policies and protocols in place to address customer concerns and complaints. If customers do not accept that LCA has adequately addressed their concern, the next step is to contact the OoC. Not all complaints are resolvable, such as a leaky toilet that results in an

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unusually high bill. In 2021, five customers contacted the OoC, a 65% decrease from 2020. Complaints were split between high bill questions and sewer related issues.

• **CHANGE OF LAW**

Change of Law is the impact or change of interpretation of a federal, state, or local Law. The Concession Lease Agreement allows for the imposition of Service Charges and is applied to users of the Systems which includes the City ratepayers. OoC reviews the charges for approval. The procedures for this process are identified in the Change of Law MOU.

In 2021, the City and LCA began responding to EPA's Revised Lead And Copper Rule. The response includes a collection of actions to reduce lead exposure in drinking water. Among those are modified sampling collections, inventorying water service lines, identifying the most at risk communities, and developing a lead service replacement program.

The following Changes of Law have been added to the Allentown ratepayer's 2021 water and sewer bill:

- EPA American Water Infrastructure Act
- PaDEP Chapter 109 Safe Drinking Water permit fee
- PaDEP Chapter 109 Comprehensive Monitoring Plan

• **COMPLETED MAJOR CAPITAL IMPROVEMENT PROJECTS**

Major Capital Improvement Projects (MCIP) are necessary capital improvements to the water or wastewater systems that have a qualifying minimum total project cost which increases annually based on the CPI-U (Consumer Price Index for all urban consumers). The 2021 minimum was \$1,124,501. Costs include debt service, construction services, materials and equipment, engineering, permitting, consultants, project management, and other related costs. Per the Lease, LCA will provide funding and overall project management for MCIPs. The Lease details the phases and related requirements of a MCIP, all of which require presentation to the City for review. Those phases begin with inclusion of a MCIP in the Capital Plan, and then continue with conceptual design, substantially complete design, and project closeout.

The CPI-U percentage change for the 2022 annual period ending on June 30, 2021 was 4.6%.

Under the terms of the Lease, LCA may recover all costs associated with a MCIP. Sewer project MCIPs costs are shared between Allentown ratepayers and the other Sewer Signatories, including LCA, in conformance to the 1981 Master Sewer Agreement. Water project MCIPs costs are shared by Allentown ratepayers and bulk water customers (South Whitehall Township, Salisbury Township, and Hanover Township).

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UNCOMPLETED WORK -Uncompleted Work is the City's obligation under the Lease §3.2(c)(iii) and listed in §1.1. The projects are addressed as Capital Improvements and funded by the City. As the end of 2021, all the Uncompleted Work as defined in the Lease is now complete.

CAPITAL COST RECOVERY CHARGE - The determination of the actual rate increases is based on a Capital Cost Recovery Charge (CCRC), which spreads the cost of a MCIP out over the life expectancy of a MCIP, not to exceed 30 years. The annual cost will be billed to the ratepayer as an incremental increase to the cost per thousand gallons, which is listed as a line item on a customer's bill. LCA provides information on the MCIPs in the first bill of the new year. Charges for MCIPs are added to the bill after rate adjustments (CPI-U and margin) have been made to the base rate as allowed under the Lease. The Major Capital Improvement eligible for Capital Cost Recovery in 2022:

- Cycle 5 Water Main Replacement

For more information on all MCIPs included in the 2022 ratepayer bills consult the Compliance website <https://www.allentownpa.gov/Public-Works/Office-of-Compliance>

Capital projects associated with addressing the Administrative Orders (AO) are not subject to MCIP requirements. The funding for all AO projects, regardless of project costs, is paid out of the Administrative Order Fund (AO Fund) which the City must maintain. Costs for AO projects are included as a line item on customer bills. The mechanism for determining the AO projects charge is different than the CCRC; it is based primarily on the debt service associated with the AO Fund. In 2020, LCA began the construction projects detailed in the Regional Flow Management Strategy rehabilitating sewage conveyance (more information below).

- **ADMINISTRATIVE ORDERS: HISTORY AND CURRENT STATUS**

The United States Environmental Protection Agency (EPA) issued Administrative Orders (AO) in 2007 and 2009 because of excessive Inflow and Infiltration (I&I) entering the collections systems of Allentown and the Sewer Signatories. These orders directed the parties to address the problems. In late 2017 through early 2018 there was a change in direction proposed by the EPA. EPA indicated that addressing the AO should focus primarily on maintenance and rehabilitation of collection systems rather than capital improvements at KIWWTP. The City and Sewer Signatories met with EPA on March 23, 2018 to discuss the development of a Regional Flow Management Strategy (RFMS).

City of Allentown, LCA, and other municipalities (Respondents) that contribute sewage to the facility worked collaboratively and submitted a RFMS to the EPA prior to the deadline of August

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1, 2018. The RFMS describes the collaborative works that are planned to address ongoing management of sewer flows during wet-weather events.

The Respondents received a letter from the PaDEP on 12/21/2018 outlining their comments and concerns regarding the RFMS and requested information from the respondents by 3/31/2019. All Respondents gathered the requested information and sent in a response with additional questions regarding the RFMS to the PaDEP on 3/8/2019. EPA sent a letter on 3/19/2019 stating “Based on the regional flow management strategy and information provided in the semi-annual reports and meetings, EPA hereby finds that all of the Respondents to the Administrative Orders CWA-03-2009-0313DN and CWA-03-2007-0332DN have completed the requirements.” This Letter indicates that the EPA accepts the RFMS as an acceptable plan to address the wet weather issues.

The City is following the plan and approved the design of five proposed I&I reduction projects. The construction of each of the projects will be completed on an annual basis. The first I&I project was completed in June 2020. The second I&I project started in spring 2021. The third I&I project is to begin early summer 2022 and was combined with the other remaining years project which reduced the five proposed projects down to four. In addition to these projects and as part of the RFMS, a sewer system flow characterization study (FCS) was completed in 2021 which will be discussed in the section below.

- **ACT 537 (THE PENNSYLVANIA SEWAGE FACILITIES ACT):
REGIONAL RESPONSE UPDATE**

The rainfall amount that fell from August 2018 to July 2019 was the highest recorded 12-month rainfall period in the Lehigh Valley since data was collected in 1895. During that period, the region received 80 inches of precipitation whereas normal precipitation for the Lehigh Valley area is about 45 inches per year. The rainfall caused ground water to reach unprecedented levels (16 ft above normal levels) which increased infiltration rates.

As would be expected, the precipitation and rising ground water levels caused a significant increase of flows to KIWWTP which triggered a Chapter 94 exceedance (25 PA Code § 94). The exceedance was triggered by the monthly flow to KIWWTP exceeding 40 MGD for 3 consecutive months. This situation is considered under the regulations to indicate a hydraulic overload of the treatment plant. There was not a single permit violation during the consecutive 3-month period or at any time during the 12-month period of continuous rainfall events. The Chapter 94 regulations nonetheless require that a Corrective Action Plan (CAP) be developed. PaDEP could have taken more drastic measures, but based on the work done under the AOs and recognizing the importance of continuing economic development, an agreement was reached wherein PADEP would allow planning modules identified and subsequently submitted for 2020-2025 (flow

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allocations) to be approved as long as there were quarterly reports submitted on the status of these flow allocations, ongoing work done by the contributing entities, and an Interim 537 Plan submitted outlining the basis for a comprehensive Regional 537 Plan. The Interim Act 537 Plan, in compliance with the Pennsylvania Sewage Facilities Act, and regulations thereunder (25 PA Code § 71), was reviewed by municipal planning agencies, posted for public notice, and adopted by municipal action. The Interim Act 537 Plan was submitted to PaDEP in September 2020 and approved by the PaDEP June 25, 2021. In addition, a hydraulic evaluation study of KIWWTP was re-submitted on July 30, 2021 and approved by the PaDEP December 1, 2021 to revise the Part II permit hydraulic capacity of KIWWTP.

The Interim Plan indicated the contributors would submit the Regional 537 Plan by March 2025 as it was an incredibly involved and complex challenge which included analysis and review of engineering, institutional, and financial consideration of alternatives to address the service area's conveyance and treatment needs through 2035 (the construction planning period) and 2050 (the ultimate future flow projection year). The extended time frame is purposed to consider, for example, the sizing of conveyance piping diameters wherein it is cost effective to size the lines for full future growth.

In 2021, the first phase of the 537 Regional Plan, the FCS, was completed. Approximately 100 flow meter and 29 rain gauges were used to measure and monitor sewage flows throughout the system and to see how flows responded to varying rainfalls, antecedent rainfalls, and groundwater conditions. The meters and rain gauges were in place and collecting data from March 2021 to October 2021. During the remainder of the year the collected data underwent quality analysis and quality control to ensure the data was representative and valid. The information collected during the FCS will be used to model the present and future impacts on the conveyance and treatment systems due to significant wet weather events, increased flows, and continuing remediation efforts.

Monthly meetings were held with representatives of all contributing parties. Several smaller focus groups were developed to look at various aspects of the overall effort. As indicated previously, quarterly reports were submitted to PaDEP documenting all activities and progress. To date, PaDEP has indicated satisfaction with all aspects of the Regional 537 Plan development.

- **SECURITY**

Security is a significant concern to utilities because of the potential health risks to the public, the need to keep treatment systems functional, and the prevention of possible damage to expensive equipment. LCA follows security requirements as established by the Federal Department of Homeland Security.

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The treatment facilities use key card systems so that access is limited to authorized personnel. Visitors to the treatment facilities are required to enter through the main entrances, note with whom they are meeting, and sign in after being cleared for entrance. Video surveillance is also utilized. Remote facilities are gated and protected by intrusion alarms. The perimeters of the treatment facilities are inspected daily to check the condition of the fence lines and to look for signs of breaching. Security procedures are covered in the treatment plant SOP manuals. LCA has also developed Emergency Response Plans, which are required to be reviewed annually.

No security breach was reported in 2021.

- **NOTICES OF VIOLATION (NOV)**

No “Notices of Violation” were issued to LCA in 2021.

- **AWARDS AND ACKNOWLEDGEMENTS**

- 2022 Annual Conference of Water Works Operators Association of Pennsylvania Area-wide Optimization Program Award to the Allentown Division, Water Filtration Plant
- Eastern Pennsylvania Water Pollution Control Operator’s Association: A.E. “Bud” Fricker Memorial Individual Service Award to Pat Mandes, Chief Compliance Officer (Retired)
- Government Finance Officers Association – Excellence in Financial Reporting Award - Ed Klein, Chief Financial Officer, and Accounting Department
- Pennsylvania Water Environment Association - Facility Safety Award – Lehigh County Authority Collection System
- Pennsylvania Water Environment Association - Mark B. Hannum Operator of the Year Award >2.0 MGD – Gary A. Saunders, Jr., Kline’s Island Wastewater Treatment Plant Manager

Exhibit A

Regulatory Reports and Requirements

Report Name/Description	Identifier	Frequency	Regulatory Agency
Coliform Bacteria Distribution System	RRM01	Monthly	DEP
Chlorine Residual Distribution System	RRM01	Monthly	DEP
Chlorine Residual Entry Points #101 and #102	RRM01	Monthly	DEP
Water Filtration Plant Turbidity	RRM01	Monthly	DEP
Water Quality Parameters for Distribution System	RRM05	Monthly	DEP
Alkalinity and TOC for Raw and Post Filter	RRM01	Monthly	DEP
Water Withdrawals Monthly Report	RRM07	Monthly	DEP
NPDES Discharge Monitoring Report (DMR)	RRM08	Monthly	DEP
Treatment Barrier Performance Summary	RRM09	Monthly	AWWA & DEP
TTHM & HAA5 Distribution Sites & 3 Residence	RRM01	Quarterly, submitted with monthly SDWA report	DEP
Nitrate & Nitrite Samples for Entry Points #101 and #102	RRM01	Quarterly, submitted with monthly SDWA report	DEP
Alkalinity and TOC for Entry Points & Springs	RRM01	Quarterly, submitted with monthly SDWA report	DEP
DRBC Quarterly Surface Water Charge Report	RRQ04	Quarterly	DRBC
Little Lehigh Surface Water Quality Report	RRM01	Quarterly, if applicable	DEP
Chapter 94 Wasteload Management Report	RRA02	Annually	DEP
Water Allocation Permit Compliance Report (Act 220)	RRA03	Annually	DEP
Inorganics (IOCs) for Entry Points #101 and #102	RRM01	Annually, submitted with monthly SDWA report	DEP
Volatile Organic Compounds for Discharges & Crystal Spring	RRM01	Annually, submitted with monthly SDWA report	DEP
DRBC Annual Surface Water Charge Report - Little Lehigh	RRA10	Annually	DRBC
Biosolids Report Part 1 and II of PAG-08 Biosolids Permit)	RRA12	Annually	DEP
Residuals - Analysis Result for Year & Certification (Form 503)	RRA13	Annually	EPA
Residual Waste Annual Report Form 26R (WTP - Alum Sludge)	RRA14	Annually	DEP
Industrial Pretreatment Program Performance Report	RRA23	Annually	EPA
SARA Title III Tier II Hazardous Chemical Report	RRA24	Annually	EPA
Consumer Confidence Reports	RRA25	Annually	DEP
SOCs for Entry Point #102	RRM01	Annually, submitted with monthly SDWA report	DEP
Arsenic Drinking Water	RRM01	Annually, submitted with monthly SDWA report	DEP
DEP Annual Water Supply Report	RRA26-27	Annually	DEP
Annual Wellhead Protection Program Update	RRA31	Annually	DEP
Residual Waste Form 330	RRB01	Biennially	DEP
SOCs	RRM01	Triennially	DEP
Lead & Copper Rule Follow-up	RRM01	Triennially	DEP
Risk Management Plan	RRF04	Quinquennial	EPA
Water Storage Tank Inspections - comprehensive	OSA09	Quinquennial	
UCMR4 - Entry Points #101 and 102 & Res Sites	RRM01	Quinquennial	EPA
Radium 226, Radium 228 - Drinking Water	RRM01	Every 6 years	DEP
Combined Uranium - Drinking Water	RRM01	Every 9 Years	DEP
Asbestos - Drinking Water	RRM01	Every 9 Years	DEP

Exhibit B

Concession Agreement and Operating Standards Reports and Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date
Calculation of the City water usages for the calendar year	CA	3.22(b)	62	Annually
Annual Five-Year Capex Plan update	CA	4.1.(b)(iii)	64	Annually
Payment for funding of City Rebate Program	CA	7.2.	78	Annually - December 1st of each year
Certification that System was operated for previous Year in compliance	CA	8.1.(c)(iii)	79	Annually - 45 days after end of Year
Copies of annual audited balance sheets, income statements, changes in equity and cash flows	CA	8.1.(d)	80	Annually - 120 days after end of Year
Event-Driven Capex- LCA Funded Escrow Account	CA	4.17	73	Annually - 120 days after end of Year
Sewer System Improvements Escrow Account	CA	4.18	74	Annually - 120 days after end of Year
Cumulative Cash Balance Determination (for Rate Relief)	CA	7.5	81	Annually - 120 days after end of Year
Monthly Average Daily Volume of Metered Water Sales Report	CA	3.23	62	Monthly
Monthly reports for Major Capital Improvements	CA	4.10.	70	Monthly, as needed
Provide notice of all material claims (including labor disputes)	CA	3.13(a)	55	By Occurrence
Provide information related to mitigation of raw water	CA	3.21(e)(iv)	60	By Occurrence
Capital Cost Recovery Charge documentation	CA	7.1(f)	76	By Occurrence
Notification of all emergencies, accidents & incidents within the system	CA	8.1(a)	79	By Occurrence
Notification of all claims made by or against LCA (in excess of \$50000)	CA	8.1(a)	79	By Occurrence
Notification of discharge, spills, dumping or other hazardous release	CA	8.1(b)	79	By Occurrence
Analysis of the malfunction issue and resolution	CA	8.1.(c)(f)	79	By Occurrence
Notification of violation of Environmental Law or system malfunction	CA	8.1.(c)(i)	79	By Occurrence
Additional notice if penalty >\$50k, OS change, CP >\$250,000	CA	8.1.(c)(ii)	79	By Occurrence
Notification of notice of violation from a Governmental Authority	CA	11.1	89	By Occurrence
Notification of any violation of Ethics & Conflict of Interest Provisions	CA	11.5(f)	91	By Occurrence
Renewal of Insurance Policies for Required Coverages	CA	13.2(a)	99	By Occurrence
Notice of cancellation or non-renewal of Required Coverages	CA	13.2(b)	99	By Occurrence
Notification and documentation of Additional Coverages	CA	13.2(k)	100	By Occurrence
Notification of casualty (fire or other)	CA	13.3(a)	101	By Occurrence
Provide City with plans/costs for restoration work related to casualty	CA	13.3(a)	102	By Occurrence
Provide City with notice of an Adverse Action	CA	14.1.(c)	105	By Occurrence
Provide City with second notice of an Adverse Action	CA	14.1.(c)	105	By Occurrence
Provide City with notice of a Delay Event	CA	15.1(a)	108	By Occurrence
Provide City with notice that a Delay Event has ceased	CA	15.1(b)	108	By Occurrence
Provide City with notice of Delay Event Notice	CA	15.1.(e)	109	By Occurrence
Provide City with notice of a Compensation Event	CA	15.3(a)	109	By Occurrence
Provide City with second notice of a Compensation Event	CA	15.3(a)	109	By Occurrence
Provide notice of all defaults	CA	3.13(a)	54	By Occurrence
Annual City Payments - 3 parts (2 payments - first business day of April and October)	CA	3.24, 3.25	63	Semi-Annually: April 1 & Oct. 1
Capex Fund Deposit Requirement (first installment)	CA	4.14.	72	First Business Day of April
Capex Fund Deposit Requirement (second installment)	CA	4.14.	72	First Business Day of October
Water Sales Shortfall 3-year period report	CA	3.23	62	Feb 10th following end of period
Provide City with receipts & evidence of utility payments	CA	3.11.	54	Upon request
Provide City with all insurance policy endorsements	CA	13.2(a)	99	Upon request
Provide Certificates of Insurance for contractors and subtenants	CA	13.2(i)	100	Upon request
Replace all logos on rolling stock and equipment	CA	2.5(h)	41	10/7/2013
Include contact insert with first customer billing statements	CA	2.5(h)	41	12/31/2013
Five-Year Capex Plan	CA	4.1.(b)(ii)	64	10/7/2014
Development of Capex Fund	CA	4.14.	71	1/1/2033
Add language of compliance to all contracts	CA	11.2(b)	89	Immediately
Add language of non-discrimination to all contracts	CA	11.3(f)	90	Immediately
Add provision to contracts related to Prevailing Wage	CA	11.6(b)	92	Immediately
Provide City with a Letter of Credit for \$25,000,000 (AFI)	CA	16.3(a)	116	Five years prior to Lease end
Copy of Partnership for Safe Water reports (WTP-turbidity)	OS	4.1.2	9	Annually
Copy of Partnership for Safe Water reports (Distribution)	OS	4.1.2	9	Annually
Copy of Consumer Confidence Report (CCR)	OS	4.1.5	10	Annually
Copy of annual sampling plan	OS	6.3.2	14	Annually

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date
2-year summary of water taste and odor complaints	OS	6.8	17	Annually
Water Audit	OS	6.10.1	18	Annually
Summary of system flushing activities	OS	6.15	24	Annually
Summary of meter testing & meter repair/replacement	OS	6.16.2	25	Annually
Summary of meter calibration activities	OS	6.16.3	25	Annually
Summary of reservoir hydrostatic testing, inspections & maintenance program	OS	6.17.5	26	Annually
Update of water main replacement assessment report	OS	6.19.2	27	Annually
Report of pipeline leaks and breaks	OS	6.22.1	28	Annually
Summary of all call records for previous 2 years	OS	8.2	30	Annually
Summary of all call records for previous 2 years	OS	7.2	61	Annually
Copy of Emergency Response Plan	OS	12	37	Annually
Copy of Emergency Response Plan	OS	10	66	Annually
Copy of Spill Prevention Plan	OS	12.2	37	Annually
Septage & hauled waste volume report	OS	3.9	52	Annually
Summary of IPP monitoring activities, enforcement actions, listing of new and existing permits, other IPP activities	OS	3.8	52	Annually
Certificates of calibration for all signatory, Emmaus and LMT flow meters	OS	5.1	53	Annually
Tank and vessel (grit chambers, digestors, etc.) inspection and repair reports	OS	5.1	54	Annually
Root Intrusion - length of sewer mains receiving treatment	OS	5.2.4	56	Annually
Summary of backflow prevention & testing activities	OS	6.9	18	Annually, when applicable
Internal Review	OS	15	38	Annually starting 2016
Internal Review	OS	8.6	65	Annually starting 2016
Comprehensive Planning Study - water	OS	9.1	31	Every 5 Years
Comprehensive Planning Study - wastewater	OS	5.4.2	58	Every 5 Years
Identification/Inventory of Industries that should have an Industrial Waste Permit or perform monitoring	OS	3.8	51	Every 5 Years
Summary of all regulatory water quality reports & other water quality data	OS	4	7	Monthly
Report of all major water equipment taken out of service	OS	5.1.2	12	Monthly
Sustainability, energy use, and status of energy efficiency initiatives report for water	OS	9.2	32	Monthly
Operating Reports for WFP	OS	9.4	32	Monthly
Copy of monthly NPDES report	OS	3.2.2	48	Monthly
Report of all major wastewater equipment taken out of service	OS	5.1	54	Monthly
Sewer tap & main construction inspection details	OS	5.2.6	56	Monthly
Sustainability, energy use, and status of energy efficiency initiatives report for wastewater	OS	5.4.3	59	Monthly
Operating Reports for WWTP	OS	8.1	62	Monthly
Signatory flow report, with 12-month running average flow for 2 years	OS	8.4	65	Monthly
Summary of positive sample results during month, reason for problem, corrective action and plan for future prevention	OS	6.4.1	15	Monthly, if applicable
Notification when water system minimum pressures have not been maintained	OS	6.2.1	14	By Occurrence
Positive total or fecal coliform sample results or minimum chlorine residual < 0.02 mg/L	OS	6.4.1	15	By Occurrence
Positive total or fecal coliform sample results or minimum chlorine residual < 0.02 mg/L	OS	6.4.1	15	By Occurrence
Minimum chlorine residual < 0.02 mg/L	OS	6.4.1	15	Monthly, if applicable
Failure to comply with disinfection by-product (DBPs) monitoring and/or control requirements	OS	6.6	16	By Occurrence
Corrosion Control Issues	OS	6.7	17	By Occurrence
Notification of planned service interruptions	OS	6.22.2	29	By Occurrence
Record of new water user connection installation	OS	6.23	29	Monthly (previously By Occurrence)
Individual report summarizing WWTP odor complaints & resolution	OS	8.2	30	By Occurrence
Individual report summarizing WWTP odor complaints & resolution	OS	7.2	61	By Occurrence
Notification of all WWTP odor complaints	OS	8.2	30	By Occurrence
Notification of WWTP odor complaints	OS	3.6.2	50	By Occurrence
Notification of all WWTP odor complaints	OS	7.2	61	By Occurrence
Notification of security breach at any water facility	OS	11	35	By Occurrence
Report on investigation of security breach at water facility	OS	11	35	By Occurrence
Notification of spills	OS	12.2	37	By Occurrence
Advise City when IPP permits are issued to new users	OS	3.8	51	By Occurrence
Record of new wastewater user connection installation	OS	5.2.5	56	Monthly (previously By Occurrence)

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date
Notification of sink holes	OS	5.2.8	57	By Occurrence
Advise City when a capital improvement is needed for the WWTP, collection system or flood control asset	OS	5.4.1	58	By Occurrence
Report of failed proficiency tests & corrective action	OS	6.4	60	By Occurrence
Report outlining exceedances or other violations related to the DMR	OS	8.2	64	By Occurrence
Notification of security breach at any wastewater facility	OS	11	67	By Occurrence
Report on investigation of security breach at wastewater facility	OS	11	67	By Occurrence
Malfunctioning of the Water Plant Usage Meters	OS	6.16.2	25	By Occurrence
System Flushing Program Notification	OS	6.15	24	By Occurrence
Boil Water Notice	OS	6.4.2	15	By Occurrence
Summary of distribution system water quality monitoring results	OS	6.3.1	14	Quarterly
Summary of water taste and odor complaints	OS	6.8	17	Quarterly
Leak Detection & Repair Report	OS	6.10.2	18	Quarterly
Valve Exercising & Repair Report	OS	6.11.1	20	Quarterly
Hydrant Exercising & Repair Report	OS	6.12.1	21	Quarterly
Summary of planned & unplanned service interruptions during quarter	OS	6.22.3	29	Quarterly
Certified report that all quality assurance and quality control (QA/QC) have been satisfactorily met for Certified Lab	OS	7	29	Quarterly
Sewer line televising report (root intrusion & blockages)	OS	5.2.2	55	Quarterly
Nitrification Control Report	OS	6.5	16	Quarterly, if applicable
Copy of all reports submitted to regulatory agencies	OS	9.4	34	Regulatory
Report of all received customer calls	OS	8.2	30	Semi-Annually
Report of all received customer calls	OS	7.2	61	Semi-Annually
Documentation of all water quality complaints and process of investigation and remediation and conclusions related to the complaint. Report shall include previous 2 years worth of data.	OS	8.2	30	Semi-Annually
Customer Survey Results	OS	8.3	31	Semi-Annually
Customer Survey Results	OS	7.3	62	Semi-Annually
Documentation of all wastewater odor complaints and process of investigation and remediation and conclusions related to the complaint. Report shall include previous 2 years worth of data.	OS	7.2	61	Semi-Annually
Proof of PA Professional Engineering License for each project	CA	4.3.	65	By Project
Submittal of plans and specs for Major Capital Improvements	CA	4.4(b)	65	By Project
Major Capital Improvement Conceptual Design w/ Schedule	CA	4.5(a)(i) & (ii)	66	By Project
Major Capital Improvement Substantially Complete Design	CA	4.5(b)(i),(ii)&(iii)	67	By Project, after design approval
Minutes from Major Capital Improvement design review meeting	CA	4.5.(a)(iii)	67	By Project, after Design Meeting
Minutes from Major Capital Improvement substantial review meeting	CA	4.5(b)(iv)	68	By Project, after Substantial Design Meeting
Submittal of progress schedule for Major Capital Improvement	CA	4.5(d)	68	By Project
Alternate Project Delivery consent request	CA	4.6.	69	By Project, if applicable
Regularly scheduled progress meetings for Major Capital Improvements	CA	4.10.	70	By Project
Submit construction progress reports prior to meeting dates	CA	4.10.	70	By Project
Electronic copy of As-Builts & Specs for Major Capital Improvements	CA	4.7(d)	70	By Project
Submission of plans and engineering design information for planned improvements	OS	6.2.2	14	By Project
EPA Administrative Order reports	OS	9	65	By Project
State Water Plan (Act 220) reports / documentation	OS	10.1	35	As needed

Exhibit C
CONTRACTS and AGREEMENTS ASSOCIATED
with the CONCESSION LEASE

Contract Name
Administrative Order Fund Escrow Agreement MOU
Allentown Water and Sewer Utility System Concession and Lease Agreement - Amended and Restated
Capital Cost Recovery Charges MOU
Amendment to the Capital Cost Recovery Charges MOU
City of Allentown Uncompleted Work at time of Transfer MOU
City Payment Reserve Fund Escrow Agreement MOU
General Real Property Assignment Agreement MOU
Public Works Uses - Street Work, Land development, Inspection, Water & Wastewater Tapping Fees MOU
Service Charge Adjustment - Change of Law MOU
Water and Sewer System Related Services MOU
Addendum No.1 to the Water and Sewer System Related Services MOU
Water and Sewer System Related Services MOU Equipment addendum
Stand Alone Dispute Settlement Agreement
Amendment to the Water Supply Agreement
These agreements may be accessed on the City website: https://www.allentownpa.gov/Contracts

EXHIBIT D
SERVICES MOU REVENUE AND EXPENSES

Revenue	
Communications Center	\$ -
Employee Services	\$ -
Hourly Wages	\$ 68,858.91
Equipment	\$ 41,850.49
Radio Repair	\$ -
Crane	\$ -
Materials	\$ 14,926.38
Jet Vac	\$ -
Trucks for Hauling	\$ -
Locks & Keys	\$ -
Total	\$ 125,635.78

Expense	
Uncompleted Work /Restoration Projects	
AMR (Water Meter Repl. Completion)	\$ 79,400.00
Total	\$ 79,400.00

Note: the figures represent actual billings and receipts for the
calendar year **2021**

