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Agendas & Minutes Posted:
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LEHIGH COUNTY AUTHORITY

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BOARD MEETING AGENDA – October 10, 2022 – 12:00 p.m.

In-Person or Virtual Meeting Attendance Options Available: Meetings of the LCA Board of Directors will be held at LCA's Main Office as well as online using the Zoom Meetings application, which includes a telephone option. Public participation is welcomed both in-person or virtually. Instructions for joining the meeting online or by phone are posted on the LCA website in the morning on the day of the meeting, prior to the start of each meeting. You may also issue comment to LCA via email to LCABoard@lehighcountyauthority.org in advance of any meeting or view the meeting at a later time by visiting the LCA website. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting if you are attending virtually. If attending in-person at LCA's Main Office, please follow all safety and sanitation protocols posted.

1. Call to Order

• NOTICE OF MEETING RECORDINGS

Meetings of Lehigh County Authority's Board of Directors that are held at LCA's Main Office at 1053 Spruce Road, Wescosville, PA, may be recorded for viewing online at lehighcountauthority.org. Recordings of LCA meetings are for public convenience and internal use only and are not considered as minutes for the meeting being recorded, nor are they part of public record. Recordings may be retained or destroyed at LCA's discretion.

• *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

- Additions to Agenda (vote required if action will be taken)

3. Approval of Minutes

- *September 12, 2022 Board meeting minutes*
- *September 19, 2022 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2023 Budget – Preliminary Review (Discussion) (white) (digital Board packet, pages 14-67)*
- *Western Lehigh Interceptor User Charge Report (Approval) (tan) (digital Board packet, pages 68-102)*

WATER

WASTEWATER

- *Kline's Island WWTP: Disinfection and Dechlorination System Improvements (Approval) (purple) (digital Board packet, pages 103-109)*
- *KISS System Modeling – Preliminary Screening of Alternatives (PSOA) (Approval) (yellow) (digital Board packet, pages 110-132)*

6. Monthly Project Updates / Information Items (1st Board meeting per month) (digital board packet, pages 133-139) – **October report attached**

7. Monthly Financial Review (2nd Board meeting per month)
8. Monthly System Operations Overview (2nd Board meeting per month) (digital Board packet, page)
9. Staff Comments
10. Solicitor's Comments
11. Public Comments / Other Comments
12. Board Member Comments
13. Executive Sessions
14. Adjournment

UPCOMING BOARD MEETINGS		
October 24, 2022	November 14, 2022	November 28, 2022

PUBLIC PARTICIPATION POLICY

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. During the Public Comment portions of the meeting, members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.

REGULAR MEETING MINUTES

September 12, 2022

Notice of Preparation of Authority Meeting Minutes: Authority staff who are in attendance at each Authority Board meeting prepare a draft of the Minutes, which are subsequently distributed to all Board members for review. Board members may offer corrections prior to a vote of the full Board of Directors to approve the Minutes.

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:00 p.m. on Monday, September 12, 2022, Chairman Brian Nagle presiding. The meeting was hybrid via in-person and video and audio advanced communication technology ("ACT"), using the Zoom internet application, including telephone option. Each Board member and other attendees of the meeting were able to hear each other attendee and be heard by each other attendee. The public could also participate in the meeting in-person or via ACT, using the Zoom internet application, including telephone option. A Roll Call of Board members present was taken. Brian Nagle, Scott Bieber, Richard Bohner, Norma Cusick, Ted Lyons, Linda Rosenfeld, Jeff Morgan, and Amir Famili were present for the duration of the meeting.

Solicitor Michael Gaul of KingSpry was present along with Authority Staff, Liesel Gross, Ed Klein, Chris Moughan, Chuck Volk, Andrew Moore, Phil DePoe, Susan Sampson, and Lisa Miller.

Chairman Nagle announced that the Board received their electronic and hard copies of the Board packet in advance and asked if anyone did not receive their copy of the packet. A copy of the packet is also available online.

REVIEW OF AGENDA

Liesel Gross announced that there are no changes to the agenda; however, there will be an Executive Session at the close of the regular meeting to discuss potential real estate acquisition and legal matters with the Solicitor.

APPROVAL OF MINUTES

August 22, 2022, Meeting Minutes

On a motion by Richard Bohner, seconded by Linda Rosenfeld, the Board approved the minutes of the August 22, 2022, Board meeting as written (8-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

LCA Munis ERP System Planning & Re-Implementation

Liesel Gross reviewed the project to re-implement Munis that includes reconfiguring the Authority's accounting structure and other foundational systems to utilize best business practices and achieve the level of integration, reporting and accountability that we want to achieve with the Munis system. There are many benefits to re-implementation of Munis including capital project accounting, human resources management, and employee self-service.

Brooke Neve, Customer Care Director, was introduced as the internal Authority staff project manager that will lead this effort. She commented on the improvements that are planned with the project that will enhance the entire process, including our customers. Liesel Gross, Chris Moughan, Ed Klein, Todd Marion and Pete Burkhardt are also members of the internal core team working on the project.

Raftelis will provide system design and configuration support including support for data conversion, interface testing, user training, documentation, and change management. They will also support the Authority through system conversion.

There was some Board discussion regarding the project fees and also the level of support provided from Raftelis. Additional discussion followed regarding Authority staff accountability for the project and plans to seek efficiencies through the project implementation.

On a motion by Amir Famili, seconded by Ted Lyons, the Board approved the Capital Project Authorization for the ERP/Munis Re-Implementation Project - Design Phase in the amount of \$569,076.00 which includes the Professional Services Authorization: Implementation Support Services to Raftelis in the amount of \$399,076.00 (7-0).

A roll call vote was taken with the following votes cast:

Brian Nagle – yes
Scott Bieber – yes
Richard Bohner – yes
Norma Cusick – yes
Ted Lyons – yes
Jeff Morgan – yes
Amir Famili – yes

2023 Preliminary Budget Review

Liesel Gross reviewed the budget timeline, noting that today's presentation is focused on reviewing the assumptions that are being incorporated into the 2023 Budget. A preliminary review of the Budget figures will be provided at the next Board meeting. Rates will be discussed at the first October meeting, and final Budget approval will be requested at the last meeting in October. The Authority's Budget is required to be approved by November 1st each year.

A presentation was shared with the Board to review the 2023 Budget assumptions, including a review of key factors by fund, preliminary Budget summary, and next steps.

Ms. Gross reviewed the strategic initiatives and the required resources for Asset Management, Process Improvement, Water & Sewer Capacity, and Operational Excellence in 2023. She then reviewed the personnel budget, which is expected to increase 9.2% compared to the 2022 forecast. A large portion of that increase is to fill the 10 vacant positions within the Authority's existing employee base. It also includes the addition of three new positions in 2023: a Director of Engineering and Asset Management, Plant Operations Compliance Technician, and a Training Coordinator. This budget also supports wage increases by the union contracts and an almost 5% health insurance cost increase.

Ed Klein reviewed the list of other assumptions noting that the inflationary impact on expenses is approximately 3.75%. In the Internal Services area, efforts continue to departmentalize the budget.

This will be completed with the Munis re-implementation project. Within the Suburban Water fund, a key factor that will affect the 2023 Budget is the internal services cost increases for staffing and strategic initiatives, and inflation. Considering an expected 2% growth in water sales, an overall rate increase of approximately 3.5% is expected, which is in line with the projections included in the Authority's capital plan. A water rate study is in progress to evaluate the rate structure.

Mr. Klein then reviewed the Suburban Wastewater fund and key factors expected to impact the 2023 Budget. He noted that the operating expenses will increase proportionately between personnel and inflation with no borrowing expected in 2023. The Signatory User Charge Report will be issued in October.

For the City Division, Mr. Klein explained the operating expenses will have an increase proportionate between personnel and inflation. The City lease rate will increase based on the lease agreement that includes a rate formula. The expected overall rate impact will be a 9.8% increase, which includes inflation rate plus 2.5% by agreement. There was some Board discussion regarding rates and differences in rate increases between each division. Liesel Gross explained that the City Division rates will increase faster in the current timeframe due to the lease amendment that was signed in 2020. This was included in the agreement to ensure adequate funding for capital improvements, but also includes provisions to reduce rates once certain financial thresholds are met. Therefore, the City Division rates will essentially represent the cost of service over time.

Mr. Klein reviewed the budget figures in summary form, noting that the debt service coverage ratios in each fund are good. The next steps include finalizing the preliminary budget numbers particularly in the wastewater fund, complete the Suburban water rate study and the Suburban Wastewater signatory user charge report. Coming up at the next Board meeting, staff will review the 2023 cash flows.

There was some discussion on the efficiencies of re-implementing Munis and how it will improve Budget reporting and business practices.

Suburban Division - Water Main Replacement Program Cycle 6

Jason Peters described the Cycle 6 water main replacement project located in the North Whitehall system. The project will replace approximately 1.1 miles of pipe and appurtenances to address the high-risk water service area by replacing the aging and failing infrastructure and prevent excessive leakage and/or service interruptions from water main breaks. Mr. Peters described the bidding results noting that the lowest bid proposal received from Shainline Excavating, Inc. was determined to be materially defective because the bid form was not signed as required by specifications.

There was Board discussion regarding the bidding process and its legalities.

On a motion by Scott Bieber, seconded by Ted Lyons, the Board tabled award of the project until the next meeting pending the results from the phone call to Shainline Excavating, Inc. to clarify why their signed bid form was not submitted (5-3).

A roll call vote was taken with the following votes cast:

Brian Nagle – yes
Scott Bieber – yes
Richard Bohner – no
Norma Cusick – no

Ted Lyons – yes
Linda Rosenfeld – no
Jeff Morgan – yes
Amir Famili – yes

KISS System Modeling – Capacity Problem Definition

Jim Shelton from Arcadis was present to give a presentation on work completed to model the system's current and future performance in various flow conditions, and to outline the next steps in the process of developing the regional Act 537 Plan for the Kline's Island Sewer System.

Mr. Shelton reviewed results from the hydraulic model, showing "blossom diagrams" depicting locations and volumes of sewage overflows in the system based on Hurricane Ida as the selected model storm event. He reviewed how the overflows would affect the system today compared to in the year 2050 if no additional work is done to address the problem. These diagrams serve as the basis for the Act 537 Plan problem definition, with alternatives to be developed to address the overflows. He reviewed the primary objective of the plan, which will be to eliminate as many of the overflows by 2035 as possible. This would be accomplished by sequencing the work properly, building non-modular infrastructure to meet the 2050 flow conditions, and selecting the most life-cycle-cost advantageous solution. The hydraulic modeling will be designed to incorporate the long-term rehabilitation needs of the system. The modeling of the inflow and infiltration (I&I) source reduction projects will include three scenarios: a "do nothing" approach with no municipal work on their systems; a "common sense" approach based on Arcadis's regional prioritization of system rehabilitation; and the municipal-based approach using each municipality's own plan to reduce I&I from their systems. Phil DePoe added that DEP is expecting a strong I&I reduction program to be included in the Act 537 Plan.

The next phase will be to conduct the preliminary screening of alternatives for the Act 537 Plan. Alternatives to be included in this work will include inflow and infiltration source reduction, treatment options, and conveyance alternatives. This preliminary screening will inform the final alternative analysis, with the final phase to be the selection of the solution to be included in the Act 537 Plan.

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross highlighted the September 2022 items that will be coming up at the next meeting. Ms. Gross reported that the financial audit will again be delayed due to the Pennsylvania Municipal Retirement System audit information being submitted late to the Authority.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

None.

EXECUTIVE SESSION

There will be an Executive Session after the regular meeting to discuss real estate acquisition and a legal matter with the Solicitor.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:30 p.m.

Richard Bohner
Secretary

REGULAR MEETING MINUTES

September 19, 2022

Notice of Preparation of Authority Meeting Minutes: Authority staff who are in attendance at each Authority Board meeting prepare a draft of the Minutes, which are subsequently distributed to all Board members for review. Board members may offer corrections prior to a vote of the full Board of Directors to approve the Minutes.

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:15 p.m. on Monday, September 19, 2022, Chairman Brian Nagle presiding. The meeting was hybrid via in-person and video and audio advanced communication technology ("ACT"), using the Zoom internet application, including telephone option. Each Board member and other attendees of the meeting were able to hear each other attendee and be heard by each other attendee. The public could also participate in the meeting in-person or via ACT, using the Zoom internet application, including telephone option. A Roll Call of Board members present was taken. Brian Nagle, Richard Bohner, Norma Cusick, Linda Rosenfeld, Jeff Morgan, and Amir Famili were present for the duration of the meeting. Kevin Baker entered the meeting at 12:46 p.m. and was present for the remainder of the meeting.

Solicitor Michael Gaul of KingSpry was present along with Authority Staff, Liesel Gross, Ed Klein, Chris Moughan, Chuck Volk, Andrew Moore, Phil DePoe, Susan Sampson, and Lisa Miller.

Chairman Nagle announced there was an Executive Session prior to the regular meeting to discuss potential litigation and other legal matters with the Solicitor.

Chairman Nagle announced that the Board received their electronic and hard copies of the Board packet in advance and asked if anyone did not receive their copy of the packet. A copy of the packet is also available online.

REVIEW OF AGENDA

Liesel Gross also announced that there was an Executive Session at the beginning of the regular meeting to discuss potential litigation with no additional Executive Sessions planned. She requested a change to the order of the agenda items so that the Water Filtration Plant & System Master Plan item can be moved to the top of the agenda and the guests from Arcadis can give their presentation. The Board agreed to the change in the order of the agenda.

APPROVAL OF MINUTES

None.

PUBLIC COMMENTS

None.

Water Filtration Plant & System Master Plan

Phil DePoe introduced Tony Dill and Kirk Novak from Arcadis who have prepared the Water Filtration Plant & System Master Plan (Master Plan) and gave a presentation on the key findings included in the draft Master Plan. A condition assessment of the Water Filtration Plant was conducted, along with a review of projects that have been completed or initiated since the last Master Plan was completed in 2017. A new focus area in the Master Plan since 2017 relates to water reliability and long-term capacity. Due to the increased awareness of future demands for water

supply, based on other studies currently under way such as the regional Act 537 Plan development, more attention must be paid to the availability of water supply to meet those future needs. A key recommendation of the Master Plan is to undertake a strategic review of the reliability risks associated with each water source including the Lehigh River, Little Lehigh Creek, Schantz Spring, and Crystal Spring. Climate change is also a growing risk that needs to be considered.

As part of the Master Plan work, an extensive water quality and treatment evaluation was conducted, which identified key limitations within the treatment process. Perfluorinated compounds (PFOA and PFOS) were evaluated in the raw water sources and were found to be below the proposed Pennsylvania drinking water standards. However, these standards have not been finalized yet, and the U.S. Environmental Protection Agency has issued new health advisory levels for PFOA and PFOS that are very low. More water sampling and continued monitoring of the regulatory requirements for these compounds will be necessary.

A revised summary of recommendations was provided. The recommended capital improvements were grouped into time blocks of 0-5 years, 6-10 years, 11-25 years, and 25-50 years.

There was some Board discussion regarding project prioritization. The filter upgrade project was noted as the highest priority in the near-term time horizon.

Jennifer McKenna, Office of Compliance City of Allentown commented there has been good dialogue with Arcadis, LCA and the City working through this plan development process and the City looks forward to receiving the final plan.

2023 Preliminary Budget Review

Liesel Gross reviewed the budget timeline, noting that today's presentation is focused on reviewing the preliminary Budget figures that are included in the preliminary draft Budget that has been distributed. Rates will be discussed at the first October meeting, and final Budget approval will be requested at the last meeting in October.

A presentation was shared with the Board to review the preliminary draft of the 2023 Budget. Ms. Gross reviewed the strategic initiatives and the required resources for Asset Management, Process Improvement, Water & Sewer Capacity, and Operational Excellence in 2023. She also summarized the impact on the personnel budget, which was reviewed at the last Board meeting.

Ed Klein reviewed the key factors in the Internal Service budget, noting that efforts to departmentalize the budget continue. This will be completed with the Munis re-implementation project. He also reviewed the Capital Budget for the Administration Fund, noting that it does not include the cost for the Munis project. The Administration capital costs will be allocated across all three operating funds, and this allocation is still being worked on.

The Suburban Water fund operating expenses will increase 6.9% compared to the 2022 forecast mostly due to personnel cost changes and inflationary impacts. He noted that the Authority will draw approximately \$3.9 million from its 2022 financing proceeds to cover capital expenses in 2023. A review of the Suburban Water capital budget was provided. Mr. Klein also explained how the revenue requirements for 2023 are calculated, which results in a 3.5% estimated rate impact for next year.

He then reviewed the Suburban Wastewater fund budget, which includes similar increases in operating expenses due to bearing a proportionate share of the personnel costs increases plus

inflation. The Suburban Wastewater capital budget was also reviewed. Mr. Klein explained the revenue increase of 17.3% projected in this fund is due to Western Lehigh municipalities deciding against using reserve funds to pay for capital improvements in 2023. Instead, the capital costs will be paid through the rates, resulting in the higher increase next year. Liesel Gross commented that Western Lehigh sewer rates will be reviewed at the next Board meeting when the User Charge Report is presented.

For the City Division, Mr. Klein explained the operating expenses are increasing in this fund due primarily to the effect of its proportionate share of increased personnel costs and inflation. No new borrowing is planned for 2023, although the budget will reflect closing of the Pennvest loan for the Water Filtration Plant high service pump project in early 2023. The capital budget for water and sewer projects in the City Division were reviewed. Rates will increase in the City Division in accordance with the lease agreement with the City of Allentown.

Mr. Klein reviewed the next steps that include finalizing the preliminary budget numbers, completing the Suburban water rate study, and presenting the Suburban Wastewater signatory user charge report. Coming up at the October 10th meeting, there will be a refined budget review and rate overview, with final Budget adoption requested at the October 24th meeting.

Ms. Gross explained that since there are several revisions and refinements expected before the next meeting, a new 2023 Preliminary Budget packet will be provided to the Board.

LCA Pension Plan – Mandatory Municipal Obligation

Ed Klein presented the 2023 Minimum Municipal Obligation (MMO) memorandum and worksheet for the Authority's pension plan, which is required to be provided to the Board annually. No action is required.

I-78 Water Main Crossing

Ed Hoyle gave an overview of the project that consists of furnishing and installing approximately 170 linear feet of 20" HDPE pipe and appurtenances to the existing 36" diameter steel piper under Interstate 78 to supplement supply in the Central Lehigh Division Upper System and meet the impact of expected growth west of Fogelsville. An easement and associated temporary construction easement for access is needed from the property owner on the north side of I-78, and will be secured prior to contractor mobilization.

On a motion by Linda Rosenfeld, seconded by Richard Bohner, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$256,030.00 which includes the contract award for the General Construction to Barrasso Excavation, Inc. in the amount of \$212,180.00 and the Professional Services Authorization to Keystone Consulting Engineers, Inc. in the amount of \$13,850.00 (7-0).

A roll call vote was taken, with the following votes cast:

Brian Nagle - yes
Richard Bohner - yes
Norma Cusick - yes
Kevin Baker - yes
Linda Rosenfeld - yes
Jeff Morgan - yes

Amir Famili - yes

Water Main Replacement Program Cycle 6 (Suburban Division)

Chairman Nagle announced that this project was tabled from the last meeting, but was discussed in detail at that meeting. Chuck Volk explained that bids were opened on August 24th and the lowest responsive and responsible bidder is JOAO & Bradley Construction Co. Inc. at \$2,296,698.00. The apparent low bidder, Shainline Excavating, Inc., did not submit a signed bid form and their submission was deemed insufficient.

On a motion by Richard Bohner, seconded by Jeff Morgan, the approved the Capital Project Authorization for the Construction Phase, Cycle 6 Water Main Replacement (Suburban Division) in the amount of \$2,566,698.00 which includes the Professional Services Authorization for Construction Engineering and Management Services to Gannett Fleming Inc. in the amount of \$45,000.00, the Professional Services Authorization for Construction Inspection Services to Keystone Consulting Engineers in the amount of \$75,000.00 and contract award for General Construction to JOAO & Bradley Construction Co. Inc. in the amount of \$2,296,698.00 (7-0)

A roll call vote was taken with the following votes cast:

Brian Nagle – yes
Richard Bohner – yes
Norma Cusick – yes
Kevin Baker – yes
Linda Rosenfeld – yes
Jeff Morgan – yes
Amir Famili – yes

Kline's Island WWTP: Solids Process Boiler and HVAC System Upgrade Project

Chuck Volk described the project to replace the boilers and associated solids processing HVAC equipment that reached the end of their service life as identified in the Kline's Island Wastewater Treatment Plant Master Plan. The total of low bids is above the engineer estimate, which is mainly due to the costs of the air handler units significantly increasing. Once the project is awarded, a schedule of values will be reviewed to see if there is an alternate, less costly air handler that can be used.

There was some Board discussion regarding the useful life of the boilers and also the corrosive environment in which the HVAC components are operating. Charles Winslow, Project Manager for GHD, confirmed the life cycle on the boilers to be around 20-25 years and described the measures in the project to protect the life cycle of the HVAC system against the highly corrosive environment.

On a motion by Norma Cusick, seconded by Richard Bohner, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$4,087,111.00 which includes the Construction Contract No.1 General Contract to LB Industries in the amount of \$986,523.00 and Construction Contract No. 2 Mechanical Contract to Master Mechanical, Inc. in the amount of \$2,604,138.00 and Construction Contract No. 3 Electrical Contract to Diefenderfer Electrical Contractors, Inc. in the amount of \$202,850.00 and a Professional Services Authorization for the Construction Phase Engineering to GHD, Inc. in the amount of \$136,100.00 (7-0).

A roll call vote was taken, with the following votes cast:

Brian Nagle – yes
Richard Bohner - yes
Norma Cusick - yes
Kevin Baker - yes
Linda Rosenfeld - yes
Jeff Morgan - yes
Amir Famili - yes

MONTHLY FINANCIAL REVIEW

Ed Klein reported that the August report will be distributed at a later date and the presentation will be posted on the Authority website.

MONTHLY SYSTEM OPERATIONS OVERVIEW

Andrew Moore reviewed highlights of the August 2022 report, noting that water production is still higher than normal and wastewater flows are lower than normal. Both trends are due to the summer heat and lack of precipitation. He also reported on a bypass at Heidelberg Heights wastewater treatment plant due to a storm event and an employee injury that occurred in August. There was an emergency repair made to the Trout Creek stream bank in Washington Township that had eroded away leaving a sewer manhole exposed in the middle of the creek. On August 31st, the Pa. Department of Environmental Protection declared a drought watch for 36 counties in the state, including Lehigh County. The Authority is asking all customers to conserve water by 5-10%. Richard Bohner asked about the increased water usage and any impacts that is having on water supplies during the drought. Mr. Moore explained that groundwater levels are within normal range and the usage numbers should taper off in the coming months as the temperatures cool down.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

None.

EXECUTIVE SESSION

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:00 p.m.

Richard Bohner
Secretary



LEHIGH COUNTY AUTHORITY

2023 BUDGET

DRAFT: October 10, 2022

Executive Summary

Operating Activities

Lehigh County Authority

2023 Budget (Draft 10-10-22)

Operating Budgets Overview

The funds of the Authority are grouped in the financial statements as Enterprise funds, which are used to account for business-like activities provided to the general public. These activities are financed primarily by user charges, and the measurement of financial activity focuses on net income measurement like the private sector, in addition to cash flows used more traditionally by the public utility sector. The following enterprise funds are reported as major funds:

- A. Suburban Water Division** – Used to account for the operations of the Suburban Water system’s supply, storage, pumping and treatment facilities and distribution system. The Suburban Water system is a public utility service, which is intended to be maintained on a self-supporting basis.
- B. Suburban Wastewater Division** – Used to account for the operations of the Suburban Wastewater system’s interceptors, collector systems, pump stations, and treatment facilities. The suburban wastewater system is a public utility service, which intends to be maintained on a self-supporting basis.
- C. City Division** – Used to account for the operations of the City of Allentown water and sewer system. The City Division fund is a public utility service, which intends to be maintained on a self-supporting basis. This fund was added in 2013 because of the Authority entering into a 50-year Concession Lease Agreement with the City.

A. Suburban Water Division:

The Authority currently owns and operates water systems in three areas of Lehigh County - the Western Lehigh (WLSA), the Northern Lehigh (NLSA) and the Southern Lehigh (SLSA) Service Areas. In addition, the Authority owns and operates one system in Northampton County. Within each service area, separate systems are further designated as divisions. The Authority is funding all expenses in most of the divisions through a common rate. By municipal agreement, there are 35 customers within the Washington Township Division that are not part of the common rate structure.

Responsibilities for water service include monitoring water quality, operating and maintaining the various supply sources, reservoirs, transmission and distribution pipe networks and customer metering, billing, and response to other related customer service needs.

Each division is affected to varying degrees by the Federal and Pennsylvania Safe Drinking Water Act requirements. Depending on the source (groundwater or purchased surface water), differing analyses are required for water quality monitoring.

Major Budget activities continue to place an emphasis on providing customers with outstanding service. Maintenance programs intended to prolong the useful life of existing facilities, including preventive maintenance, leakage monitoring and repairs, exercising of system valves and fire hydrants, and station improvements and repairs, are on-going.

B. Suburban Wastewater Division:

The Authority is responsible for providing a variety of wastewater services. Current operation and maintenance responsibilities include: the Western Lehigh Interceptor (WLI), Little Lehigh Relief Interceptor (LLRI), the LCA Pre-Treatment Plant (formerly the County of Lehigh Pre-Treatment Plant), collection and treatment in Heidelberg Township, North Whitehall Township, Weisenberg Township and Lynn Township and collector systems within Lowhill Township, Upper Milford Township, Weisenberg Township and Washington Township.

Lehigh County Authority 2023 Budget (Draft 10-10-22) Operating Budgets Overview

Western Lehigh Interceptor system:

This budget addresses transportation and City treatment services provided to various municipalities and assumes an average daily flow of 8.3 million gallons per day (MGD) from the communities served including the Boroughs of Alburtis and Macungie, and the Townships of Lower Macungie, Upper Macungie, Upper Milford, Weisenberg, Lowhill and the LCA Pre-Treatment Plant (the “Municipalities”). The Municipalities are billed based upon wastewater strength, flow, and reserved capacity. The budget (including the LLRI, described below) includes an estimated 16 percent rate increase for the typical residential customer. In addition, the Borough of Emmaus discharges a portion of its flow through the WLI and is billed in accordance with a service agreement.

Personnel time is included for the operation and maintenance of the gravity interceptors and the Spring Creek Pump Station (SCPS) and force main. The budget anticipates that the SCPS will operate daily to meet the demand of volume as well as in response to wet weather events according to current wet weather operating protocols.

As part of a comprehensive Infiltration and Inflow (I/I) removal program, flow monitoring of the Authority and Signatory collector system connections has been completed on an ongoing basis over many years, beginning in 2007. The results of the flow monitoring are used to plan I/I removal programs conducted by all Municipalities to lower wet-weather flows and ensure future capacity is available for new system users. In 2020, the Authority and Municipalities developed an Interim Act 537 Plan to address the capacity requirements for the period of 2021 to 2025. The 2023 Budget includes implementation of planning activities outlined in this regional Interim Act 537 Plan.

Sampling and analysis for billing purposes of the LCA Pre-Treatment Plant and Municipality industrial/commercial users, and flow entering the City system and that from Emmaus are included.

Little Lehigh Relief Interceptor (LLRI) system

Phase 1

This system phase, including the Park Pump Station (PPS) and Force Main, serves the Municipalities and the Townships of Salisbury and South Whitehall. The PPS, which has been in service since 1983, provides 20 MGD of relief pumping capacity to bypass a critical portion of the City of Allentown’s interceptor system. In 2020, the Authority completed a major upgrade to the PPS including replacement of aged pumps and equipment, and installation of updated variable frequency drives and control systems, which will serve to optimize the facility and increase efficiency.

Phase 2

This system phase includes the gravity relief line from Keck’s Bridge to the PPS and serves the Municipalities. The 2023 Budget anticipates the continuation of increased maintenance costs for cleaning and other work on this system.

Common Rate Collector System:

Upper Milford system

As the wastewater service agency for Upper Milford Township (UMiT), Lehigh County Authority (LCA) provides all wastewater-related services for the 1072 residential and 48 commercial customers in the township as of September 27, 2022. Except for significant matters requiring inter-municipal negotiations or consultations, LCA provides general representation for UMiT on wastewater issues.

Lehigh County Authority

2023 Budget (Draft 10-10-22)

Operating Budgets Overview

Weisenberg system

In 2002, LCA finalized an agreement with Weisenberg Township, which designates LCA as the provider of public wastewater service within specific areas of the township. Currently LCA provides collection system service to 146 residential and 3 commercial customers in the Pointe West subdivision and surrounding areas.

Heidelberg Heights system

This system, serving 145 customers in Heidelberg Township was purchased by LCA in September 1998. The system includes approximately 6,500 linear feet of collector sewers and a 60,000 GPD Sequencing Batch Reactor (SBR) Activated Sludge Wastewater Treatment Plant, which was placed in operation in 2000. The budget includes maintenance activities related to the collection system, emphasizing identification and removal of extraneous flow into the system. The Authority operates the system using LCA personnel and outside operators.

Wynnewood Terrace system

The budget includes the operation and maintenance of the Wynnewood Terrace wastewater system in North Whitehall Township. The Authority took over ownership and operational responsibilities in July of 2003. The system includes a new 60,000 GPD SBR(s) treatment plant constructed in 2020, three pump stations and collection system currently serving 217 residential and 2 commercial customers. The budget includes maintenance activities related to the collection system, emphasizing identification and removal of extraneous flow into the system. The Authority operates the system using LCA personnel and outside operators.

Sand Spring system

The budget includes the operation and maintenance of the Sand Spring wastewater system in North Whitehall Township, which was acquired at the end of 2004. The system includes a new 35,000 GPD SBR(s) treatment plant constructed in 2021 and collection system currently serving 248 residential apartment units and 11 commercial customers. The Authority operates the system using LCA personnel and outside operators.

Lowhill Township system

LCA acquired the Lowhill Township sewer collection system effective April 1, 2016. The system serves 43 residential customers and is comprised of approximately 3,500 feet of 8" PVC sewer.

Western Weisenberg system

The Authority owns and operates a 40,000 GPD wastewater treatment plant at the Arcadia West Industrial Park (AWIP). The new plant serves the AWIP and other properties in the New Smithville area of Weisenberg Township. Currently there are 16 commercial customers and 1 institutional customer in this system.

Lynn Township system

The budget includes the operation and maintenance of the Lynn Township wastewater system in Lynn Township. The system includes an 80,000 GPD cast in place extended air plant and collection system currently serving approximately 364 residential properties, 20 commercial customers and the Northwestern Lehigh School District Complex.

Lehigh County Authority 2023 Budget (Draft 10-10-22) Operating Budgets Overview

Washington Township system

LCA provides operating services for this system that serves approximately 592 residential and commercial customers in the Slatedale and Emerald areas of Washington Township. Approximately 130,000 GPD of wastewater is conveyed to and treated at the Borough of Slatington's wastewater treatment plant. Ownership of the system remains with Washington Township.

LCA Pre-Treatment Plant (PTP)

LCA took over the operation in May 2006 and ownership in October 2009 of this 5.75 MGD facility built by the County of Lehigh in 1990. Currently the facility provides pre-treatment of high strength waste, predominantly generated by food and beverage industrial customers, along with domestic-strength waste generated by upstream commercial and residential properties located in Lowhill, Weisenberg and Upper Macungie Townships. The PTP also treats hauled waste, which is a significant revenue source for this plant. The plant is operated through a professional services contract with Jacobs. A 10-year operations contract was negotiated in 2017 with Jacobs (formerly CH2M) to provide significant savings in the operational costs, which will be reinvested in plant capital that is reaching the end of its useful life.

Boston Beer Company (BBC) started brewing operations at the former Pabst Brewery in April 2008. The brewery waste has become a very significant source of both waste and income for the PTP. BBC is the plant's largest customer and continues to increase production annually.

Over the past decade, significant capital investment has been made in the PTP to rehabilitate aging, inefficient and inoperable equipment in anticipation of an increase in industrial wastewater flows and strength, which in turn places added demands on plant equipment. Over the past five years, energy conservation measures have been implemented to reduce electrical demands and improve equipment and operational efficiencies. The projects included the addition of a truck receiving station and the completion of the digester mixer replacements, which increased biogas production and reduced electrical needs. Recently completed projects include the rebuild of two belt filter presses, new grease receiving station, access drive reconstruction, and yard process piping replacements.

C. City Division

Water System

The Authority operates the water system for the City of Allentown under a long-term lease/concession agreement. The water system consists of a 30 MGD water treatment plant, (2) water intake structures, (10) storage tanks and reservoirs and (5) pump stations. There are two Water System budgets – Treatment Plant budget and Distribution budget. Separate budgets are presented for each division to track and maintain expenses.

Responsibilities for services include monitoring water quality, operating and maintaining the supply sources for the treatment facility, reservoirs, tanks, transmission and distribution pipe networks, customer metering, billing, and response to customer service needs.

The consumer base is located throughout the City of Allentown. Water is also provided to surrounding municipalities using system interconnections. Sources of supply include two groundwater sources, namely Schantz Spring and Crystal Spring. In addition, two surface water sources include the Little Lehigh Creek and the Lehigh River. Customer growth in the Allentown Division is expected to be minimal.

Major budget activities place an emphasis on providing consumers with outstanding quality water and service. A Preventive Maintenance Program continues to prolong the useful life of existing facilities and equipment. Programs for valve exercising, leak detection, fire hydrant repair/replacement will continue.

Lehigh County Authority 2023 Budget (Draft 10-10-22) Operating Budgets Overview

Maintenance programs for the treatment plant processes such as filter evaluations, plant equipment repair/replacement will continue to meet the stringent regulations mandated by EPA and DEP. Continued membership with the Partnership for Safe Water Program for the Treatment Plant and Distribution System will provide a means and method for improvement to the overall performance of the system and water quality. Significant activities include:

- Cost effective use of all 4 water sources
- Optimization of the Treatment Process through the Partnership for Safe Water
- Preventative maintenance programs, utilizing the CMMS
- Aggressive leak detection program
- Use/Upgrade of the SCADA system to allow for more cost-effective operations
- Long term service contract for reservoir/tank maintenance program
- Enhanced CMMS to maintain cost control
- Fleet management to control/maintain vehicle expenses
- Upgrade/replace aging/ineffective equipment that is beyond its useful life

Wastewater System:

LCA's operation and maintenance responsibilities include the operation of the Kline's Island Wastewater Treatment Plant and the portion of the collection system that resides in the geographic boundaries of the City of Allentown. There are two Wastewater System budgets – the Treatment Plant budget and Collection System budget. Separate budgets are presented to track and maintain expenses for improved cost control as well as to implement cost-sharing rates with the 15 municipalities that utilize the system outside the City of Allentown. Rate setting for the municipalities is established via service contracts that specify how operating, maintenance and capital costs are distributed.

The 2023 Budget was developed to provide compliance with applicable regulatory requirements utilizing recognized operational, maintenance and industrial pretreatment procedures to effectively convey and process the wastewater generated in the service area of the treatment facility. Compliance with the Standards of Practice established as part of the concession and lease agreement with the City of Allentown will be an on-going and essential focus for the wastewater staff of the city division.

Consolidated Statements

**LEHIGH COUNTY AUTHORITY
2023 BUDGET
SUMMARY**

Budget Overview	Sub. Water	Sub. Wastewater	City Division	Total
Operating, Non-Operating & Other Revenue	17,064,782	22,785,541	54,975,421	94,825,744
Operating Expenses (net of depreciation)	10,700,662	13,979,007	23,182,225	47,861,894
Net Revenues Available for Debt Service	6,364,120	8,806,534	31,793,196	46,963,850
Debt Service	3,474,867	729,123	15,130,921	19,334,911
Debt Service Coverage Ratio (indenture based)	1.83	12.08	2.10	2.43

Capital Budget Overview	Sub. Water	Sub. Wastewater	City Division	Total
Capital Expenses	6,751,000	7,033,500	15,191,000	28,975,500
Funding from 2023 Revenue & Operating Reserves	2,800,677	7,033,500	13,991,000	23,825,177
Funding from Existing Project Reserves	-	-	-	-
Funding from New Borrowing	3,950,323	-	1,200,000	5,150,323
Year-End Project Reserve Balance	319,718	5,955,385	3,022,601	9,297,704

Total Cash Flow	Sub. Water	Sub. Wastewater	City Division	Total
Beginning Operations Cash Balance (2022 forecast)	7,029,282	4,201,848	15,593,342	26,824,472
2023 Surplus	2,847,330	8,052,212	16,662,275	27,561,817
Provided From (To) Capital	(2,800,677)	(7,033,500)	(13,991,000)	(23,825,177)
Ending Operations Cash Balance	7,075,935	5,220,560	18,264,617	30,561,112
Operating Days Cash on Hand	241	136	208	221
Project Reserve Balance	319,718	5,955,385	3,022,601	9,297,704
Other Reserves & Investments (includes restricted)	4,919,064	7,315,908	60,788,279	73,023,251
Ending Total Fund Balance - 2023 Budget	12,314,717	18,491,853	82,075,497	112,882,067

Ending Total Fund Balance - 2022 Forecast	12,268,064	17,473,141	79,404,222	109,145,427
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LEHIGH COUNTY AUTHORITY
KEY METRICS
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Condensed Cash Flows																
Operating Revenues	17,000,000	16,160,223	16,287,758	14,124,320	22,700,413	20,074,329	21,159,552	16,625,786	54,846,760	50,679,078	50,944,159	45,901,083	94,547,173	86,913,630	88,391,469	76,651,189
Operating Expenses (ex. D&A)	(10,700,662)	(9,834,776)	(10,397,601)	(8,007,660)	(14,004,207)	(12,702,569)	(13,288,362)	(12,363,419)	(21,782,225)	(19,580,831)	(21,066,492)	(16,930,270)	(46,487,094)	(42,118,176)	(44,752,456)	(37,301,349)
Non-Operating Revenues (Expenses)	64,782	14,078	50,125	(141,037)	85,128	(48,410)	87,965	25,021	128,661	62,209	176,419	5,374	278,572	27,877	314,509	(110,642)
Net Available for Debt Service	6,364,120	6,339,525	5,940,282	5,975,623	8,781,335	7,323,349	7,959,155	4,287,388	33,193,196	31,160,456	30,054,086	28,976,187	48,338,651	44,823,331	43,953,522	39,239,198
Debt Service	(3,474,867)	(3,395,721)	(3,125,490)	(1,567,319)	(729,123)	(731,653)	(735,802)	(709,407)	(15,130,921)	(14,208,884)	(15,460,362)	(14,115,086)	(19,334,911)	(18,336,258)	(19,321,654)	(16,391,812)
Non-Cash Working Capital Changes	(41,923)	(40,091)	-	(2,659,084)	-	-	-	402,257	-	-	2,197,479	2,982,256	(41,923)	(40,091)	2,197,479	725,429
Net Available for Capex	2,847,330	2,903,714	2,814,792	1,749,220	8,052,212	6,591,696	7,223,353	3,980,238	18,062,275	16,951,572	16,791,203	17,843,357	28,961,817	26,446,983	26,829,347	23,572,815
Investing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Payments	-	-	-	-	(453,375)	(443,722)	-	(863,000)	(1,400,000)	(1,286,655)	(1,286,650)	(1,243,524)	(1,853,375)	(1,730,377)	(1,286,650)	(2,106,524)
Borrowing	3,950,323	3,000,590	3,075,000	-	-	-	-	-	1,200,000	56,055	1,200,000	-	5,150,323	3,056,645	4,275,000	-
Capex	(6,751,000)	(3,223,493)	(5,487,500)	(4,676,634)	(7,033,500)	(2,809,704)	(2,870,000)	(4,250,286)	(15,191,000)	(6,907,215)	(11,265,000)	(7,504,907)	(28,975,500)	(12,940,413)	(19,622,500)	(16,431,827)
Net Cash Flows	46,653	2,680,810	402,292	(2,927,414)	565,337	3,338,270	4,353,353	(1,133,048)	2,671,275	8,813,757	5,439,553	9,094,926	3,283,265	14,832,838	10,195,197	5,034,464
Debt Service Ratio (Indenture Based)																
Total Operating Revenues	16,287,500	15,449,114	15,321,204	12,433,466	21,822,513	18,636,993	20,282,051	15,823,055	50,680,860	46,269,365	46,388,629	42,276,435	88,790,873	80,355,472	81,991,884	70,532,955
Total Operating Expenses (Cash Based)	(10,700,662)	(9,834,776)	(10,064,907)	(8,007,660)	(13,979,007)	(12,678,615)	(13,288,362)	(12,363,419)	(21,782,225)	(19,636,886)	(21,122,542)	(16,936,270)	(46,461,894)	(42,150,277)	(44,475,811)	(37,307,349)
Interest Income	64,782	49,796	50,125	47,412	85,128	67,440	87,965	80,219	128,661	62,209	176,419	5,374	278,572	179,445	314,509	133,005
Annual Lease Payment (City)	-	-	-	-	-	-	-	-	(1,400,000)	(1,230,600)	(1,230,600)	(1,243,524)	(1,400,000)	(1,230,600)	(1,230,600)	(1,243,524)
Total Non-Operating Revenues (Expenses)	712,500	711,109	966,554	1,690,854	877,900	1,437,336	877,501	802,731	4,165,900	4,409,713	4,555,530	3,624,648	5,756,300	6,558,158	6,399,585	6,118,233
Cash Available For Debt Service	6,364,120	6,375,243	6,272,976	6,164,072	8,806,534	7,463,154	7,959,155	4,342,586	31,793,196	29,873,801	28,767,436	27,726,663	46,963,851	43,712,198	42,999,566	38,233,321
Interest and Fees Paid	1,130,484	1,169,877	1,200,301	1,026,223	153,143	192,700	173,721	213,026	15,130,921	14,208,884	12,799,531	12,075,086	16,414,548	15,571,461	14,173,553	13,314,335
Principal Paid	2,344,383	2,225,844	1,925,189	541,096	575,980	538,953	562,081	496,381	-	-	2,660,831	2,040,000	2,920,363	2,764,797	5,148,101	3,077,477
Total Debt Service	3,474,867	3,395,721	3,125,490	1,567,319	729,123	731,653	735,802	709,407	15,130,921	14,208,884	15,460,362	14,115,086	19,334,911	18,336,258	19,321,654	16,391,812
Debt Service Ratio	1.83	1.88	2.01	3.93	12.08	10.20	10.82	6.12	2.10	2.10	1.86	1.96	2.43	2.38	2.23	2.33
Capital Coverage Ratio																
Net Cash Available After Debt Service	2,134,830	2,192,605	1,848,238	58,366	7,174,312	4,796,234	6,345,852	3,177,507	12,496,375	11,311,259	11,005,073	12,975,184	21,805,517	18,300,097	19,199,162	16,211,058
Total Non-Operating Revenues	712,500	711,109	966,554	1,690,854	877,900	1,437,336	877,501	802,731	4,165,900	4,409,713	4,555,530	3,624,648	5,756,300	6,558,158	6,399,585	6,118,233
Net Cash Available For Capital	2,847,330	2,903,714	2,814,792	1,749,220	8,052,212	6,233,569	7,223,353	3,980,238	16,662,275	15,720,972	15,560,603	16,599,833	27,561,817	24,858,256	25,598,747	22,329,291
Net Capital Spending	6,751,000	3,223,493	5,487,500	4,694,634	7,033,500	2,809,704	2,870,000	4,250,286	15,191,000	6,907,215	11,265,000	7,504,907	28,975,500	12,940,413	19,622,500	16,449,827
Expensed Capex	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
Total Capital Spending	6,751,000	3,223,493	5,487,500	4,694,634	7,033,500	2,809,704	2,870,000	4,250,286	15,191,000	6,907,215	11,265,000	7,504,907	28,975,500	12,940,413	19,622,500	16,449,827
Capital Coverage Ratio	0.42	0.90	0.51	0.37	1.14	2.22	2.52	0.94	1.10	2.28	1.38	2.21	0.95	1.92	1.30	1.36

LEHIGH COUNTY AUTHORITY
STATEMENTS OF NET POSITION
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Current Assets:																
Cash and Cash Equivalents	7,395,653	7,349,000	6,319,978	4,668,190	11,175,945	10,157,233	15,819,847	6,398,368	26,682,628	24,011,354	14,559,719	9,802,186	45,254,226	41,517,587	36,699,543	20,868,744
Certificates of Deposit	2,975,123	2,975,123	2,497,825	2,975,123	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	9,952,671	9,952,671	8,885,571	9,952,671
Accounts Receivable:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customers (Net of Allowance)	2,183,368	2,183,368	2,129,490	2,183,368	2,977,621	2,977,621	3,286,041	2,977,621	7,094,069	7,094,069	8,081,987	7,094,069	12,255,058	12,255,058	13,497,518	12,255,058
Financing Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	1,018,309	1,018,309	391,974	1,018,309	1,202,376	1,202,376	194,495	1,202,376	-	-	-	-	1,202,376	1,202,376	194,495	1,202,376
Due from (to) Other Funds	1,561,764	1,561,764	1,619,206	1,561,764	601,161	601,161	646,233	601,161	2,768,144	2,768,144	3,301,267	2,768,144	4,387,613	4,387,613	4,339,474	4,387,613
Inventory	23,050	23,050	24,597	23,050	(1,561,764)	(1,561,764)	(1,582,995)	(1,561,764)	-	-	(36,211)	-	-	-	-	-
Accrued Interest Receivable	923	923	1,614	923	6,927	6,927	22,588	6,927	410	410	491	410	8,260	8,260	24,693	8,260
Prepaid Expenses	16,926	16,926	195,918	16,926	65,328	65,328	128,082	65,328	302,956	302,956	408,858	302,956	385,210	385,210	732,858	385,210
Total Current Assets	15,175,116	15,128,463	13,180,602	12,447,653	21,445,141	20,426,429	24,902,037	16,667,564	36,848,208	34,176,933	26,316,111	19,967,765	73,468,465	69,731,826	64,398,749	49,082,983
Noncurrent Assets:																
Restricted:																
Restricted Cash and Cash Equivalents	-	-	-	-	338,360	338,360	338,204	338,360	26,416,191	26,416,191	26,416,191	33,294,883	26,754,551	26,754,551	26,754,395	33,633,243
Restricted for Debt Service	1,648,569	1,648,569	1,858,493	1,648,569	-	-	-	-	28,976,677	28,976,677	28,976,677	27,493,396	30,625,246	30,625,246	30,835,170	29,141,965
Restricted Certificates of Deposit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment U.S. Treasury Obligations	-	-	244,924	-	-	-	-	-	-	-	-	-	-	-	244,924	-
Developer Escrow Deposit	295,372	295,372	4,210,752	295,372	-	-	-	-	-	-	-	-	295,372	295,372	4,210,752	295,372
Total Restricted Assets	1,943,942	1,943,942	6,314,169	1,943,942	338,360	338,360	338,204	338,360	55,392,868	55,392,868	55,392,868	60,788,279	57,675,170	57,675,170	62,045,241	63,070,581
Capital Assets																
Non-depreciable Assets:																
Land	3,295,901	3,295,901	2,232,552	3,295,901	1,896,050	1,896,050	1,896,050	1,896,050	-	-	-	-	5,191,951	5,191,951	4,128,602	5,191,951
Construction in Progress	11,408,565	4,657,565	16,258,754	1,434,072	10,672,562	3,639,062	15,273,365	829,358	22,098,215	6,907,215	19,605,673	(0)	44,179,342	15,203,842	51,137,792	2,263,430
Total Capital Assets Not Being Depreciated	14,704,466	7,953,466	18,491,306	4,729,973	12,568,612	5,535,112	17,169,415	2,725,408	22,098,215	6,907,215	19,605,673	(0)	49,371,294	20,395,794	55,266,394	7,455,381
Depreciable Assets:																
Wells & Reservoirs	11,069,710	11,069,710	9,891,800	11,069,710	3,494,643	3,494,643	3,494,643	3,494,643	-	-	-	-	14,564,353	14,564,353	13,386,443	14,564,353
Transmission & Distribution Mains	88,175,419	88,175,419	85,446,377	88,175,419	-	-	-	-	-	-	-	-	88,175,419	88,175,419	85,446,377	88,175,419
Services & Hydrants	18,461,760	18,461,760	17,672,546	18,461,760	-	-	-	-	-	-	-	-	18,461,760	18,461,760	17,672,546	18,461,760
Interceptor & Collector Systems	-	-	-	-	39,317,989	39,317,989	38,265,579	39,317,989	-	-	-	-	39,317,989	39,317,989	38,265,579	39,317,989
Building Structure & Appurtenances	30,305,224	30,305,224	27,139,327	30,305,224	70,896,935	70,896,935	61,301,596	70,896,935	398,597	398,597	13,630	398,597	101,600,756	101,600,756	88,454,553	101,600,756
Metering System	13,988,178	13,988,178	10,800,051	13,988,178	429,778	429,778	429,778	429,778	-	-	-	-	14,417,957	14,417,957	11,229,829	14,417,957
Equipment and Furnishings	9,152,520	9,152,520	8,689,068	9,152,520	23,708,233	23,708,233	23,605,871	23,708,233	3,333,172	3,333,172	3,244,249	3,333,172	36,193,924	36,193,924	35,539,188	36,193,924
Capacity	1,207,901	1,207,901	-	1,207,901	579,587	579,587	877,877	579,587	-	-	-	-	1,787,488	1,787,488	2,085,778	1,787,488
Total Capital Assets Being Depreciated	172,360,712	172,360,712	160,847,070	172,360,712	138,427,165	138,427,165	127,975,344	138,427,165	3,731,769	3,731,769	3,257,879	3,731,769	314,519,646	314,519,646	292,080,293	314,519,646
Less accumulated depreciation																
Wells & Reservoirs	(3,739,968)	(3,739,968)	(3,546,683)	(3,739,968)	(730,298)	(730,298)	(666,759)	(730,298)	-	-	-	-	(4,470,266)	(4,470,266)	(4,213,443)	(4,470,266)
Transmission & Distribution Mains	(15,417,409)	(15,417,409)	(14,550,885)	(15,417,409)	-	-	-	-	-	-	-	-	(15,417,409)	(15,417,409)	(14,550,885)	(15,417,409)
Services & Hydrants	(5,162,213)	(5,162,213)	(4,867,937)	(5,162,213)	-	-	-	-	-	-	-	-	(5,162,213)	(5,162,213)	(4,867,937)	(5,162,213)
Interceptor & Collector Systems	-	-	-	-	(12,025,414)	(12,025,414)	(11,579,414)	(12,025,414)	-	-	-	-	(12,025,414)	(12,025,414)	(11,579,414)	(12,025,414)
Building Structure & Appurtenances	(10,686,179)	(10,686,179)	(9,962,560)	(10,686,179)	(24,095,296)	(24,095,296)	(22,012,512)	(24,095,296)	(54,637)	(54,637)	(10,709)	(54,637)	(34,836,112)	(34,836,112)	(31,985,781)	(34,836,112)
Metering System	(6,339,176)	(6,339,176)	(5,799,078)	(6,339,176)	(286,539)	(286,539)	(275,702)	(286,539)	-	-	-	-	(6,625,715)	(6,625,715)	(6,074,781)	(6,625,715)
Equipment and Furnishings	(12,451,301)	(9,428,301)	(12,309,466)	(6,420,721)	(33,073,905)	(26,852,005)	(32,561,482)	(20,661,884)	(3,181,963)	(2,956,600)	3,467,776	(2,634,719)	(48,707,169)	(39,236,906)	(41,403,172)	(29,717,324)
Capacity	(814,711)	(814,711)	(782,877)	(814,711)	-	-	-	-	-	-	-	-	(814,711)	(814,711)	(782,877)	(814,711)
Total Accumulated Depreciation	(54,610,958)	(51,587,958)	(51,819,488)	(48,580,378)	(70,211,453)	(63,989,553)	(67,095,869)	(57,799,432)	(3,236,600)	(3,011,237)	3,457,067	(2,689,357)	(128,059,011)	(118,588,748)	(115,458,290)	(109,069,166)
Total Capital Assets	132,454,221	128,726,221	127,518,888	128,510,308	80,784,324	79,972,724	78,048,890	83,353,141	22,593,384	7,627,747	26,320,619	1,042,412	235,831,929	216,326,692	231,888,396	212,905,861
Other Assets:																
Long-Term Portion of Receivables - Financing Contracts	-	-	-	-	-	-	1,330,142	-	-	-	-	-	-	-	1,330,142	-
Intangible Service Concession Arrangement	-	-	-	-	-	-	-	-	248,315,585	254,250,222	242,744,200	260,184,859	248,315,585	254,250,222	242,744,200	260,184,859
Less Accumulated Amortization	-	-	-	-	-	-	-	-	(5,934,637)	(5,934,637)	(9,182,462)	(5,934,637)	(5,934,637)	(5,934,637)	(9,182,462)	(5,934,637)
Other Assets	1,389,099	1,389,099	1,389,099	1,389,099	-	-	-	-	-	-	-	-	1,389,099	1,389,099	1,389,099	1,389,099
Facilities Planning Costs (Net of Accumulated Amortization)	362,835	362,835	59,838	362,835	7,729,615	7,729,615	9,862,447	7,729,615	4,079,011	4,079,011	3,174,440	4,079,011	4,079,011	4,079,011	3,174,440	4,079,011
Leased Assets - GASB 87	106,045	106,045	-	106,045	992,068	992,068	-	992,068	392,386	392,386	-	392,386	8,092,450	8,092,450	9,922,285	8,092,450
Leased Assets - GASB 87 - Amortization	(15,465)	(15,465)	-	(15,465)	(538,273)	(538,273)	-	(538,273)	(145,986)	(145,986)	-	(145,986)	(699,723)	(699,723)	-	(699,723)
Total Other Assets	1,842,515	1,842,515	1,448,937	1,842,515	8,183,411	8,183,411	11,192,589	8,183,411	246,706,360	252,640,997	236,736,178	258,575,634	256,732,285	262,666,922	249,377,704	268,601,559
Total Noncurrent Assets	136,240,677	132,512,677	135,281,994	132,296,764	89,306,095	88,494,495	89,579,683	91,874,912	324,692,611	315,661,611	318,449,664	320,406,325	550,239,383	536,668,783	543,311,341	544,578,001
Total Assets	151,415,793	147,641,140	148,462,596	144,744,417	110,751,236	108,920,924	114,481,720	108,542,476	361,540,819	349,838,544	344,765,775	340,374,090	623,707,849	606,400,609	607,710,091	593,660,983
Deferred Outflows of Resources																
Pensions	555,569	555,569	533,395	555,569	268,506	268,506	268,506	268,506	2,969,800	2,969,800	1,980,544	2,969,800	3,793,875	3,793,875	2,782,445	3,793,875
OPEB	1	1	22,175	1	-	-	-	-	(1)	(1)	989,255	(1)	-	-	1,011,430	-
Refunding Loss on Bonds	-	-	-	-	-	-	-	-	26,397,970	26,397,970	27,452,737	26,397,970	26,397,970	26,397,970	27,452,737	26,397,970
Total Deferred Outflows	555,570	555,570	555,570	555,570	268,506	268,506	268,506	268,506	29,367,769	29,367,769	30,422,536	29,367,769	30,191,845	30,191,845	31,246,612	30,191,845
Total Assets and Deferred Outflows of Resources	151,971,363	148,196,710	149,018,166	145,299,987	111,019,742	109,189,43										

LEHIGH COUNTY AUTHORITY
STATEMENTS OF NET POSITION
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Current Liabilities:																
Accounts Payable - Trade	874,663	874,663	1,261,059	874,663	1,498,819	1,498,819	2,840,344	1,498,819	4,274,346	2,931,165	5,713,725	2,931,165	6,647,828	5,304,647	9,815,128	5,304,647
Accounts Payable - Capital	277,831	277,831	269,149	277,831	93,955	93,955	301,306	93,955	195,097	195,097	60,850	195,097	566,883	566,883	631,305	566,883
Accrued Interest Payable	200,039	200,039	228,440	200,039	3,346	3,346	3,346	3,346	959,251	959,251	962,090	959,251	1,162,636	1,162,636	1,193,876	1,162,636
Notes Payable	7,100,541	3,150,541	3,150,541	74,410	463,248	453,375	453,375	443,724	1,200,000	-	1,200,000	-	8,763,789	3,603,916	4,803,916	518,134
Revenue Bonds Payable	2,005,000	1,935,000	1,935,000	404,028	127,003	122,605	122,605	177,473	2,421,819	2,097,077	2,097,077	3,105,000	4,553,822	4,154,682	4,154,682	3,686,501
Developer Deposits and Other	-	-	455,865	-	-	-	18,204	-	-	-	24,877	-	-	-	498,946	-
Accrued Payroll & Other	90	90	170,102	90	-	-	91,593	-	268,854	268,854	224,245	268,854	268,944	268,944	485,940	268,944
Leased Liabilities GASB - 87 - ST	20,468	20,468	-	20,468	202,687	202,687	-	202,687	78,715	78,715	-	78,715	301,870	301,870	-	301,870
Total Current Liabilities	10,478,632	6,458,632	7,470,156	1,851,528	2,389,059	2,374,788	3,830,773	2,420,005	9,398,083	6,530,159	10,282,864	7,538,082	22,265,773	15,363,578	21,583,793	11,809,615
Noncurrent Liabilities:																
Developer Deposits and Other	519,723	519,723	4,210,752	519,723	22,014	22,014	3,810	22,014	47,852	47,852	-	47,852	589,589	589,589	4,214,562	589,589
Service Concession Arrangement Payable	-	-	-	-	-	-	-	-	59,260,404	59,260,404	64,261,077	63,017,553	59,260,404	59,260,404	64,261,077	63,017,553
Leased Liabilities GASB - 87 - LT	70,709	70,709	-	70,709	263,627	263,627	-	263,627	173,760	173,760	-	173,760	508,095	508,095	-	508,095
Notes Payable	635,264	711,953	711,953	787,494	3,807,335	4,270,583	4,270,583	4,723,956	-	-	-	-	4,442,599	4,982,536	4,982,536	5,511,450
OPEB Liability	-	-	-	-	-	-	-	-	3,825,143	3,825,143	3,825,143	3,825,143	3,825,143	3,825,143	3,825,143	3,825,143
Net Pension Liability	187,303	187,303	187,303	187,303	94,286	94,286	94,286	94,286	695,473	695,473	695,473	695,473	977,062	977,062	977,062	977,062
Revenue Bonds Payable(Net of Premium/Discount)	28,645,131	30,982,826	30,982,826	34,739,642	884,531	1,011,534	1,011,534	1,075,024	358,480,630	354,427,177	350,517,541	343,732,120	388,010,292	386,421,536	382,511,901	379,546,785
Total Noncurrent Liabilities	30,058,130	32,472,514	36,092,834	36,304,871	5,071,793	5,662,044	5,380,213	6,178,907	422,483,262	418,429,808	419,299,234	411,491,901	457,613,185	456,564,366	460,772,281	453,975,678
Total Liabilities	40,536,762	38,931,145	43,562,990	38,156,399	7,460,851	8,036,831	9,210,986	8,598,911	431,881,344	424,959,968	429,582,098	419,029,983	479,878,957	471,927,944	482,356,073	465,785,294
Deferred Inflows of Resources																
Pensions	-	-	545,758	-	-	-	-	-	-	-	-	-	-	-	545,758	-
OPEB	653,881	653,881	108,123	653,881	274,730	274,730	274,730	274,730	2,026,453	2,026,453	2,026,453	2,026,453	2,955,064	2,955,064	2,409,306	2,955,064
Total Deferred Inflows	653,881	653,881	653,881	653,881	274,730	274,730	274,730	274,730	2,026,453	2,026,453	2,026,453	2,026,453	2,955,064	2,955,064	2,955,064	2,955,064
Net Position:																
Net Investment in Capital Assets	94,068,284	91,945,901	90,738,569	92,504,734	75,502,207	74,114,627	72,190,793	76,932,964	21,393,384	7,627,747	25,120,619	1,042,412	190,963,875	173,688,275	188,049,980	170,480,110
Restricted for Debt Service	1,570,266	1,570,268	1,570,268	1,570,268	-	-	-	-	-	-	-	-	1,570,266	1,570,268	1,570,268	1,570,268
Unrestricted	15,142,170	15,095,515	12,492,459	12,414,705	27,781,954	26,763,242	33,073,717	23,004,377	(64,392,593)	(55,407,854)	(81,540,858)	(52,356,989)	(21,468,469)	(13,549,097)	(35,974,682)	(16,937,907)
Total Net Position	110,780,720	108,611,684	104,801,295	106,489,707	103,284,161	100,877,869	105,264,510	99,937,341	(42,999,209)	(47,780,107)	(56,420,239)	(51,314,577)	171,065,672	161,709,446	153,645,566	155,112,471
Total Liabilities, Deferred Inflows of Resources and Net Position	151,971,363	148,196,710	149,018,166	145,299,987	111,019,742	109,189,430	114,750,226	108,810,982	390,908,588	379,206,313	375,188,311	369,741,859	653,899,694	636,592,454	638,956,703	623,852,829

LEHIGH COUNTY AUTHORITY
CASH & INVESTMENT SUMMARY
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Cash																
Operating																
Unrestricted	7,075,935	7,029,282	4,277,521	4,348,472	5,220,560	4,201,848	8,147,828	442,983	23,660,027	20,988,753	14,389,739	6,779,585	35,956,523	32,219,883	26,815,087	11,571,041
Restricted	-	-	-	-	-	-	272	-	18,916,156	18,916,156	18,916,191	25,794,847	-	-	-	-
Total Operating	7,075,935	7,029,282	4,277,521	4,348,472	5,220,560	4,201,848	8,148,100	442,983	42,576,183	39,904,908	33,305,930	32,574,433	35,956,523	32,219,883	26,815,087	11,571,041
Capital																
Unrestricted	319,718	319,718	2,042,457	319,718	5,955,385	5,955,385	7,672,019	5,955,385	3,022,601	3,022,601	169,980	3,022,601	9,297,704	9,297,704	9,884,456	9,297,704
Restricted	-	-	-	-	338,360	338,360	337,932	338,360	7,500,035	7,500,035	7,500,000	7,500,035	7,838,396	7,838,396	7,837,932	7,838,396
Total Capital	319,718	319,718	2,042,457	319,718	6,293,745	6,293,745	8,009,951	6,293,745	10,522,636	10,522,636	7,669,980	10,522,636	17,136,099	17,136,099	17,722,388	17,136,099
Other Restricted																
Debt Reserves	1,648,569	1,648,569	1,858,493	1,648,569	-	-	-	-	28,976,677	28,976,677	28,976,677	27,493,396	30,625,246	30,625,246	30,835,170	29,141,965
Escrow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Restricted	1,648,569	1,648,569	1,858,493	1,648,569	-	-	-	-	28,976,677	28,976,677	28,976,677	27,493,396	30,625,246	30,625,246	30,835,170	29,141,965
Total Cash	9,044,222	8,997,569	8,178,471	6,316,759	11,514,305	10,495,593	16,158,051	6,736,728	82,075,496	79,404,222	69,952,587	70,590,465	83,717,868	79,981,229	75,372,645	57,849,105
Investments																
Operating																
Unrestricted	1,975,123	1,974,940	1,497,825	1,974,940	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	8,952,671	8,952,487	7,885,571	8,952,487
Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating	1,975,123	1,974,940	1,497,825	1,974,940	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	8,952,671	8,952,487	7,885,571	8,952,487
Capital																
Unrestricted	1,000,000	1,000,184	1,000,000	1,000,184	-	-	-	-	-	-	-	-	1,000,000	1,000,184	1,000,000	1,000,184
Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital	1,000,000	1,000,184	1,000,000	1,000,184	-	-	-	-	-	-	-	-	1,000,000	1,000,184	1,000,000	1,000,184
Other Restricted																
Debt Reserves	-	-	244,924	-	-	-	-	-	-	-	-	-	-	-	244,924	-
Escrow	295,372	295,372	4,210,752	295,372	-	-	-	-	-	-	-	-	295,372	295,372	4,210,752	295,372
Total Other Restricted	295,372	295,372	4,455,676	295,372	-	-	-	-	-	-	-	-	295,372	295,372	4,455,676	295,372
Total Investments	3,270,496	3,270,496	6,953,501	3,270,496	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	10,248,043	10,248,043	13,341,247	10,248,043
Total Cash and Investments	12,314,718	12,268,065	15,131,972	9,587,255	18,491,853	17,473,141	22,545,797	13,714,276	82,075,496	79,404,222	69,952,587	70,590,465	93,965,912	90,229,272	88,713,892	68,097,149
Summary																
Cash																
Unrestricted	7,395,653	7,349,000	6,319,978	4,668,190	11,175,945	10,157,233	15,819,847	6,398,368	26,682,628	24,011,354	14,559,719	9,802,186	45,254,226	41,517,587	36,699,543	20,868,744
Restricted	1,648,569	1,648,569	1,858,493	1,648,569	338,360	338,360	338,204	338,360	55,392,868	55,392,868	55,392,868	60,788,279	57,379,797	57,379,797	57,589,565	62,775,208
Total Cash	9,044,222	8,997,569	8,178,471	6,316,759	11,514,305	10,495,593	16,158,051	6,736,728	82,075,496	79,404,222	69,952,587	70,590,465	102,634,024	98,897,384	94,289,108	83,643,953
Investments																
Unrestricted	2,975,123	2,975,123	2,497,825	2,975,123	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	9,952,671	9,952,671	8,885,571	9,952,671
Restricted	295,372	295,372	4,455,676	295,372	-	-	-	-	-	-	-	-	295,372	295,372	4,455,676	295,372
Total Investments	3,270,496	3,270,496	6,953,501	3,270,496	6,977,548	6,977,548	6,387,746	6,977,548	-	-	-	-	10,248,043	10,248,043	13,341,247	10,248,043
Total Cash and Investments	12,314,718	12,268,065	15,131,972	9,587,255	18,491,853	17,473,141	22,545,797	13,714,276	82,075,496	79,404,222	69,952,587	70,590,465	112,882,067	109,145,428	107,630,355	93,891,996

LEHIGH COUNTY AUTHORITY
STATEMENTS OF CASH FLOWS - SUMMARY
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Cash Flows From Operating Activities																
Cash Received From Customers	16,000,000	15,162,564	15,282,480	11,718,894	21,640,013	18,455,322	20,112,389	16,282,642	50,374,860	45,978,506	46,922,193	43,470,962	88,014,873	79,596,392	82,317,062	71,472,499
Cash Payments To Suppliers For Goods And Services	(6,014,449)	(5,666,104)	(6,151,285)	(4,535,718)	(11,886,338)	(10,825,123)	(11,501,251)	(11,076,288)	(5,423,009)	(6,009,725)	(2,364,209)	(3,183,234)	(23,323,796)	(22,500,952)	(20,016,744)	(18,795,240)
Cash Payments To Employees For Services	(4,686,213)	(4,168,671)	(3,913,622)	(3,845,121)	(2,092,669)	(1,853,492)	(1,787,111)	(1,644,977)	(15,016,035)	(13,571,106)	(14,496,083)	(12,166,810)	(21,794,917)	(19,593,270)	(20,196,816)	(17,656,908)
Other Operating Cash Receipts	287,500	286,550	38,724	34,359	182,500	181,671	169,662	216,166	306,000	290,858	216,437	326,514	776,000	759,079	424,823	577,038
Net Cash Provided By Operating Activities	5,586,838	5,614,338	5,256,297	3,372,414	7,843,506	5,958,378	6,993,689	3,777,544	30,241,816	26,688,533	30,278,338	28,447,432	43,672,160	38,261,249	42,528,325	35,597,390
Cash Flows From Noncapital Financing Activities																
Interest Paid on Revenue Bonds and Notes	-	-	-	-	-	-	-	-	(15,130,921)	(14,208,884)	(14,068,934)	(14,841,484)	(15,130,921)	(14,208,884)	(14,068,934)	(14,841,484)
Facility Improvement Payments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Payments to the City of Allentown	-	-	-	-	-	-	-	-	(1,400,000)	(1,230,600)	(1,230,600)	(533,258)	(1,400,000)	(1,230,600)	(1,230,600)	(533,258)
Transfers To/From Other Funds	-	-	-	57,442	-	-	-	(21,231)	-	-	-	(36,211)	-	-	-	-
Net Cash Provided By (Used in) Noncapital Financing Activities	-	-	-	57,442	-	-	-	(21,231)	(16,530,921)	(15,439,484)	(15,299,534)	(15,410,953)	(16,530,921)	(15,439,484)	(15,299,534)	(15,374,742)
Cash Flows From Capital And Related Financing Activities																
Receipts/(Release) of Developer Deposits	-	-	-	3,915,380	-	-	-	-	-	-	-	-	-	-	-	3,915,380
Payments of Developer Deposits	-	-	-	(4,146,894)	-	-	-	(0)	-	-	-	22,975	-	-	-	(4,123,919)
Payments of Facilities Planning Costs	-	-	-	(302,997)	-	-	-	2,132,832	-	-	-	-	-	-	-	1,829,835
Acquisition and Construction of Property and Equipment	(6,751,000)	(3,223,493)	(5,487,500)	(7,530,524)	(7,033,500)	(2,809,704)	(2,870,000)	(6,672,945)	(15,191,000)	(6,907,215)	(11,265,000)	(3,137,426)	(28,975,500)	(12,940,413)	(19,622,500)	(17,340,895)
Cash Received from Tapping and Capital Recovery Fees	356,400	356,085	469,295	386,165	843,700	1,400,167	843,449	752,931	1,979,700	1,927,405	2,000,187	2,173,582	3,179,800	3,683,657	3,312,931	3,312,679
Cash Received from Meter Sales	71,300	71,113	87,439	150,087	-	-	-	-	24,600	28,008	24,595	29,584	95,900	99,120	112,034	179,671
Cash Received from Inspection, Plan Reviews, & Proj. Reimbursemen	253,000	252,812	376,743	1,022,771	31,900	35,905	31,805	4,109	749,119	2,390,593	2,463,271	1,308,125	1,034,019	2,679,310	2,871,819	2,335,005
Other Capital Cash Receipts	31,800	31,099	33,078	3,393,465	2,300	1,264	2,247	467,990	69,300	63,708	67,475	113,357	103,400	96,070	102,800	3,974,813
Other Capital Cash Payments	(41,600)	(40,092)	-	(71,339)	(25,200)	(23,954)	-	(262,763)	-	-	(4,206,200)	(4,457,206)	(66,800)	(64,046)	(4,206,200)	(4,791,308)
Revenue Bond and Note Issuance Proceeds	3,950,000	3,000,590	3,000,590	-	-	-	-	-	-	-	-	-	3,950,000	3,000,590	3,000,590	-
Principal Paid On Revenue Bonds	(2,267,694)	(2,225,844)	(2,183,473)	(369,834)	(122,605)	(118,358)	(118,358)	(114,595)	-	-	-	-	(2,390,299)	(2,344,202)	(2,301,831)	(484,430)
Notes Payable	(76,689)	-	-	(1,376,204)	(453,375)	(443,722)	(443,723)	(434,776)	1,200,000	-	1,200,000	-	669,936	(443,722)	756,277	(1,810,980)
Interest Paid on Revenue Bonds and Notes	(1,130,484)	(1,169,877)	(1,200,301)	(1,054,624)	(153,143)	(192,700)	(173,721)	(213,026)	-	-	-	-	(1,283,627)	(1,362,577)	(1,374,022)	(1,267,650)
Net Cash Provided by (Used in) Capital & Related Financing Activities	(5,604,967)	(2,947,607)	(4,904,130)	(5,984,548)	(6,909,923)	(2,151,103)	(2,728,301)	(4,340,242)	(11,168,281)	(2,497,502)	(9,715,671)	(3,947,009)	(23,683,171)	(7,596,211)	(17,348,102)	(14,271,799)
Cash Flows From investing Activities																
Maturities of Certificates Of Deposit	-	-	-	(477,298)	-	-	-	(589,802)	-	-	-	-	-	-	-	(1,067,100)
Purchase of Certificates Of Deposit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purchase of U.S. Treasury Obligations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maturities of U.S. Treasury Obligations	-	-	-	244,924	-	-	-	-	-	-	-	-	-	-	-	244,924
Interest Received On Investments	64,782	14,078	50,125	(140,347)	85,128	(48,410)	87,965	40,682	128,661	62,209	176,419	5,455	278,572	27,878	314,509	(94,210)
Net Cash Provided by (Used in) Investing Activities	64,782	14,078	50,125	(372,721)	85,128	(48,410)	87,965	(549,120)	128,661	62,209	176,419	5,455	278,572	27,878	314,509	(916,386)
Net Increase (Decrease) in Cash	46,653	2,680,810	402,292	(2,927,414)	1,018,712	3,758,865	4,353,353	(1,133,048)	2,671,275	8,813,757	5,439,552	9,094,925	3,736,640	15,253,432	10,195,198	5,034,463
Cash:																
Beginning	8,997,569	6,316,759	7,776,178	9,244,173	10,495,593	6,736,728	11,804,698	7,869,776	79,404,222	70,590,465	64,513,035	61,495,540	98,897,384	83,643,952	84,093,911	78,609,489
Ending	9,044,222	8,997,569	8,178,471	6,316,759	11,514,305	10,495,593	16,158,051	6,736,728	82,075,496	79,404,222	69,952,587	70,590,465	102,634,024	98,897,384	94,289,109	83,643,952
Cash Consisted of the Following:																
Cash and Cash Equivalents	7,395,653	7,349,000	6,319,978	4,668,190	11,175,945	10,157,233	15,819,847	6,398,368	26,682,628	24,011,354	14,559,719	9,802,186	45,254,226	41,517,587	36,699,543	20,868,744
Restricted Cash and Cash Equivalents	1,648,569	1,648,569	1,858,493	1,648,569	338,360	338,360	338,204	338,360	55,392,868	55,392,868	55,392,868	60,788,279	57,379,797	57,379,797	57,589,565	62,775,208
Total Cash and Cash Equivalents	9,044,222	8,997,569	8,178,471	6,316,759	11,514,305	10,495,593	16,158,051	6,736,728	82,075,496	79,404,222	69,952,587	70,590,465	102,634,024	98,897,384	94,289,108	83,643,952

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES AND CHANGES IN NET POSITION
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Operating Revenues:																
User Charges																
Charges for Services	16,000,000	15,162,564	15,282,480	12,399,107	21,640,013	18,455,322	20,112,389	15,606,889	50,374,860	45,978,506	46,172,192	41,949,921	88,014,873	79,596,392	81,567,061	69,955,917
Other Income	287,500	286,550	38,724	34,359	182,500	181,671	169,662	216,166	306,000	290,858	216,437	326,514	776,000	759,079	424,823	577,038
Total Charges for Services	16,287,500	15,449,114	15,321,204	12,433,466	21,822,513	18,636,993	20,282,051	15,823,055	50,680,860	46,269,365	46,388,629	42,276,435	88,790,873	80,355,472	81,991,884	70,532,955
Connection & System Charges																
Tapping and Capital Recovery Fees	244,000	243,797	352,054	336,185	843,700	1,400,167	843,449	752,931	535,400	519,346	535,252	647,906	1,623,100	2,163,311	1,730,755	1,737,022
Capital Cost Recovery	-	-	-	-	-	-	-	-	1,441,800	1,405,123	1,462,605	1,522,889	1,441,800	1,405,123	1,462,605	1,522,889
Distribution Tapping Fees	112,400	112,287	117,241	49,980	-	-	-	-	2,500	2,936	2,331	2,788	114,900	115,224	119,572	52,768
Meter Sales	71,300	71,113	87,439	150,087	-	-	-	-	24,600	28,008	24,595	29,584	95,900	99,120	112,034	179,671
Inspection and Plan Reviews	86,800	86,722	66,408	65,250	31,900	31,805	31,805	1,000	21,000	22,386	20,945	26,850	139,700	140,912	119,157	93,100
Project Reimbursements	166,200	166,091	310,336	957,521	-	4,100	-	3,109	2,071,300	2,368,207	2,442,327	1,281,275	2,237,500	2,538,398	2,752,663	2,241,905
Total Connection & System Charges	680,700	680,010	933,476	1,559,023	875,600	1,436,072	875,254	757,041	4,096,600	4,346,006	4,488,055	3,511,291	5,652,900	6,462,088	6,296,785	5,827,355
Other Miscellaneous Income	31,800	31,099	33,078	131,831	2,300	1,264	2,247	45,691	69,300	63,708	67,475	113,357	103,400	96,070	102,800	290,879
Total Operating Revenues	17,000,000	16,160,223	16,287,758	14,124,320	22,700,413	20,074,329	21,159,552	16,625,786	54,846,760	50,679,078	50,944,159	45,901,083	94,547,173	86,913,630	88,391,469	76,651,189
Operating Expenses:																
Personnel	3,838,376	3,521,060	3,135,717	3,168,152	1,739,145	1,582,061	1,557,088	1,341,997	12,818,583	11,738,900	12,623,714	10,681,433	18,396,104	16,842,021	17,316,519	15,191,582
General & Administrative	847,837	647,611	777,905	506,957	353,525	271,431	230,022	211,387	2,197,452	1,832,207	1,872,369	1,529,986	3,398,813	2,751,249	2,880,295	2,248,330
Utilities	516,389	490,147	520,914	423,326	312,787	296,521	355,937	269,553	2,018,173	1,894,695	2,037,743	1,705,824	2,847,348	2,681,363	2,914,594	2,398,704
Materials and Supplies	887,370	828,446	939,837	475,374	324,100	307,174	496,550	233,440	2,621,000	2,231,008	2,333,053	1,486,676	3,832,470	3,366,628	3,769,440	2,195,490
Miscellaneous Services	4,610,690	4,347,512	4,690,534	3,433,851	6,956,106	6,646,924	6,804,360	6,407,539	2,112,700	1,870,221	2,185,814	1,513,870	13,679,496	12,864,657	13,680,708	11,355,260
Treatment and Transportation	-	-	-	-	4,293,345	3,574,504	3,844,405	3,899,503	14,318	13,800	13,800	12,480	4,307,663	3,588,304	3,858,205	3,911,983
Depreciation and Amortization	3,023,000	3,007,580	2,978,452	3,350,988	6,221,900	6,190,121	5,996,555	6,694,237	6,160,000	6,256,518	6,178,570	417,441	15,404,900	15,454,219	15,153,577	10,462,665
Major Maintenance Expenses	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
Other Miscellaneous	41,600	40,092	-	80,020	25,200	23,954	-	55,412	4,000,000	4,206,200	4,206,200	3,686,882	4,066,800	4,270,246	4,206,200	3,822,314
Total Operating Expenses	13,765,262	12,882,448	13,043,359	11,438,668	20,226,107	18,892,690	19,284,917	19,113,067	31,942,225	30,043,549	31,451,262	21,034,593	65,933,594	61,818,688	63,779,539	51,586,328
Net Operating Profit (Loss)	3,234,738	3,277,775	3,244,399	2,685,652	2,474,306	1,181,638	1,874,635	(2,487,282)	22,904,535	20,635,529	19,492,896	24,866,490	28,613,579	25,094,942	24,611,930	25,064,861
Non-Operating Income (Expense)																
Interest Income	64,782	49,796	50,125	47,412	85,128	67,440	87,965	80,219	128,661	62,209	176,419	5,374	278,572	179,445	314,509	133,005
Interest (Expense)	(1,130,484)	(1,169,877)	(1,200,301)	(1,026,223)	(153,143)	(192,700)	(173,721)	(213,026)	(18,252,298)	(17,163,269)	(17,474,997)	(16,508,725)	(19,535,925)	(18,525,845)	(18,849,019)	(17,747,974)
Unrealized Gain on Investment	-	42	-	(10,067)	-	-	-	(42,745)	-	-	-	-	-	42	-	(52,812)
Unrealized (Loss) on Investment	-	(30,260)	-	(3,060)	-	(115,850)	-	(12,452)	-	-	-	-	-	(146,110)	-	(15,513)
Capital Contributed	-	-	-	3,261,634	-	-	-	422,300	-	-	-	-	-	-	-	3,683,934
Other Miscellaneous	-	(5,500)	-	(175,323)	-	-	-	-	-	-	-	-	-	(5,500)	-	(175,323)
Net Non-Operating Income (Expense)	(1,065,702)	(1,155,798)	(1,150,176)	2,094,374	(68,015)	(241,110)	(85,756)	234,295	(18,123,637)	(17,101,059)	(17,298,578)	(16,503,352)	(19,257,353)	(18,497,967)	(18,534,510)	(14,174,683)
Net Income (Loss)	2,169,036	2,121,977	2,094,223	4,780,026	2,406,292	940,528	1,788,879	(2,252,986)	4,780,898	3,534,470	2,194,318	8,363,138	9,356,226	6,596,975	6,077,420	10,890,178
Net Position at Beginning of Year (As Restated)	108,611,684	106,489,707	102,707,072	101,709,681	100,877,869	99,937,341	103,475,631	102,190,327	(47,780,107)	(51,314,577)	(58,614,558)	(59,677,715)	161,709,446	155,112,471	147,568,145	144,222,293
Cumulative Effect of Change in Accounting principle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Position at Beginning of Year	108,611,684	106,489,707	102,707,072	101,709,681	100,877,869	99,937,341	103,475,631	102,190,327	(47,780,107)	(51,314,577)	(58,614,558)	(59,677,715)	161,709,446	155,112,471	147,568,145	144,222,293
Net Position at End of Year	110,780,720	108,611,684	104,801,295	106,489,707	103,284,161	100,877,869	105,264,510	99,937,341	(42,999,209)	(47,780,107)	(56,420,239)	(51,314,577)	171,065,672	161,709,446	153,645,566	155,112,471
CAPITAL RESERVE FUNDS																
Capital Water Reserve Funds	6,060,000	3,223,493	5,487,500	4,694,717	-	-	-	-	6,280,000	2,564,973	5,785,000	4,006,488	12,340,000	5,788,466	11,272,500	8,701,205
Capital WasteWater Reserve Funds	-	-	-	-	6,342,500	2,809,704	2,870,000	4,001,536	8,279,000	4,342,242	5,480,000	3,498,419	14,621,500	7,151,947	8,350,000	7,499,955
Allocated Administration	691,000	-	-	-	691,000	-	-	-	632,000	-	-	-	2,014,000	-	-	-
	6,751,000	3,223,493	5,487,500	4,694,717	7,033,500	2,809,704	2,870,000	4,001,536	15,191,000	6,907,215	11,265,000	7,504,907	28,975,500	12,940,413	19,622,500	16,201,160

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES AND CHANGES IN NET POSITION - AUDIT FORMAT
2023 Budget (Draft 10-10-22)

	Suburban Water				Suburban Wastewater				City Division				Total LCA			
	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Operating Revenues:																
User Charges																
Charges for Services	16,000,000	15,162,564	15,282,480	12,399,107	21,640,013	18,455,322	20,112,389	15,606,889	50,374,860	45,978,506	46,172,192	41,949,921	88,014,873	79,596,392	81,567,061	69,955,917
Other Income	287,500	286,550	38,724	34,359	182,500	181,671	169,662	216,166	306,000	290,858	216,437	326,514	776,000	759,079	424,823	577,038
Total Charges for Services	16,287,500	15,449,114	15,321,204	12,433,466	21,822,513	18,636,993	20,282,051	15,823,055	50,680,860	46,269,365	46,388,629	42,276,435	88,790,873	80,355,472	81,991,884	70,532,955
Operating Expenses:																
Personnel	3,838,376	3,521,060	3,135,717	3,168,152	1,739,145	1,582,061	1,557,088	1,341,997	12,818,583	11,738,900	12,623,714	10,681,433	18,396,104	16,842,021	17,316,519	15,191,582
General & Administrative	847,837	647,611	777,905	506,957	353,525	271,431	230,022	211,387	2,197,452	1,832,207	1,872,369	1,529,986	3,398,813	2,751,249	2,880,295	2,248,330
Utilities	516,389	490,147	520,914	423,326	312,787	296,521	355,937	269,553	2,018,173	1,894,695	2,037,743	1,705,824	2,847,348	2,681,363	2,914,594	2,398,704
Materials and Supplies	887,370	828,446	939,837	475,374	324,100	307,174	496,550	233,440	2,621,000	2,231,008	2,333,053	1,486,676	3,832,470	3,366,628	3,769,440	2,195,490
Miscellaneous Services	4,610,690	4,347,512	4,690,534	3,433,851	6,956,106	6,646,924	6,804,360	6,407,539	2,112,700	1,870,221	2,185,814	1,513,870	13,679,496	12,864,657	13,680,708	11,355,260
Treatment and Transportation	-	-	-	-	4,293,345	3,574,504	3,844,405	3,899,503	14,318	13,800	13,800	12,480	4,307,663	3,588,304	3,858,205	3,911,983
Depreciation and Amortization	3,023,000	3,007,580	2,978,452	3,350,988	6,221,900	6,190,121	5,996,555	6,694,237	6,160,000	6,256,518	6,178,570	417,441	15,404,900	15,454,219	15,153,577	10,462,665
Total Operating Expenses	13,723,662	12,842,356	13,043,359	11,358,648	20,200,907	18,868,736	19,284,917	19,057,655	27,942,225	25,837,349	27,245,062	17,347,711	61,866,794	57,548,441	59,573,339	47,764,014
Total Operating Income (Loss)	2,563,838	2,606,758	2,277,845	1,074,818	1,621,606	(231,743)	997,134	(3,234,601)	22,738,635	20,432,016	19,143,567	24,928,724	26,924,079	22,807,030	22,418,545	22,768,942
NonOperating Revenues (Expenses):																
Tapping and Capital Recovery Fees	356,400	356,085	469,295	386,165	843,700	1,400,167	843,449	752,931	1,979,700	1,927,405	2,000,188	2,173,582	3,179,800	3,683,657	3,312,932	3,312,679
Meter Sales	71,300	71,113	87,439	150,087	-	-	-	-	24,600	28,008	24,595	29,584	95,900	99,120	112,034	179,671
Inspection, Plan Reviews, and Project Reimbursements	253,000	252,812	376,743	1,022,771	31,900	35,905	31,805	4,109	2,092,300	2,390,593	2,463,272	1,308,125	2,377,200	2,679,310	2,871,820	2,335,005
Investment Earnings	64,782	19,578	50,125	34,285	85,128	(48,410)	87,965	25,021	128,661	62,209	176,419	5,374	278,572	33,378	314,509	64,680
Interest Expense	(1,130,484)	(1,169,877)	(1,200,301)	(1,026,223)	(153,143)	(192,700)	(173,721)	(213,026)	(18,252,298)	(17,163,269)	(17,474,997)	(16,508,725)	(19,535,925)	(18,525,845)	(18,849,019)	(17,747,974)
Other Expense	(41,600)	(45,592)	-	(255,343)	(25,200)	(23,954)	-	(55,412)	(4,000,000)	(4,206,200)	(4,206,200)	(3,686,882)	(4,066,800)	(4,275,746)	(4,206,200)	(3,997,637)
Other Miscellaneous Income	31,800	31,099	33,078	131,831	2,300	1,264	2,247	45,691	69,300	63,708	67,475	113,357	103,400	96,070	102,800	290,879
Total Nonoperating Revenues/(Expenses)	(394,802)	(484,781)	(183,622)	443,573	784,685	1,172,272	791,745	559,315	(17,957,737)	(16,897,545)	(16,949,248)	(16,565,585)	(17,567,853)	(16,210,055)	(16,341,125)	(15,562,697)
Increase (Decrease) in net position before capital contributions	2,169,036	2,121,977	2,094,223	1,518,392	2,406,292	940,528	1,788,879	(2,675,286)	4,780,898	3,534,470	2,194,319	8,363,139	9,356,226	6,596,976	6,077,421	7,206,245
Capital Contributions:																
Capital Grant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Assets Provided by Developers and Others	-	-	-	3,261,634	-	-	-	422,300	-	-	-	-	-	-	-	3,683,934
Total Capital Contributions	-	-	-	3,261,634	-	-	-	422,300	-	-	-	-	-	-	-	3,683,934
Increase (Decrease) in net position	2,169,036	2,121,977	2,094,223	4,780,026	2,406,292	940,528	1,788,879	(2,252,986)	4,780,898	3,534,470	2,194,319	8,363,139	9,356,226	6,596,976	6,077,421	10,890,179
Net Position at Beginning of Year	108,611,684	106,489,707	102,707,072	101,709,681	100,877,869	99,937,341	103,475,631	102,190,327	(47,780,106)	(51,314,577)	(58,614,558)	(59,677,715)	161,709,447	155,112,471	147,568,145	144,222,293
Net Position at End of Year	110,780,720	108,611,684	104,801,295	106,489,707	103,284,161	100,877,869	105,264,510	99,937,341	(42,999,208)	(47,780,106)	(56,420,239)	(51,314,577)	171,065,673	161,709,447	153,645,566	155,112,471

System Statements

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - SUBURBAN - WATER FUND
2023 Budget (Draft 10-10-22)

	Suburban - Water Systems														Total			
	Int Serv 100	Undesignated 200	Western Lehigh Service Area			S. Lehigh	Northern Lehigh Service Area					Northampton	Buss Acres 210	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	
			Central Lehigh 201	Arcadia West 211	Emmaus 209	Beverly Hills 207	North Whitehall 202	Washington 203	Mill Creek 204	Heidelberg 205	PL of Lynn 206	Madison North 221	CFE 208					
Operating Revenues:																		
User Charges																		
Large Industrial	-	-	1,977,800	-	-	-	-	-	-	-	-	-	-	-	1,977,800	1,874,683	2,052,309	1,526,840
Other Industrial/Commercial	-	-	5,863,600	34,700	3,800	-	74,300	5,300	-	-	-	-	-	400	5,982,100	5,669,628	5,483,569	4,482,544
Residential	-	-	5,497,700	-	115,500	10,800	330,100	106,300	11,500	46,100	14,200	28,000	15,900	26,600	6,202,700	5,877,774	5,907,203	4,928,584
Penalties	-	-	126,300	2,500	1,000	200	2,600	2,900	200	900	300	600	300	200	138,000	130,172	108,071	87,023
Private Fire Service	-	-	816,000	226,000	-	-	7,700	2,100	-	-	-	-	-	-	1,051,800	996,676	1,092,895	884,816
Public Fire Service	-	-	518,200	-	-	-	24,800	11,400	-	-	-	-	-	-	554,400	525,331	548,875	444,071
User Charges - Municipal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
User Charges - Residential & Commercial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
User Charges - Hauler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hauler Fees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Charges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Pretreatment Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leachate Program Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Water Sales	-	-	93,200	-	-	-	-	-	-	-	-	-	-	-	93,200	88,301	89,558	62,654
Provision for Doubtful Debts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(17,425)
Total Charges for Services	-	-	14,892,800	263,200	120,300	11,000	439,500	128,000	11,700	47,000	14,500	28,600	16,200	27,200	16,000,000	15,162,564	15,282,480	12,399,107
Miscellaneous	-	-	282,500	-	400	100	700	2,500	100	300	100	500	200	100	287,500	286,550	38,724	34,359
Total User Charges	-	-	15,175,300	263,200	120,700	11,100	440,200	130,500	11,800	47,300	14,600	29,100	16,400	27,300	16,287,500	15,449,114	15,321,204	12,433,466
Connection & System Charges																		
Supply/Tapping Fees	-	-	229,800	-	-	-	12,700	1,500	-	-	-	-	-	-	244,000	243,797	352,054	336,185
Capital Cost Recovery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution Tapping Fees	-	-	106,900	-	-	-	3,900	1,600	-	-	-	-	-	-	112,400	112,287	117,241	49,980
Meter Sales	-	-	61,000	-	-	-	9,600	700	-	-	-	-	-	-	71,300	71,113	87,439	150,087
Inspection & Review Fees	-	-	86,300	-	-	-	500	-	-	-	-	-	-	-	86,800	86,722	66,408	65,250
Developer Reimbursement	-	-	161,700	1,500	-	-	3,000	-	-	-	-	-	-	-	166,200	166,091	310,336	957,521
Total Connection & System Charges	-	-	645,700	1,500	-	-	29,700	3,800	-	-	-	-	-	-	680,700	680,010	933,476	1,559,023
Other Miscellaneous Revenues																		
Other Income	-	-	26,900	-	200	100	3,400	700	-	200	100	100	-	100	31,800	31,099	33,078	131,831
Total Other Miscellaneous Revenues	-	-	26,900	-	200	100	3,400	700	-	200	100	100	-	100	31,800	31,099	33,078	131,831
Total Operating Revenues	-	-	15,847,900	264,700	120,900	11,200	473,300	135,000	11,800	47,500	14,700	29,200	16,400	27,400	17,000,000	16,160,223	16,287,758	14,124,320
Operating Expenses:																		
Personnel																		
Salaries and Wages	638,052	-	1,293,371	20,581	17,616	4,671	92,749	13,828	7,813	25,682	12,355	17,764	12,399	21,600	2,178,481	1,994,427	1,980,766	1,767,794
Overtime	30,885	-	78,769	5,174	4,621	1,266	22,579	353	1,522	6,237	678	1,788	1,388	6,233	161,493	164,086	105,364	168,736
Taxes	93,873	-	80,306	1,628	1,401	373	7,268	815	582	2,017	743	1,187	806	1,769	192,768	176,444	170,114	147,786
Fringe Benefits	-	-	1,064,020	21,037	18,153	4,870	93,855	10,869	7,556	26,036	10,097	15,377	10,859	22,905	1,305,634	1,186,104	879,474	1,083,837
Other Personnel Related	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Personnel	762,811	-	2,516,466	48,420	41,791	11,180	216,451	25,865	17,473	59,972	23,873	36,116	25,452	52,507	3,838,376	3,521,060	3,135,717	3,168,152
Purchase of Services																		
Shared Services - General & Administrative	-	-	690,940	13,661	11,788	3,162	60,947	7,058	4,907	16,907	6,557	9,985	7,052	14,874	847,837	647,611	777,905	506,957
Utilities	33,789	-	415,200	11,600	400	3,700	13,100	1,400	4,500	12,900	2,400	4,900	4,200	8,300	516,389	490,147	520,914	423,326
Compliance	-	-	32,415	2,600	2,400	900	4,500	1,500	585	1,500	900	900	900	900	50,000	55,809	45,373	41,734
Contract Operating Svcs	-	-	2,600	2,300	-	1,620	10,400	-	2,300	7,700	3,300	2,300	2,600	4,300	39,420	38,418	39,920	49,071
Engineering	-	-	40,000	-	-	-	-	-	-	-	-	-	-	-	40,000	50,645	71,500	68,354
Exceptional Strength Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extraordinary Expenditures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fleet Management Services	-	-	40,000	-	-	-	-	-	-	-	-	-	-	-	40,000	66,624	43,000	63,112
General Analyses	-	-	42,300	4,500	1,000	1,920	5,000	1,200	1,800	6,100	2,600	3,200	2,400	5,400	77,420	57,870	77,980	27,678
Planning Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Meter Testing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance Services	-	-	411,050	31,600	6,000	4,500	62,700	8,400	25,300	18,700	18,000	25,300	4,100	13,100	628,750	478,731	557,800	373,696
Miscellaneous Services	-	-	93,700	-	100	-	200	400	-	-	600	500	-	4,000	99,500	95,464	24,975	164,573
Leased Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85,000	-
Rental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residuals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Purchases	-	-	2,951,300	-	18,000	-	574,400	91,900	-	-	-	-	-	-	3,635,600	3,503,951	3,744,986	2,645,632
System Planning / Capital Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LCA WWTP Treatment/Removals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment and Transportation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Purchase of Services	33,789	-	4,719,505	66,261	39,688	15,802	731,247	111,858	39,392	63,807	34,357	47,085	21,252	50,874	5,974,915	5,485,270	5,989,353	4,364,134

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - SUBURBAN - WATER FUND
2023 Budget (Draft 10-10-22)

	Suburban - Water Systems													Total				
	Int Serv 100	Undesignated 200	Western Lehigh Service Area			S. Lehigh	Northern Lehigh Service Area					Northampton	Buss Acres 210	Budget 2023	Forecast 2022	Budget 2022	Actual 2021	
			Central Lehigh 201	Arcadia West 211	Emmaus 209	Beverly Hills 207	North Whitehall 202	Washington 203	Mill Creek 204	Heidelberg 205	PL of Lynn 206	Madison North 221						CFE 208
Materials & Supplies																		
Purification Chemicals	-	-	55,000	5,750	-	500	1,000	-	500	1,000	500	500	500	4,500	69,750	59,468	59,700	47,117
Purification Supplies	-	-	29,000	2,200	-	1,800	2,500	3,800	4,400	3,000	3,700	4,000	1,800	4,100	60,300	57,878	59,300	55,132
Pump Supplies	-	-	47,215	17,900	-	700	25,600	-	1,585	1,600	5,700	7,300	1,400	1,000	110,000	100,435	76,900	50,740
Misc. Materials & Supplies	-	-	47,300	1,700	-	1,100	1,000	400	400	2,200	700	100	1,500	1,400	57,800	54,170	83,950	47,358
Fuel & Mileage	-	-	59,520	1,500	2,200	1,500	6,000	1,600	1,500	1,500	1,500	1,500	1,500	1,500	81,320	65,706	61,150	59,213
Fleet Management Supplies	-	-	3,000	-	-	-	-	-	-	-	-	-	-	-	3,000	4,818	3,000	5,143
Equipment	-	-	65,700	6,300	5,200	5,200	26,000	10,400	5,200	10,400	5,300	5,200	8,000	5,200	158,100	152,015	218,407	53,276
Distribution & Transmission Supplies	-	-	288,100	300	3,300	4,200	19,200	6,200	3,200	3,700	1,600	17,300	-	-	347,100	333,956	377,430	157,395
Collection System Supplies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Materials & Supplies	-	-	594,835	35,650	10,700	15,000	81,300	22,400	16,785	23,400	19,000	35,900	14,700	17,700	887,370	828,446	939,837	475,374
Depreciation and Amortization	-	-	3,023,000	-	-	-	-	-	-	-	-	-	-	-	3,023,000	3,007,580	2,978,452	3,350,988
Other Expenses																		
Major Maintenance Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Miscellaneous	-	-	41,600	-	-	-	-	-	-	-	-	-	-	-	41,600	40,092	-	80,020
Total Other Expenses	-	-	41,600	-	-	-	-	-	-	-	-	-	-	-	41,600	40,092	-	80,020
Total Operating Expenses	796,599	-	10,895,406	150,331	92,179	41,982	1,028,998	160,123	73,650	147,179	77,230	119,101	61,404	121,081	13,765,262	12,882,448	13,043,359	11,438,668
Net Operating Profit (Loss)	(796,599)	-	4,952,494	114,369	28,721	(30,782)	(555,698)	(25,123)	(61,850)	(99,679)	(62,530)	(89,901)	(45,004)	(93,681)	3,234,738	3,277,775	3,244,399	2,685,652
Non-Operating Income (Expense)																		
Interest Income	50,847	13,935	-	-	-	-	-	-	-	-	-	-	-	-	64,782	49,796	50,125	47,412
Interest (Expense)	-	(1,130,484)	-	-	-	-	-	-	-	-	-	-	-	-	(1,130,484)	(1,169,877)	(1,200,301)	(1,026,223)
Unrealized Gain on Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	(10,067)
Unrealized (Loss) on Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(30,260)	-	(3,060)
Capital Contributed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,261,634
Other Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(5,500)	-	(175,323)
Net Non-Operating Income (Expense)	50,847	(1,116,549)	-	-	-	-	-	-	-	-	-	-	-	-	(1,065,702)	(1,155,798)	(1,150,176)	2,094,374
Net Income (Loss)	(745,753)	(1,116,549)	4,952,494	114,369	28,721	(30,782)	(555,698)	(25,123)	(61,850)	(99,679)	(62,530)	(89,901)	(45,004)	(93,681)	2,169,036	2,121,977	2,094,223	4,780,026

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - SUBURBAN - WASTEWATER FUND
2023 Budget (Draft 10-10-22)

	Suburban - Wastewater Systems														Total				
	Int Serv 100	Interceptor Group			Heidelberg 305	Upper Milford 315	Wynnewood 316	Weisenberg 317	Sand Spring 319	Lowhill Twp. 323	NLSA 318	Washington 303	Lynn Twp. 322	WWTP 320	W.Weisenberg Arcadia West 311	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
		WLI 312	LLRI 1 313	LLRI 2 314															
Operating Revenues:																			
User Charges																			
Large Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Industrial/Commercial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,900	34,900	33,679	29,893	27,451
Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalties	-	-	-	-	1,100	4,200	900	400	400	100	-	-	11,600	763,400	2,600	784,700	757,635	1,607,847	803,844
Private Fire Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Fire Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
User Charges - Municipal	-	9,998,258	1,855,617	37,651	-	100	-	-	-	-	-	-	-	-	-	11,891,626	9,841,484	9,925,546	6,099,663
User Charges - Residential & Commercial	-	-	-	-	82,300	494,300	152,600	67,300	141,700	15,300	-	-	399,000	4,246,187	367,000	5,965,687	4,959,836	5,653,942	5,660,653
User Charges - Hauler	-	-	-	-	-	-	-	-	-	-	-	-	-	2,788,900	-	2,788,900	2,694,513	2,784,269	2,776,887
Hauler Fees	-	-	-	-	-	-	-	-	-	-	-	-	-	6,900	-	6,900	6,578	16,575	58,150
Industrial Charges	-	-	-	-	-	-	-	-	-	-	-	-	-	167,300	-	167,300	161,597	94,316	88,884
Industrial Pretreatment Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leachate Program Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Water Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Doubtful Debts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Charges for Services	-	9,998,258	1,855,617	37,651	83,400	498,600	153,500	67,700	142,100	15,400	-	-	410,600	7,972,687	404,500	21,640,013	18,455,322	20,112,389	15,606,889
Miscellaneous	-	45,500	400	-	100	36,800	100	1,600	-	-	37,900	11,300	1,100	47,700	-	182,500	181,671	169,662	216,166
Total User Charges	-	10,043,758	1,856,017	37,651	83,500	535,400	153,600	69,300	142,100	15,400	37,900	11,300	411,700	8,020,387	404,500	21,822,513	18,636,993	20,282,051	15,823,055
Connection & System Charges																			
Supply/Tapping Fees	-	741,000	-	80,800	-	13,600	-	-	8,300	-	-	-	-	-	-	843,700	1,400,167	843,449	752,931
Capital Cost Recovery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution Tapping Fees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meter Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inspection & Review Fees	-	31,900	-	-	-	-	-	-	-	-	-	-	-	-	-	31,900	31,805	31,805	1,000
Developer Reimbursement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,100	-	3,109
Total Connection & System Charges	-	772,900	-	80,800	-	13,600	-	-	8,300	-	-	-	-	-	-	875,600	1,436,072	875,254	757,041
Other Miscellaneous Revenues																			
Other Income	-	1,600	-	-	-	-	-	-	-	-	-	700	-	-	-	2,300	1,264	2,247	45,691
Total Other Miscellaneous Revenues	-	1,600	-	-	-	-	-	-	-	-	-	700	-	-	-	2,300	1,264	2,247	45,691
Total Operating Revenues	-	10,818,258	1,856,017	118,451	83,500	549,000	153,600	69,300	150,400	15,400	37,900	12,000	411,700	8,020,387	404,500	22,700,413	20,074,329	21,159,552	16,625,786
Operating Expenses:																			
Personnel																			
Salaries and Wages	378,036	247,586	39,808	7,413	57,496	15,976	42,592	3,308	46,302	60	16,861	4,972	64,918	24,864	51,749	1,001,941	915,988	883,172	722,715
Overtime	15,235	12,378	5,171	147	12,105	867	9,346	201	8,713	-	1,084	191	11,188	-	6,517	83,143	80,552	86,651	84,764
Taxes	43,161	15,414	2,771	451	4,394	995	3,295	206	3,461	3	1,068	302	4,741	1,394	3,605	85,261	68,795	82,126	62,342
Fringe Benefits	-	210,399	37,123	5,887	59,127	13,231	44,144	2,792	45,712	69	13,920	4,204	63,988	19,926	48,277	568,799	516,726	505,139	472,175
Other Personnel Related	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Personnel	436,433	485,777	84,873	13,898	133,122	31,069	99,377	6,507	104,188	132	32,933	9,669	144,835	46,184	110,148	1,739,145	1,582,061	1,557,088	1,341,997
Purchase of Services																			
Shared Services - General & Administrative	-	130,371	23,179	3,753	36,528	8,458	27,359	1,766	28,745	30	9,040	2,580	39,545	12,258	29,913	353,525	271,431	230,022	211,387
Utilities	24,712	77,875	122,175	200	10,900	700	20,700	200	12,000	-	-	400	22,850	-	20,075	312,787	296,521	355,937	269,553
Compliance	-	-	200	-	8,160	-	1,800	-	2,800	-	-	100	2,000	200	900	16,160	16,209	15,721	11,778
Contract Operating Svcs	-	-	-	-	10,000	-	15,000	-	12,200	-	-	-	-	6,143,900	-	6,181,100	5,956,045	5,963,273	5,825,927
Engineering	-	15,846	5,000	-	-	-	-	-	-	-	-	-	-	13,100	2,000	35,946	23,860	162,000	29,105
Exceptional Strength Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extraordinary Expenditures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fleet Management Services	-	20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	20,000	21,419	18,000	26,109
General Analyses	-	25,900	-	-	20,000	-	7,000	-	7,800	-	-	-	7,000	-	8,000	75,700	60,673	48,200	58,237
Planning Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Meter Testing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance Services	-	143,200	64,000	8,000	35,500	10,500	32,000	-	10,600	6,000	-	21,700	21,000	-	44,500	397,000	375,909	466,196	290,953
Miscellaneous Services	-	8,800	800	-	2,800	700	500	-	700	-	600	2,000	10,700	78,100	500	106,200	101,251	27,970	94,489
Leased Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residuals	-	-	-	-	10,160	-	20,000	-	30,740	-	-	-	48,100	-	15,000	124,000	91,557	103,000	70,941
Water Purchases	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
System Planning / Capital Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LCA WWTP Treatment/Removals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment and Transportation	-	3,954,016	-	-	-	299,850	-	30,865	-	8,614	-	-	-	-	-	4,293,345	3,574,504	3,844,405	3,899,503
Total Purchase of Services	24,712	4,376,008	215,354	11,953	134,048	320,208	124,359	32,831	105,585	14,644	9,640	26,780	151,195	6,247,558	120,888	11,915,762	10,789,380	11,234,724	10,787,982

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - SUBURBAN - WASTEWATER FUND
2023 Budget (Draft 10-10-22)

	Suburban - Wastewater Systems														Total				
	Int Serv 100	Interceptor Group			CRCS						W.Weisenberg				Budget 2023	Forecast 2022	Budget 2022	Actual 2021	
		WLI 312	LLRI 1 313	LLRI 2 314	Heidelberg 305	Upper Milford 315	Wynnewood 316	Weisenberg 317	Sand Spring 319	Lowhill Twp. 323	NLSA 318	Washington 303	Lynn Twp. 322	WWTP 320					Arcadia West 311
Materials & Supplies	-	-	-	-	10,000	-	12,000	-	20,000	-	-	-	43,000	-	18,000	103,000	97,115	90,250	63,642
Purification Chemicals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purification Supplies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	324	10,000	-
Pump Supplies	-	1,600	200	-	1,100	-	300	-	200	-	-	1,100	-	3,000	7,500	7,026	41,500	1,778	-
Misc. Materials & Supplies	-	27,400	1,500	4,000	12,000	2,800	6,900	2,400	7,900	800	-	8,000	6,100	9,200	89,000	83,806	183,400	67,797	-
Fuel & Mileage	-	15,900	2,800	700	1,800	1,000	2,700	500	2,100	-	-	800	2,600	100	1,400	32,400	30,614	27,500	27,068
Fleet Management Supplies	-	12,200	-	-	-	-	-	-	-	-	-	-	-	-	-	12,200	11,671	3,000	18,687
Equipment	-	21,000	32,200	6,700	900	1,600	4,300	200	2,000	1,400	-	1,100	7,700	-	900	80,000	76,617	140,900	54,468
Distribution & Transmission Supplies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collection System Supplies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Materials & Supplies	-	78,100	36,700	11,400	25,800	5,400	26,200	3,100	32,200	2,200	-	9,900	60,500	100	32,500	324,100	307,174	496,550	233,440
Depreciation and Amortization	-	3,233,500	135,700	55,100	365,400	90,600	55,900	10,300	3,500	-	-	-	256,400	1,878,100	137,400	6,221,900	6,190,121	5,996,555	6,694,237
Other Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Other Miscellaneous	-	17,700	2,000	400	-	800	-	-	-	-	-	300	3,400	600	-	25,200	23,954	-	55,412
Total Other Expenses	-	17,700	2,000	400	-	800	-	-	-	-	-	300	3,400	600	-	25,200	23,954	-	55,412
Total Operating Expenses	461,144	8,191,085	474,627	92,751	658,370	448,077	305,836	52,738	245,473	16,976	42,573	46,649	616,330	8,172,542	400,936	20,226,107	18,892,690	19,284,917	19,113,067
Net Operating Profit 9 Loss)	(461,144)	2,627,173	1,381,390	25,700	(574,870)	100,923	(152,236)	16,562	(95,073)	(1,576)	(4,673)	(34,649)	(204,630)	(152,155)	3,564	2,474,306	1,181,638	1,874,635	(2,487,282)
Non-Operating Income (Expense)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Income	-	54,683	451	29,955	-	-	-	-	-	-	-	-	-	-	39	85,128	67,440	87,965	80,219
Interest (Expense)	-	(57,683)	-	-	(5,506)	(31,355)	(19,579)	-	(1,368)	-	-	(13,413)	-	-	(24,239)	(153,143)	(192,700)	(173,721)	(213,026)
Unrealized Gain on Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(42,745)
Unrealized Loss on Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(115,850)	-	(12,452)
Capital Contributed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	422,300
Other Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Non-Operating Income (Expense)	-	(3,000)	451	29,955	(5,506)	(31,355)	(19,579)	-	(1,368)	-	-	(13,413)	-	-	(24,200)	(68,015)	(241,110)	(85,756)	234,295
Net Income (Loss)	(461,144)	2,624,173	1,381,841	55,655	(580,376)	69,568	(171,815)	16,562	(96,441)	(1,576)	(4,673)	(48,062)	(204,630)	(152,155)	(20,636)	2,406,292	940,528	1,788,879	(2,252,986)

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - CITY - DIVISION FUND
2023 Budget (Draft 10-10-22)

	City Division - Systems							Total			
	Undesignated 400	Int Serv 490	WFP 491	DIST 492	WWTP 493	WWCOLL 494	LAB 495	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Operating Revenues:											
User Charges											
Large Industrial	-	-	-	-	-	-	-	-	-	-	-
Other Industrial/Commercial	-	-	-	4,853,400	-	-	-	4,853,400	4,420,083	4,616,561	4,067,549
Residential	-	-	-	17,636,400	-	-	-	17,636,400	16,062,238	16,133,297	14,608,784
Penalties	-	-	-	430,900	-	326,000	-	756,900	747,378	772,473	509,575
Private Fire Service	-	-	-	66,700	-	-	-	66,700	60,720	59,947	57,692
Public Fire Service	-	-	-	725	-	-	-	725	661	1,119	540
User Charges - Municipal	-	-	-	-	-	8,038,935	-	8,038,935	7,363,641	7,607,223	7,922,978
User Charges - Residential & Commercial	-	-	-	-	-	12,314,200	-	12,314,200	11,214,954	10,946,121	10,136,900
User Charges - Hauler	-	-	-	-	132,300	-	-	132,300	120,471	140,423	112,395
Hauler Fees	-	-	-	-	-	-	-	-	-	-	-
Industrial Charges	-	-	-	-	-	-	-	-	-	-	-
Industrial Pretreatment Revenues	-	-	-	-	161,700	-	-	161,700	147,238	196,995	131,101
Municipal	-	-	-	-	-	-	-	-	-	-	-
Leachate Program Revenues	-	-	-	-	600,900	-	-	600,900	547,253	484,446	292,821
Other Income	-	-	-	-	-	-	-	-	-	-	(500,000)
Other Water Sales	-	-	-	5,812,700	-	-	-	5,812,700	5,293,871	5,213,588	4,532,391
Provision for Doubtful Debts	-	-	-	-	-	-	-	-	-	-	77,197
Total Charges for Services	-	-	-	28,800,825	894,900	20,679,135	-	50,374,860	45,978,506	46,172,192	41,949,921
Miscellaneous	-	-	-	248,880	8,300	40,300	8,520	306,000	290,858	216,437	326,514
Total User Charges	-	-	-	29,049,705	903,200	20,719,435	8,520	50,680,860	46,269,365	46,388,629	42,276,435
Connection & System Charges											
Supply/Tapping Fees	-	-	-	301,100	-	234,300	-	535,400	519,346	535,252	647,906
Capital Cost Recovery	-	-	-	1,037,400	-	404,400	-	1,441,800	1,405,123	1,462,605	1,522,889
Distribution Tapping Fees	-	-	-	1,600	-	900	-	2,500	2,936	2,331	2,788
Meter Sales	-	-	-	24,600	-	-	-	24,600	28,008	24,595	29,584
Inspection & Review Fees	-	-	-	13,500	-	7,500	-	21,000	22,386	20,945	26,850
Developer Reimbursement	-	-	-	60,700	2,000,000	10,600	-	2,071,300	2,368,207	2,442,327	1,281,275
Total Connection & System Charges	-	-	-	1,438,900	2,000,000	657,700	-	4,096,600	4,346,006	4,488,055	3,511,291
Other Miscellaneous Revenues											
Other Income	-	-	-	51,376	4,000	-	13,924	69,300	63,708	67,475	113,357
Total Other Miscellaneous Revenues	-	-	-	51,376	4,000	-	13,924	69,300	63,708	67,475	113,357
Total Operating Revenues	-	-	-	30,539,982	2,907,200	21,377,135	22,443	54,846,760	50,679,078	50,944,159	45,901,083
Operating Expenses:											
Personnel											
Salaries and Wages	-	1,674,263	1,321,754	1,329,218	2,348,248	911,530	436,407	8,021,419	7,323,462	7,673,943	6,524,045
Overtime	-	187,033	174,958	121,397	286,178	34,872	20,846	825,284	825,285	835,691	869,724
Taxes	-	236,410	97,020	92,313	171,038	59,679	29,115	685,575	604,711	658,483	559,625
Fringe Benefits	-	-	710,422	680,666	1,246,844	436,716	211,657	3,286,305	2,985,442	3,455,596	2,728,039
Other Personnel Related	-	-	-	-	-	-	-	-	-	-	-
Total Personnel	-	2,097,706	2,304,153	2,223,594	4,052,308	1,442,797	698,025	12,818,583	11,738,900	12,623,714	10,681,433
Purchase of Services											
Shared Services - General & Administrative	-	(0)	482,191	461,997	813,186	296,418	143,660	2,197,452	1,832,207	1,872,369	1,529,986
Utilities	-	-	789,473	55,000	1,121,700	47,000	5,000	2,018,173	1,894,695	2,037,743	1,705,824
Compliance	-	-	40,000	-	-	-	-	40,000	-	-	-
Contract Operating Svcs	-	-	-	3,000	-	128,000	35,500	166,500	137,811	137,260	87,284
Engineering	-	-	25,000	2,000	16,000	2,000	-	45,000	34,338	31,500	27,455
Exceptional Strength Analysis	-	-	-	-	-	-	-	-	-	-	-
Extraordinary Expenditures	-	-	-	80,000	-	45,000	-	125,000	119,000	119,000	22,146
Fleet Management Services	-	-	5,000	50,000	60,000	50,000	-	165,000	193,580	183,900	188,978
General Analyses	-	-	500	-	4,700	-	36,000	41,200	13,833	35,000	13,752
Planning Expenses	-	-	-	-	-	-	-	-	-	-	-
Industrial Meter Testing	-	-	500	5,000	-	-	-	5,500	130	6,000	300
Maintenance Services	-	-	223,100	274,000	270,300	133,000	14,400	914,800	772,106	884,735	692,462
Miscellaneous Services	-	-	68,800	37,000	59,900	53,000	3,600	222,300	238,990	258,631	201,596
Leased Equipment	-	-	-	-	-	-	-	-	-	127,750	10
Rental	-	-	-	-	-	-	-	-	-	-	-
Residuals	-	-	12,000	-	375,000	-	-	387,000	360,112	401,038	279,316
Water Purchases	-	-	400	-	-	-	-	400	321	1,000	569
System Planning / Capital Management	-	-	-	-	-	-	-	-	-	-	-
LCA WWTP Treatment/Removals	-	-	-	-	-	-	-	-	-	-	-
Treatment and Transportation	-	-	-	-	-	14,318	-	14,318	13,800	13,800	12,480
Total Purchase of Services	-	(0)	1,646,964	967,997	2,720,786	768,735	238,160	6,342,642	5,610,923	6,109,726	4,762,160

LEHIGH COUNTY AUTHORITY
STATEMENTS OF ACTIVITIES - CITY - DIVISION FUND
2023 Budget (Draft 10-10-22)

	City Division - Systems							Total			
	Undesignated 400	Int Serv 490	WFP 491	DIST 492	WWTP 493	WWCOLL 494	LAB 495	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Materials & Supplies											
Purification Chemicals	-	-	410,000	-	525,000	-	-	935,000	711,651	772,254	604,914
Purification Supplies	-	-	12,000	-	-	-	-	12,000	11,656	14,000	8,623
Pump Supplies	-	-	10,800	-	36,200	-	-	47,000	45,670	49,750	28,671
Misc. Materials & Supplies	-	-	67,700	24,900	304,100	136,300	67,900	600,900	538,527	553,909	476,643
Fuel & Mileage	-	-	8,300	46,400	56,500	40,900	-	152,100	139,107	124,850	96,955
Fleet Management Supplies	-	-	1,500	3,000	28,800	3,000	-	36,300	33,823	34,900	20,487
Equipment	-	-	50,000	75,500	62,600	33,500	67,100	288,700	270,860	287,035	146,230
Distribution & Transmission Supplies	-	-	-	549,000	-	-	-	549,000	479,715	496,356	104,154
Collection System Supplies	-	-	-	-	-	-	-	-	-	-	-
Total Materials & Supplies	-	-	560,300	698,800	1,013,200	213,700	135,000	2,621,000	2,231,008	2,333,053	1,486,676
Depreciation and Amortization	6,000,000	-	30,000	18,000	54,000	58,000	-	6,160,000	6,256,518	6,178,570	417,441
Other Expenses											
Major Maintenance Expenses	-	-	-	-	-	-	-	-	298,171	-	(0)
Other Miscellaneous	4,000,000	-	-	-	-	-	-	4,000,000	3,908,029	4,206,200	3,686,882
Total Other Expenses	4,000,000	-	-	-	-	-	-	4,000,000	4,206,200	4,206,200	3,686,882
Total Operating Expenses	10,000,000	2,097,706	4,541,417	3,908,391	7,840,294	2,483,232	1,071,185	31,942,225	30,043,549	31,451,262	21,034,592
Net Operating Profit (Loss)	(10,000,000)	(2,097,706)	(4,541,417)	26,631,591	(4,933,094)	18,893,903	(1,048,742)	22,904,535	20,635,530	19,492,897	24,866,491
Non-Operating Income (Expense)											
Interest Income	128,661	-	-	-	-	-	-	128,661	62,209	176,419	5,374
Interest (Expense)	(18,252,298)	-	-	-	-	-	-	(18,252,298)	(17,163,269)	(17,474,997)	(16,508,725)
Unrealized Gain on Investment	-	-	-	-	-	-	-	-	-	-	-
Unrealized Loss on Investment	-	-	-	-	-	-	-	-	-	-	-
Capital Contributed	-	-	-	-	-	-	-	-	-	-	-
Other Miscellaneous	-	-	-	-	-	-	-	-	-	-	-
Net Non-Operating Income (Expense)	(18,123,637)	-	-	-	-	-	-	(18,123,637)	(17,101,059)	(17,298,578)	(16,503,352)
Net Income (Loss)	(28,123,637)	(2,097,706)	(4,541,417)	26,631,591	(4,933,094)	18,893,903	(1,048,742)	4,780,898	3,534,470	2,194,319	8,363,139

Internal Service

Lehigh County Authority

2023 Budget – Draft 10-10-2022

Internal Service Budgets Overview

Lehigh County Authority's Internal Service budget serves as a pass-through mechanism to move shared expenses appropriately to the enterprise funds they support.

The Internal Services budget captures expenses in two different categories:

1. **Enterprise Fund Specific** – Internal Service expenses that are specific to the Suburban or City Divisions are shared with those specific enterprise funds based on the services provided to each fund.
2. **Global (Organizational)** – Internal Service expenses that are not specific to one of the Authority's enterprise funds, but which support the organization as a whole, are captured separately in the Global Internal Service budget and allocated to the funds based on a pro-rata share of salaries.

These Internal Service budgets capture expenses related to the following functions: Executive, Human Resources, Risk Management, Planning, Finance, Information Technology, Customer Care and Billing, Capital Works, and General and Administration. The Internal Service expenses outlined in this section of the Authority's 2022 Budget are also captured within the enterprise fund budgets detailed in previous sections of this publication, allocated to those funds based on the methodology described above.

LEHIGH COUNTY AUTHORITY
INTERNAL SERVICE BREAKDOWN (WITH ALLOCATIONS)
2023 Budget (Draft 09-19-22)

	Internal Service (With Historical Time Allocations)							YTD			
	Suburban Internal Service 1	Suburban Water 2	Suburban Wastewater 3	Internal Service 490	City Division 4	Lab Compliance 495	Global 9	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
Operating Expenses:											
Personnel											
Salaries and Wages	469,783	1,540,429	623,905	407,001	5,910,750	436,407	1,780,811	11,169,086	10,233,877	10,537,881	9,014,554
Overtime	45,978	130,608	67,908	186,700	617,405	20,846	476	1,069,921	1,069,924	1,027,706	1,123,223
Taxes	99,288	98,895	42,100	148,883	420,050	29,115	121,485	959,816	849,949	910,723	769,753
Fringe Benefits	-	1,305,634	568,799	-	3,074,648	211,657	-	5,160,738	4,688,272	4,840,209	4,284,051
Allocation to Systems	(615,049)	762,811	436,433	(742,584)	2,097,706	-	(1,902,772)	36,544	-	-	-
Total Personnel	-	3,838,376	1,739,145	-	12,120,558	698,025	-	18,396,104	16,842,021	17,316,519	15,191,582
Purchase of Services											
General & Administrative:											
Temporary Contract Service	25,000	-	-	10,000	-	-	-	35,000	18,985	29,558	33,522
Compliance	-	-	-	-	-	-	15,600	15,600	15,000	16,142	15,825
Office Related	96,050	-	-	105,600	-	-	124,940	326,590	312,998	269,015	295,616
Computer Software / Hardware	43,400	-	-	13,700	-	-	357,400	414,500	463,642	467,660	431,626
Advertising	-	-	-	1,200	-	-	3,600	4,800	3,477	1,212	972
Audit	-	-	-	-	-	-	62,400	62,400	59,000	49,980	49,000
Bank and Credit Card Fees	108,300	-	-	196,400	-	-	9,600	314,300	301,862	217,119	255,524
Dues and Subscriptions	2,400	-	-	7,200	-	-	39,600	49,200	45,766	45,412	42,757
Travel and Entertainment	3,600	-	-	1,200	-	-	13,200	18,000	13,937	5,988	11,663
Education & Training	50,275	-	-	87,359	-	-	97,076	234,710	164,363	218,091	65,033
Insurance & Risk Management	340,400	-	-	553,250	-	-	225,800	1,119,450	1,063,379	1,088,955	943,066
Human Resources and Related	-	-	-	-	-	-	181,600	181,600	135,911	109,850	133,811
Professional Consulting & Legal	35,675	-	-	65,200	-	-	374,000	474,875	190,269	192,859	121,256
Public Relations	-	-	-	-	-	-	128,588	128,588	47,414	119,449	46,758
Contributions & Sponsorships	1,200	-	-	1,200	-	-	1,200	3,600	390	528	390
Employee Engagement	-	-	-	-	-	-	15,600	15,600	13,861	48,479	44,996
Allocation to Systems	(706,300)	847,837	353,525	(1,042,309)	2,053,791	143,660	(1,650,204)	-	(99,005)	-	(243,483)
Total General & Administrative:	-	847,837	353,525	-	2,053,791	143,660	-	3,398,813	2,751,249	2,880,296	2,248,330
Utilities											
Utilities	14,962	486,872	300,832	3,000	1,899,915	(3,362)	145,129	2,847,348	2,681,363	2,914,594	2,398,704
Allocation to Systems	(14,962)	29,517	11,955	(3,000)	113,257	8,362	(145,129)	-	-	-	-
Total Utilities:	-	516,389	312,787	-	2,013,173	5,000	-	2,847,348	2,681,363	2,914,594	2,398,704
Compliance	-	50,000	16,160	-	40,000	-	-	106,160	72,019	61,094	53,512
Contract Operating Svcs	-	39,420	6,181,100	-	131,000	35,500	-	6,387,020	6,132,274	6,140,453	5,962,282
Engineering	-	40,000	35,946	-	45,000	-	-	120,946	108,843	265,000	124,914
Extraordinary Expenditures	-	-	-	-	125,000	-	-	125,000	119,000	119,000	22,146
Fleet Management Services	-	40,000	20,000	-	165,000	-	-	225,000	281,623	244,900	278,199
General Analyses	-	77,420	75,700	-	5,200	36,000	-	194,320	132,376	161,180	99,668
Industrial Meter Testing	-	-	-	-	5,500	-	-	5,500	130	6,000	300
Maintenance Services	-	628,750	397,000	-	900,400	14,400	-	1,940,550	1,626,746	1,908,731	1,357,111
Miscellaneous Services	-	99,500	106,200	-	218,700	3,600	-	428,000	435,705	311,576	460,659
Leased Equipment	-	-	-	-	-	-	-	-	-	212,750	10
Residuals	-	-	124,000	-	387,000	-	-	511,000	451,669	504,038	350,258
Water Purchases	-	3,635,600	-	-	400	-	-	3,636,000	3,504,272	3,745,986	2,646,201
Treatment and Transportation	-	-	4,293,345	-	14,318	-	-	4,307,663	3,588,304	3,858,205	3,911,983
Total Purchase of Services	-	5,127,079	11,562,238	-	4,050,690	94,500	-	20,834,507	19,134,324	20,453,507	17,665,946
Materials & Supplies											
Purification Chemicals	-	69,750	103,000	-	935,000	-	-	1,107,750	868,234	922,204	715,673
Purification Supplies	-	60,300	-	-	12,000	-	-	72,300	69,858	83,300	63,754
Pump Supplies	-	110,000	7,500	-	47,000	-	-	164,500	153,131	168,150	81,188
Misc. Materials & Supplies	-	57,800	89,000	-	533,000	67,900	-	747,700	676,503	821,259	591,798
Fuel & Mileage	-	81,320	32,400	-	152,100	-	-	265,820	235,427	213,500	183,237
Fleet Management Supplies	-	3,000	12,200	-	36,300	-	-	51,500	50,312	40,900	44,317
Equipment	-	158,100	80,000	-	221,600	67,100	-	526,800	499,492	646,342	253,974
Distribution & Transmission Supplies	-	347,100	-	-	549,000	-	-	896,100	813,671	873,786	261,548
Total Materials & Supplies	-	887,370	324,100	-	2,486,000	135,000	-	3,832,470	3,366,628	3,769,440	2,195,490
Depreciation and Amortization	-	3,023,000	6,221,900	-	6,160,000	-	-	15,404,900	15,454,219	15,153,577	10,462,665
Other Expenses											
Major Maintenance Expenses	-	-	-	-	-	-	-	-	298,171	-	(0)
Other Miscellaneous	-	41,600	25,200	-	4,000,000	-	-	4,066,800	3,972,075	4,206,200	3,822,314
Total Other Expenses	-	41,600	25,200	-	4,000,000	-	-	4,066,800	4,270,246	4,206,200	3,822,314
Total Operating Expenses	-	13,765,262	20,226,107	-	30,871,040	1,071,185	-	65,933,594	61,818,687	63,779,539	51,586,328

Capital Spending

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Suburban Water Division:

The Suburban Water Division Capital Budget includes projects that provide or lead to long-term improvements and reliability to the system. The following table provides information regarding significant water projects:

Project	2023 Budget	2023 Project Stage
Fixed Base Advanced Metering Infrastructure	\$100,000	Planning & Procurement
CLD Well Improvements & Capacity Study	100,000	Master Plan Study
Upper System Pump Station & Main Extension	75,0000	Design
Upper System New Reservoir Project	100,000	Design & Permitting
Water Meter Replacement Project	350,000	Construction
Water Main Replacement Project	2,900,000	Design & Construction

Annual Projects

These projects are part of recurring annual capital work that includes the following: 1) water main extensions; 2) distribution main development and service connections; 3) distribution mains upsizing; 4) reservoir rehabilitation and maintenance; 5) general water system improvements; 6) water company acquisitions; 7) main office improvements; 8) mobile equipment; 9) water facilities asset management improvements; 10) other equipment; 11) capital management; and 12) capital works miscellaneous expenses. Includes staff and consultant work. (2023 Cap Ex \$2,425,000)

Fixed Base Advanced Metering Infrastructure

Development of a fixed base meter reading system for the Suburban Water Division has been an objective for several years as part of optimizing meter reading and monitoring. The new system will allow for more efficient meter reading, consistent billing, and faster dispute resolution. Communication studies were performed by Sensus in 2019 and 2020 to evaluate the number and location of antenna towers for Suburban area coverage. Five to seven towers are anticipated to provide adequate coverage of the Suburban system. An engineer was retained in 2021 to perform a feasibility study for locating and developing antenna sites. Design and permitting of the tower sites, or procurement of leases to utilize existing towers, will be contingent upon the results of the study. (2023 Capex Ex. \$100,000)

CLD Well Improvements and Capacity Study

There are several inactive wells in the Central Lehigh Division (CLD) that were taken off-line for various reasons over the years and reactivating these wells would require extensive improvements and/or permitting. There is concern that the current production capacity of the active wells in CLD does not provide 100% redundancy with the City of Allentown interconnection. A multi-year Suburban Division CLD Master Plan commenced in 2022 to identify the following: 1) CLD system demand projections; 2) CLD system supply evaluation; 3) CLD distribution system capacity evaluation; 4) alternatives evaluation; and 5) prioritized capital improvement plan. (2023 Cap Ex \$100,000)

Upper System Pump Station and Water Main Extension

The objective of this project is to supplement Central Lehigh Upper System supply and pressure to meet the water needs of a proposed large industrial development in the area west of Fogelsville and provide

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adequate capacity to serve future industrial and residential customers in the area. The new water main extension under I-78 and regional pump station will also enhance system resilience and redundancy, in the event of operational issues with the CLD Auxiliary Pump Station or with the Upper System wells. Based on planning module data, zoning mapping and growth projections provided by Upper Macungie Township, the proposed pump station will have a design capacity of 1,000 gpm (1.44 million gallons per day). The timeline for construction of the pump station will be dependent upon the construction schedule for the proposed large industrial development. The 2023 budget includes final design costs. (2023 Cap Ex \$75,000)

Upper System New Reservoir Project

This project focuses on the addition of a new reservoir to supplement water storage in the Upper System of LCA's Central Lehigh Division. The Upper System, located north of I-78 in the Fogelsville area, has been experiencing rapid development and it is anticipated that additional water demands from a potential large industrial user(s) will require additional water storage and enhance system resiliency and redundancy. Planning and design efforts are budgeted for 2023. (2023 Cap Ex \$100,000)

Water Meter Replacement Project

The North Whitehall System source wells have high levels of manganese which deposits in the displacement type meters, causing inaccurate readings. The wells have been taken offline and replaced with source water from the Northampton Borough Municipal Authority. A 2018 project replaced the oldest of these displacement type meters with Sensus "Iperl" meters. This project will replace the remaining 616 displacement type meters in the North Whitehall system. The new meters have a flow measuring system that is not affected by any residual manganese that may still be in the distribution system. (2023 Cap Ex \$350,000)

Water Main Replacement Projects

This is an on-going project to replace aging water mains that have a history of high pipe break rates (# of breaks per mile) or exhibit a high risk of failure through condition assessment investigations. These projects enhance system resiliency and reduce service interruptions and water loss. (2023 Cap Ex \$2,900,000)

Suburban Wastewater Division:

The major activities included in the Suburban Wastewater Division Capital Budget are a continuation of the on-going work associated with Western Lehigh Interceptor (WLI) Signatory Inflow & Infiltration (I/I) Investigation & Remediation program and the implementation of improvements required to address system bottlenecks and sanitary sewer overflows. Other projects include design of the Upper WLI Pump Station and Force Main, design and investigation work for the Spring Creek Pump Station and Force Main (respectively) and continuing construction on the Phase 2 Park Pump Station Improvements. The following table provides information regarding significant wastewater projects:

Project	2023 Budget	2023 Project Stage
Pretreatment Plant Improvements	\$800,000	Annual Construction
Central Lehigh County Wastewater Capacity Planning & Expansion	\$325,000	Planning
Signatory I/I Investigation & Remediation Program	\$1,700,000	Design & Construction

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Project	2023 Budget	2023 Project Stage
Upper WLI Pump Station and Force Main	\$250,000	Design and Bid Phase
Pretreatment Plant Upgrade Study	\$200,000	Design
Heidelberg Heights I/I Remediation & Replacement	\$350,000	Construction
Park Pump Station Improvements	\$1,500,000	Construction
Spring Creek Pump Station General Improvements	\$250,000	Planning & Design

Annual Projects

These projects are part of recurring annual capital work that includes the following: 1) mobile equipment; 2) sewer company acquisitions; 3) other equipment; 4) wastewater facility asset management mechanical upgrade work; 5) capital management; 6) sewer main connections; and 7) general sewer system improvements. (2023 Cap Ex. \$325,000)

Wastewater Pretreatment Plant - General Improvements

This is an on-going multi-year program to upgrade processes and replace equipment in accordance with asset management practices, which include prioritizing and mitigating risk of process failure, enhancing resilience and reliability and maintaining a high level of service for LCA's industrial pretreatment plant. Near-term needs include replacement of headworks influent mechanical screens, HVAC improvements in the solids building, dewatering system improvements, aeration deck mixer replacements, and improvements of the cryogenic facility. (2023 Cap Ex \$800,000)

Central Lehigh County Wastewater Capacity Planning & Expansion

This project is related to DEP mandated Act 537 sewer planning for the entire Kline's Island Sanitary Sewer System. In 2020 and 2021, the alternative to upgrade the Pretreatment Plant and extend a force main to the Lehigh River was closely studied again. In addition, the updated Western Lehigh sewer model was used to update the downstream conveyance needs through the Park Pump Station area. In 2022, further analysis was performed on these topics to maintain the March 2025 Act 537 submission deadline. In addition, a Sewer System Evaluation Survey (SSES) will be performed to further identify what methods will be used in the future to reduce I/I. (2023 Cap Ex. \$325,000)

Signatory I/I Investigation & Remediation Program

This on-going inflow and infiltration (I/I) reduction project has involved flow monitoring in LCA and Signatory sewage collection systems tributary to the Western Lehigh Interceptor (WLI). Level of Service Modeling, Flow Metering, recalibration of the 2014 KISS model, and many other tasks for determining and prioritizing the physical work necessary to facilitate the removal of excess wet weather flow in segments of systems that have been identified with unacceptable levels of I/I. The 2023 budget includes manhole rehabilitation work, manhole inspection work, and miscellaneous planning efforts. (2023 Cap Ex \$1,700,000)

Upper WLI Pump Station and Force Main

A conveyance capacity "bottleneck" has long been identified in the Trexlertown area of the Western Lehigh Interceptor, and this area was assigned a high priority to address due to occurrence of sanitary sewer overflows and basement backups in the vicinity during wet weather events. A parallel interceptor was originally conceived to run approximately from Cetronia Road to Spring Creek Road. The concept was modified to focus on providing an interim solution to address local impacts of the system bottleneck,

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and the selected alternative in the Interim Act 537 Plan is the construction of a pump station adjacent to the LCA Pretreatment Plant (PTP) connected to a force main to convey approximately 2.5 million gallons per day of flow to a connection with the Upper Macungie sewer system in the township park area off Grange Road. This will allow a portion of the PTP flow to bypass the Trexlertown area, thereby providing a short-term solution to eliminate dry weather sanitary sewer overflows downstream. Design phase commenced in 2022. (2023 Cap Ex \$250,000)

Heidelberg Heights I/I Investigation and Remediation Program

This multi-year project is part of a DEP Consent Order and Agreement that requires the replacement of all original developer-installed vitrified clay sewer pipe (VCP) and sewer laterals in the sanitary sewer system. The original VCP pipe has degraded and allows for wet weather I/I, which creates hydraulic overload conditions at the system's wastewater treatment plant. Work includes the replacement of all sections of old VCP sewer main pipe and VCP sewer laterals in accordance with the Corrective Action Plan submitted to DEP in 2019. The 2023 work will be the final project to replace the original pipe. Subsequent work will involve private side sewers. (2023 Cap Ex \$350,000)

Park Pump Station Rehabilitation & Improvements (Phase 2)

Phase 1 of this multi-year project included replacement of the existing pumps, pump speed controllers (replaced with variable frequency drives), motor control center (MCC) panel, SCADA system, HVAC system, level control system, discharge surge valve and related mechanical improvements to maintain the level of service, prolong station life and restore station to its design capacity. Construction work for Phase 1 was completed in 2020. Phase 2 consists of the replacement of the backup power system generator and associated equipment. Construction commenced in 2022 and will finish in early 2024. (2023 Cap Ex \$1,500,000)

Spring Creek Pump Station Upgrade

This project involves replacing aging equipment and addressing electrical deficiencies at the Spring Creek Pump Station. The Spring Creek Pump Station was constructed in 1996 as a wet weather bypass station and has since become an integral part of the Western Lehigh collection system. This project includes various upgrades to maintain the integrity and reliability of the station including replacement of the three pump variable frequency drives (VFDs), replacement of two motorized gates for station control, replacement of access hatches due to frequent and sustained flooding of the station, and other miscellaneous station improvements. Design phase will commence in 2023, with construction anticipated for completion by early 2024. (2023 Cap Ex \$250,000)

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City Division - Water System:

Water projects in the 2023 budget focus on regulatory compliance, immediate and future needs at the Water Filtration Plant (WFP) and addressing the Lease operating standards. Annual projects remain in the 2023 budget as well. These include but are not limited to equipment purchases, general water system replacements, general WFP improvements, and indenture report upgrades.

The following table provides information regarding significant water projects:

Project	2023 Budget	2023 Project Stage
Annual Water Main Replacement – Cycle 7	\$3,200,000	Construction
Tank and Reservoir Rehabilitation	\$300,000	Construction
WFP Filter Upgrade Project	\$500,000	Design & Construction
Large Diameter Valve Replacement Project	\$250,000	Study & Design
Water Meter Replacement Project	\$525,000	Construction

Annual Projects

The annual projects include general water system replacements, mobile equipment, new and replacement meter installations, other equipment, routine reservoir rehab/maintenance, mobile equipment, WFP general improvements, and general system replacements. Also included is a portion of the Administration Capital Expenses that directly benefit the Allentown Division. (2023 Cap Ex \$1,295,000)

Annual Water Main Replacement – Cycle 7

The replacement of 4 miles of water main by the end of 2024 is a Lease requirement per the amended Lease language, with the objective of replacing aging spun cast and pit cast iron pipe in the system. One mile of water main replacement is planned for 2023. The project scope is prioritized annually based on breakage and leak history. (2023 Cap Ex \$3,200,000)

Tank and Reservoir Rehabilitation

This project involves mechanical upgrades, coatings, and miscellaneous rehabilitation of concrete tanks and reservoirs. The multi-year project includes replacement of process valves, HVAC and building rehabilitation, electrical upgrades and mixing system replacements. (2023 Cap Ex \$300,000)

WFP Filter Upgrade Project

This multi-year project consists of rehabilitation of the existing eight dual-bay gravity filters, including underdrain replacements, media replacements, valve replacements, air scour system installation, and related electrical upgrades. The filtration system operation is critical to maintaining regulatory compliance, and the project is cited as a near term, high priority project in the WFP Master Plan (Arcadis; 2017), as the existing equipment has reached the end of its service life. (2023 Cap Ex \$500,000)

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Large Diameter Valve Replacement Project

The objective of this multi-year project is to replace critical aging/inoperable large diameter valves in the distribution system. There are many critical large diameter valves that control supply throughout the system that are inoperable or do not seal properly. It is essential that these large diameter valves operate as designed to facilitate isolating key areas of the system during emergency events and maintenance operation. (2023 Cap Ex \$250,000)

Water Meter Replacement Project

This project consists of replacing large commercial meter chambers (3" and greater) that were installed prior to 2014. The batteries in these meters are at the end of their expected life span and have either failed or are showing signs of failure. There are 152 meters ranging in size from 3 to 8 inch. (2023 Cap Ex \$525,000)

City Division - Wastewater System:

Wastewater projects in 2023 will focus on regulatory compliance, immediate and future needs at the Kline's Island Wastewater Treatment Plant (WWTP) and addressing the Lease operating standards. Projects at the WWTP including Boiler and Solids Process HVAC Upgrade, Main and Auxiliary Pump Station Improvements, Intermediate Pump Station Upgrade, Electrical Substation No. 1 Upgrade and work related to wet weather flow issues.

Project	2023 Budget	2023 Project Stage
WWTP Solids Process Boiler Replacement & HVAC Upgrade Project	\$2,800,000	Construction
WWTP Main & Auxiliary Pump Station Improvements	\$100,000	Design
WWTP Intermediate Pump Station Upgrade	\$100,000	Design
Electrical Substation No. 1 Replacement	\$200,000	Design and Permitting
Regional Flow Management Strategy	\$800,000	Planning
Act 537 Alternatives Analyses	\$700,000	Planning
Interceptor Condition Assessment	\$700,000	Planning

Annual Projects

The annual projects include mobile equipment, other equipment, sanitary sewer main replacements and rehabilitation, and WWTP general improvements. The WWTP Disinfection and Dechlorination System project is included under the Annual Projects. Also included is a portion of the Administration Capital Expenses that directly benefit the Allentown Division. (2023 Cap Ex \$1,729,000)

Boiler Replacement and Solids Process HVAC Upgrade Project

This project consists of replacement of the three boilers used to heat the digesters, the digester building, and sludge dewatering areas. The project scope also includes replacement of related solids process HVAC equipment in the digester building and sludge dewatering areas. Construction will commence in

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late 2022 and be completed in early 2024. This project was approved by the City as a Major Capital Improvement. (2023 Cap Ex \$2,800,000)

WWTP Main & Auxiliary Pump Station Improvements Project

This multi-year project is the combination of two near-term projects from the WWTP Master Plan (Kleinfelder, 2019). The project consists of the mechanical upgrade of the Main Pump Station and Auxiliary Pump Station to increase the capacity of the combined station pumping system to 100 million gallons per day, in accordance with the DEP mandate to phase out activation of the high-flow plant bypass at Outfall No. 003. The four existing pumps in the Main Pump Station are to be replaced along with new variable frequency drives (VFDs) and associated valve replacements. Improvements to the Auxiliary Pump Station include replacement of the existing motors with upsized motors, replacement of pump impellers, replacement of VFDs, elimination of a force main bottleneck that creates excessive head loss, and replacement of associated valves. Design phase began in 2022. (2023 Cap Ex \$100,000)

WWTP Intermediate Pump Station Upgrade Project

This multi-year project consists of the mechanical and electrical upgrade of the Intermediate Pump Station primary effluent pump system. The primary effluent pumps have been identified in the WWTP report entitled, "Evaluation of Increase in Peak Flow Capacity" (Kleinfelder, 2020) as a capacity bottleneck for the conveyance and treatment of 100 million gallons per day peak flow, and the WWTP Master Plan recommends replacement of the primary effluent pumps. The project consists of the replacement of five primary effluent pumps, replacement and upsizing of existing motors, replacement of the VFDs, and electrical upgrades. Design phase began in 2022. (2023 Cap Ex \$100,000)

Electrical Substation No. 1 Replacement Project

This is Phase 2 of a multi-year project to replace the aging electrical substations at KIWWTP. Substation No. 2 was replaced in 2019. This phase consists of the replacement of Substation No. 1 along with the primary switchgear. Design of the replacement for Substation No. 1 will enable powering future projects to increase plant capacity. Design work commenced in 2022 and construction is anticipated to be completed in 2024. (2023 Cap Ex \$200,000)

Regional Flow Management Strategy

This multi-year project involves a five-year "Inflow and Infiltration Source Reduction" effort to comply with a regional flow management strategy submitted to EPA in August of 2018. "Year 4" construction is included in the 2023 budget. This work is completed by LCA but funded by the City of Allentown directly as part of its ongoing obligations to address sewer system issues under the terms of the Lease. (2023 Cap Ex \$800,000)

Act 537 Alternatives Analyses

This project consists of on-going regional Act 537 sewer plan development efforts, per the DEP mandated Act 537 sewer planning for the Kline's Island Sanitary Sewer System. Extensive flow monitoring was completed in 2021 and used to build a hydraulic model for the entire regional system. The model was calibrated in 2022 and preliminary and final screening of alternatives will follow in 2023. (2023 Cap Ex \$700,000)

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Interceptor Condition Assessment

As part of the on-going regional Act 537 Plan development, an assessment of the condition of the existing interceptors is needed and the investigation work will commence in 2023. (2023 Cap Ex \$700,000)

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - SUBURBAN - WATER FUND
DRAFT 2023 Budget

Project	Primary Project Category	Plan Total Cost	2022 Budget	Cap Plan Costs 2023 - 2027	Cap Plan 2023	2023 Budget
<u>Annual Projects</u>						
Annual Projects	AM - Varies	\$ 5,292,000	\$ 665,000	\$ 4,627,000	\$ 1,402,000	\$ 2,425,000
<u>Multi-Year Projects</u>						
Water Main Replacement Projects	AM - Varies	\$ 15,100,000	\$ 2,400,000	\$ 12,700,000	\$ 2,500,000	\$ 2,900,000
Fixed Base Meter Reading System	Sys Imp	\$ 1,010,000	\$ 100,000	\$ 910,000	\$ 100,000	\$ 100,000
Water Systems Master Planning	Sys Imp	\$ 275,000	\$ 100,000	\$ 175,000	\$ 100,000	\$ -
Upper System Pump Station & Water Main Extension	Sys Imp	\$ 250,000	\$ 200,000	\$ 50,000	\$ 50,000	\$ 75,000
Water Meter Replacement Program	AM-Med	\$ 2,660,000	\$ 450,000	\$ 2,210,000	\$ 50,000	\$ 350,000
Upper System Tank Installation Project	Sys Imp	\$ 5,600,000	\$ -	\$ 5,600,000	\$ 200,000	\$ -
CLD Well Improvements & Capacity Study	Sys Imp	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Residential Svc Conn & Water Svc Inquiry	Sys Imp	\$ -	\$ -	\$ -	\$ -	\$ 10,000
Upper System New Reservoir	Sys Imp	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Total Suburban Division Water Capital Expenditures		\$ 30,187,000	\$ 3,915,000	\$ 26,272,000	\$ 4,402,000	\$ 6,060,000

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - SUBURBAN - WASTEWATER FUND
DRAFT 2023 Budget

Project	Primary Project Category	Plan Total Cost	2022 Budget	Cap Plan Costs 2023 - 2027	Cap Plan 2023	2023 Budget
Annual Projects						
Annual Projects	AM - Varies	\$ 2,165,000	\$ 230,000	\$ 1,935,000	\$ 277,000	\$ 325,000
LCA Wastewater Treatment Plant						
Pretreatment Plant Improvements	AM - Varies	\$ 4,400,000	\$ 700,000	\$ 3,700,000	\$ 700,000	\$ 800,000
Western Lehigh Interceptor System:						
Central Lehigh County WW Capacity Planning & Expansion	New Cust	\$ 1,700,000	\$ 400,000	\$ 1,300,000	\$ 500,000	\$ 325,000
WLI Major Rehabilitation and Repairs	Regulatory	\$ 450,000	\$ -	\$ 450,000	\$ 100,000	\$ -
Spring Creek Pump Station General Improvements	Sys Imp	\$ 490,000	\$ 40,000	\$ 450,000	\$ 50,000	\$ 250,000
Signatory I & I Investigation & Remediation Program	Regulatory	\$ 1,800,000	\$ 300,000	\$ 1,500,000	\$ 300,000	\$ 1,700,000
Upper Western Lehigh Interceptor Pump Station & Force Main	Regulatory	\$ 5,050,000	\$ 100,000	\$ 4,950,000	\$ 700,000	\$ 250,000
PTP Study	Sys Imp	\$ -	\$ -	\$ -	\$ -	\$ 200,000
Subtotal		\$ 9,490,000	\$ 840,000	\$ 8,650,000	\$ 1,650,000	\$ 2,725,000
Satellite Systems						
Wynnewood I & I Investigation & Remediation Program	AM - Varies	\$ 150,000	\$ 25,000	\$ 125,000	\$ 35,000	\$ 25,000
Arcadia West WWTP Mechanical Screen	Efficiency	\$ 415,000	\$ 50,000	\$ 365,000	\$ 100,000	\$ 100,000
Weisenberg Township, Lowhill Township, UMiT SSES	Regulatory	\$ 150,000	\$ -	\$ 150,000	\$ 75,000	\$ -
SSES (Weisenberg, UMiT, Lowhill)	Regulatory	\$ 100,000	\$ 25,000	\$ 75,000	\$ 25,000	\$ 200,000
Heidelberg Heights I & I Investigation & Remediation Program	AM - Varies	\$ 900,000	\$ 300,000	\$ 600,000	\$ 300,000	\$ 350,000
Heidelberg Heights WWTP Rehabilitation	AM - High	\$ 550,000	\$ 200,000	\$ 350,000	\$ 250,000	\$ 250,000
Lynn Township WWTP Upgrades & Expansion Design	AM - High	\$ 225,000	\$ 25,000	\$ 200,000	\$ 100,000	\$ 50,000
Lynn Township I & I Investigation & Remediation Program	AM - High	\$ 225,000	\$ 25,000	\$ 200,000	\$ 75,000	\$ 10,000
Plan Review & Inspections	AM - Varies	\$ -	\$ -	\$ -	\$ -	\$ 7,500
Subtotal		\$ 2,715,000	\$ 650,000	\$ 2,065,000	\$ 960,000	\$ 992,500
Little Lehigh Relief Interceptor System:						
Park Pump Station Rehabilitation/Improvements	AM - High	\$ 2,400,000	\$ 400,000	\$ 2,000,000	\$ 1,500,000	\$ 1,500,000
Total Suburban Wastewater Division Capital Expenditures:						
		\$ 21,170,000	\$ 2,820,000	\$ 18,350,000	\$ 5,087,000	\$ 6,342,500

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - CITY - WATER DIVISION FUND
DRAFT 2023 Budget

Project	Primary Project Category	Plan Total Cost	2022 Budget	Cap Plan Costs 2023 - 2027	Cap Plan 2023	2023 Budget
Annual Projects						
Annual Projects	AM - Varies	\$ 7,639,000	\$ 1,135,000	\$ 6,504,000	\$ 1,149,000	\$ 1,295,000
Non-CCRC Projects						
Indenture Improvements	AM - High	\$ 1,000,000	\$ 300,000	\$ 700,000	\$ 200,000	\$ 200,000
Tank and Reservoir Rehabilitation	AM - High	\$ 1,050,000	\$ 300,000	\$ 750,000	\$ 250,000	\$ 300,000
Large Diameter Valve Replacement Project	AM - High	\$ 2,550,000	\$ 100,000	\$ 2,450,000	\$ 750,000	\$ 250,000
Various Water System Related Studies	CA/OS	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 10,000
Subtotal		\$ 4,750,000	\$ 700,000	\$ 4,050,000	\$ 1,200,000	\$ 760,000
Large Projects & CCRC Projects						
Annual Water Main Replacements	CA/OS	\$ 21,600,000	\$ 2,400,000	\$ 19,200,000	\$ 2,400,000	\$ 3,200,000
Water Meter Replacement Program	AM - High	\$ 2,300,000	\$ -	\$ 2,300,000	\$ -	\$ 525,000
Fixed Base Meter Reading System	Efficiency	\$ 1,700,000	\$ -	\$ 1,700,000	\$ -	\$ -
Filter Upgrades	Master Plan	\$ 5,700,000	\$ 200,000	\$ 5,500,000	\$ 2,350,000	\$ 500,000
Intake Upgrades	Master Plan	\$ 1,400,000	\$ -	\$ 1,400,000	\$ -	\$ -
Subtotal		\$ 32,700,000	\$ 2,600,000	\$ 30,100,000	\$ 4,750,000	\$ 4,225,000
Total Allentown Division Water Capital Expenditures:		\$ 45,089,000	\$ 4,435,000	\$ 40,654,000	\$ 7,099,000	\$ 6,280,000

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - CITY - WASTEWATER DIVISION FUND
DRAFT 2023 Budget

Project	Primary Project Category	Estimated Project Cost	2022 Budget	Cap Plan Costs 2023 - 2027	Cap Plan 2023	2023 Budget
Annual Projects						
Annual Projects	AM - High	\$ 9,963,000	\$ 1,460,000	\$ 8,503,000	\$ 1,998,000	\$ 1,729,000
Non-CCRC Projects						
Indenture Report Improvements	AM - Varies	\$ 1,400,000	\$ 300,000	\$ 1,100,000	\$ 400,000	\$ 300,000
Various Wastewater System Related Studies (Master Plan)	CA/OS	\$ 150,000	\$ -	\$ 150,000	\$ 150,000	\$ -
Flow Characterization Study I&I Projects	Regulatory	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -	\$ -
Subtotal		\$ 4,550,000	\$ 300,000	\$ 4,250,000	\$ 550,000	\$ 300,000
Large Projects & CCRC Projects						
WWTP Electrical Substation Replacement Phase 2	AM - High	\$ 3,750,000	\$ -	\$ 3,750,000	\$ 400,000	\$ 200,000
WWTP Main & Auxiliary Pump Station Improvements	AM - Varies	\$ 6,650,000	\$ 150,000	\$ 6,500,000	\$ 100,000	\$ 100,000
Boiler Replacement & Solids Process HVAC Upgrade Project	AM - Varies	\$ 4,100,000	\$ 800,000	\$ 2,000,000	\$ 1,200,000	\$ 2,800,000
WWTP IPS Pump Station Upgrade & 480v MCC Replacement	AM - Varies	\$ 6,000,000	\$ 100,000	\$ 5,900,000	\$ 100,000	\$ 100,000
WWTP Final Clarifier 1-4 Rehabilitation	AM - Varies	\$ 950,000	\$ -	\$ 950,000	\$ -	\$ -
Subtotal		\$ 21,450,000	\$ 1,050,000	\$ 19,100,000	\$ 1,800,000	\$ 3,200,000
Regional Act 537 Projects						
Regional Flow Management Strategy	Regulatory	\$ 2,250,000	\$ 1,500,000	\$ 750,000	\$ 750,000	\$ 800,000
Act 537 Alternatives Analyses	Regulatory	\$ 1,720,000	\$ 920,000	\$ 800,000	\$ 350,000	\$ 700,000
Miscellaneous Act 537 Planning	Regulatory	\$ 850,000	\$ 250,000	\$ 600,000	\$ 250,000	\$ 1,550,000
Subtotal		\$ 4,820,000	\$ 2,670,000	\$ 2,150,000	\$ 1,350,000	\$ 3,050,000
Total Allentown Division Wastewater Capital Expenditures		\$ 40,783,000	\$ 5,480,000	\$ 34,003,000	\$ 5,698,000	\$ 8,279,000

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - ADMINISTRATION
DRAFT 2023 Budget

Project	Primary Project Category	Plan Total Cost	2022 Budget	Cap Plan Costs 2023 - 2027	Cap Plan 2023	2023 Budget
LCA Funded Projects						
MUNIS Reimplementation	Efficiency	\$ -	\$ -	\$ 246,000	\$ -	\$ 984,000
SCADA Programming, Hardware Upgrades, Software & Training	AM - Varies	\$ 4,200,000	\$ 750,000	\$ 3,450,000	\$ 1,000,000	\$ 750,000
Computer System Hardware & Software Upgrades	AM - High	\$ 275,000	\$ 50,000	\$ 225,000	\$ 50,000	\$ 50,000
GIS Upgrades & Application Development	Efficiency	\$ 350,000	\$ 75,000	\$ 275,000	\$ 50,000	\$ 75,000
Information Technology Master Plan Update	Planning	\$ 200,000	\$ 100,000	\$ 100,000	\$ 50,000	\$ 50,000
Document Management	Efficiency	\$ 85,000	\$ 75,000	\$ 10,000	\$ 10,000	\$ 5,000
Disaster Recovery/Security Upgrades	Efficiency	\$ 150,000	\$ 25,000	\$ 125,000	\$ 25,000	\$ 25,000
CMMS Upgrades	Efficiency	\$ 200,000	\$ 25,000	\$ 175,000	\$ 75,000	\$ 75,000
Total Administration Capital Funded by LCA		\$ 5,460,000	\$ 1,100,000	\$ 4,606,000	\$ 1,260,000	\$ 2,014,000

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - ALL FUNDS
DRAFT 2023 Budget

<u>Description</u>	<u>Sub W</u>	<u>Sub WW</u>	<u>City</u>	<u>Total</u>
Fund Specific Projects	6,060,000	6,342,500	14,559,000	26,961,500
Allocated Administration	691,000	691,000	632,000	2,014,000
Total Fund Capex	<u>6,751,000</u>	<u>7,033,500</u>	<u>15,191,000</u>	<u>28,975,500</u>

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - SUBURBAN - WATER FUND
2023 Budget (Draft 10-10-22)

CAPITAL WATER RESERVE FUNDS	Suburban - Water Systems													YTD			
	Western Lehigh Service Area			S. Lehigh	Northern Lehigh Service Area						Northampton	Buss Acres	210	Budget	Forecast	Budget	Actual
	Undesignated 200	Central Lehigh 201	Arcadia West 211	Emmaus 209	Beverly Hills 207	North Whitehall 202	Washington 203	Mill Creek 204	Heidelberg 205	PL of Lynn 206	Madison North 221	CFE 208		2023	2022	2022	2021
Annual Projects																	
Applewood Pump Station Modifications	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,426
Capital Management	25,000	-	-	-	-	-	-	-	-	-	-	-	-	25,000	38,456	7,500	39,236
Capital Works Miscellaneous Expense	5,000	-	-	-	-	-	-	-	-	-	-	-	-	5,000	2,925	5,000	1,716
Commercial Meter Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24,455	-	8,902
Distribution Mains & Service Connections	-	200,000	-	-	-	-	-	-	-	-	-	-	-	200,000	403,659	200,000	315,791
Distribution Mains Upsizings	-	120,000	-	-	-	60,000	-	-	-	-	-	-	-	180,000	306,558	150,000	292,208
Distribution System Improvements (3rd Party)	10,000	-	-	-	-	-	-	-	-	-	-	-	-	10,000	-	-	-
Far View Pump Station Demo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55,695	-	22,797
General System Improvements	-	300,000	-	-	-	-	-	-	-	-	-	-	-	300,000	9,326	100,000	248,737
Main Office Improvements	200,000	-	-	-	-	-	-	-	-	-	-	-	-	200,000	96,299	-	94,137
New Customer Meter/BF/MXU Install	-	300,000	-	-	-	-	-	-	-	-	-	-	-	300,000	574	75,000	29,341
Non-Residential Wtr Meter Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	146	-	1,361
Other Equipment	775,000	-	-	-	-	-	-	-	-	-	-	-	-	775,000	35,618	50,000	143,417
Reading Farms Offsite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	424	-	11,312
Reservoir Rehabilitation Contract	400,000	-	-	-	-	-	-	-	-	-	-	-	-	400,000	547,775	75,000	355,138
Water Company Acquisitions	5,000	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	-	-
Water Condition Facility Assessments/Upgrades	25,000	-	-	-	-	-	-	-	-	-	-	-	-	25,000	184,200	-	91,004
Water System Master Plan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68,637	-	6,404
Well WL-12 Upgrades	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,399
Yourway Facility Expansion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	-	3,188
	1,445,000	920,000	-	-	-	60,000	-	-	-	-	-	-	-	2,425,000	1,774,827	662,500	1,667,514
Multi-Year Projects																	
Additional Water Supply Small Satellite Systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	194	50,000	139,044
Arcadia Water Tank Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	341,265	400,000	932,765
AWIA ACT - 2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,074
Backflow & Meter Review	-	-	-	-	-	-	-	-	-	-	-	-	-	-	291	-	14,909
Central Lehigh to Upper Milford Division Interconnection - Kohler T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,156	-	158,690
CLD Auxiliary Pump Station & Main Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,445
CLD Distribution System Improvements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,019	-	6,291
CLD Well Improvements & Capacity Study	-	100,000	-	-	-	-	-	-	-	-	-	-	-	100,000	-	100,000	1,895
Fixed Base Meter Reading System	100,000	-	-	-	-	-	-	-	-	-	-	-	-	100,000	31,019	100,000	28,735
LCA/SWT Interconnection (Near Well 17)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	397,477	-	-
Lynn Water Co Improvement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Extensions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,373	-	16,249
North Whitehall Division System Improvements - Study Phase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,365	25,000	34,710
Residential Svc Conn & Water Svc Inquiry	-	10,000	-	-	-	-	-	-	-	-	-	-	-	10,000	9,282	-	8,747
Small Water System Improvements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184,698	-	930,977
Upper System New Reservoir	-	100,000	-	-	-	-	-	-	-	-	-	-	-	100,000	3,368	-	-
Upper System Pump Station and Water Main Extension (new)	-	75,000	-	-	-	-	-	-	-	-	-	-	-	75,000	35,490	200,000	67,119
Water Main Replacements	-	2,900,000	-	-	-	-	-	-	-	-	-	-	-	2,900,000	85,397	2,400,000	6,677
Water Meter Replacement Projects	-	350,000	-	-	-	-	-	-	-	-	-	-	-	350,000	-	450,000	-
Water Meter Installations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,510
Water Meter Reading	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,826	-	37,546
Watershed Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,275	-	2,951
	100,000	3,535,000	-	-	-	-	-	-	-	-	-	-	-	3,635,000	1,124,496	3,725,000	2,402,333
Administrative Projects																	
Accounting Area Renovation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,064
CMMS Upgrades	75,000	-	-	-	-	-	-	-	-	-	-	-	-	75,000	52,469	25,000	62,672
Computer System Hardware & Software Upgrades	50,000	-	-	-	-	-	-	-	-	-	-	-	-	50,000	11,006	50,000	37,020
Covid-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disaster Recovery/Security Upgrades	25,000	-	-	-	-	-	-	-	-	-	-	-	-	25,000	41,744	25,000	6,381
Document Management	5,000	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	75,000	-
GIS Upgrades & Application Development	75,000	-	-	-	-	-	-	-	-	-	-	-	-	75,000	50,192	75,000	22,530
Information Technology Master Plan Update	50,000	-	-	-	-	-	-	-	-	-	-	-	-	50,000	101,733	100,000	217,554
MUNIS Reimplementation	984,000	-	-	-	-	-	-	-	-	-	-	-	-	984,000	-	-	-
SCADA Programming, Hardware Upgrades, Software & Training	750,000	-	-	-	-	-	-	-	-	-	-	-	-	750,000	67,027	750,000	277,650
	2,014,000	-	-	-	-	-	-	-	-	-	-	-	-	2,014,000	324,170	1,100,000	624,871
Total Capital Water Reserve Fund	3,559,000	4,455,000	-	-	-	60,000	-	-	-	-	-	-	-	8,074,000	3,223,493	5,487,500	4,694,717

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - SUBURBAN - WASTEWATER FUND
2023 Budget (Draft 10-10-22)

	Suburban - Wastewater Systems														YTD			
	Interceptor Group			CRCS										W.Weisenberg				
	WLI 312	LLRI 1 313	LLRI 2 314	Heidelberg 305	Upper Milford 315	Wynnewood 316	Weisenberg 317	Sand Spring 319	Lowhill Twp. 323	NLSA 318	Washington 303	Lynn Twp. 322	WWTP 320	Arcadia West 311	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
CAPITAL WASTEWATER RESERVE FUNDS																		
Annual Projects																		
Mobile Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Equipment	50,000	-	-	-	-	-	-	-	-	-	-	-	-	-	50,000	131,217	50,000	118,830
LLRI Coll Sys Development & Svc Connections	-	5,000	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	5,000	-
System Planning & Capital Mgmt	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	10,000	11,330	5,000	9,378
WLI High Flow Emergency Response	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60,000	5,000	-	-	-	-	-	-	-	-	-	-	-	-	65,000	142,548	60,000	128,207
LCA Wastewater Treatment Plant																		
Pretreatment Plant Improvements	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	750,000	754,482	700,000	785,000
	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	750,000	754,482	700,000	785,000
Western Lehigh Interceptor System:																		
Central Lehigh County WW Capacity Planning & Expansion	325,000	-	-	-	-	-	-	-	-	-	-	-	-	-	325,000	329,219	400,000	923,738
Plan Review & Inspection, Development & Svc Connections	7,500	-	-	-	-	-	-	-	-	-	-	-	-	-	7,500	-	-	161
PTP Upgrade Study	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	200,000	90,950	-	1,284
Signatory I/I Investig & Remediation - Test & Seal	1,500,000	-	-	-	200,000	-	-	-	-	-	-	-	-	-	1,700,000	103,688	300,000	253,369
Spring Creek FM Inspection	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-
Spring Creek Force Main A/V Valve Replacements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101,348	40,000	-
Spring Creek Force Main Relocation - PA Turnpike Commission	50,000	-	-	-	-	-	-	-	-	-	-	-	-	-	50,000	21,378	-	933
Spring Creek PS Upgrade	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-
Upper WLI Pump Station & Force Main	250,000	-	-	-	-	-	-	-	-	-	-	-	-	-	250,000	-	-	-
WLI - Trexlertown Interceptor Upgrade	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88,108	100,000	102,221
WLI Coll Sys Development & Svc Connections	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	5,000	-
WLSP Night Weiring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	272,585	-	-
	2,537,500	-	-	-	200,000	-	-	-	-	-	-	-	-	-	2,737,500	1,007,277	845,000	1,281,707
Satellite Systems																		
Arcadia West WWTP Mechanical Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	100,000	100,000	-	50,000	-
Chestnut St Bridge Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,004
Common Rate Coll Sys Upgrade & Imp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55,119	-	17,777
General Sewer System Improvements*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200,000	-	150,000	-
Heidelberg Heights I/I Investigation and Remediation Program	-	-	-	350,000	-	-	-	-	-	200,000	-	-	-	-	350,000	339,083	300,000	418,477
Heidelberg Heights WWTP Rehabilitation	-	-	-	250,000	-	-	-	-	-	-	-	-	-	-	250,000	-	200,000	-
Lynn Township I/I Investigation and Remediation Program	-	-	-	-	-	-	-	-	-	-	-	50,000	-	-	50,000	-	25,000	-
Lynn Township WWTP Improvements & Expansion	-	-	-	-	-	-	-	-	-	-	-	10,000	-	-	10,000	-	25,000	411
Manhole Lining - Upper Milford	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184,506
Plan Review & Inspection, Development & Svc Connections	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,903	-	11,803
Sand Spring WWTP Remediation & Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79,023	-	592,526
Sand Spring WWTP Tre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,695	-	9,238
Sewer System Acquisitions	-	-	-	-	-	-	-	-	-	25,000	-	-	-	-	25,000	1,746	10,000	1,131
Small System I/I Removal - Test & Seal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47,891	-	134,902
System Planning & Capital Mgmt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	437	-	719
SSES (Weisenberg, UMI, Lowhill)	-	-	-	-	66,667	-	66,667	-	66,667	-	-	-	-	-	200,000	-	25,000	-
Strawberry Acres Sewer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Upper Milford Coll Sys Development & Svc Connections	-	-	-	-	5,000	-	-	-	-	-	-	-	-	-	5,000	-	5,000	-
Wastewater TP Improvements (OMI Capital)	-	-	-	-	-	50,000	-	-	-	-	-	-	-	-	50,000	42,605	-	133,252
WTP Upgrade Study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW Facility Condition Assessments/Upgrades	-	-	-	-	-	-	-	-	-	25,000	-	-	-	-	25,000	17,100	-	-
WWTP Propane Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,587
WWTP Mesh Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,288	-	-
Wynnewood I/I Investigation and Remediation Program	-	-	-	-	-	25,000	-	-	-	-	-	-	-	-	25,000	-	25,000	-
	-	-	-	600,000	71,667	75,000	66,667	-	66,667	250,000	-	60,000	-	100,000	1,290,000	606,891	815,000	1,523,332
Little Lehigh Relief Interceptor System:																		
Park PS Scada Gen Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,751	-	9,445
Park Pump Station Cond. Assesm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,208
Park Pump Station Force Main Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	441	50,000	196,843
Park Pump Station Rehabilitation/Improvements	-	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	1,500,000	295,314	400,000	75,794
Regional Park Pump Station	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	1,500,000	298,507	450,000	283,290
Total Wastewater Capital Expenses	2,597,500	1,505,000	-	600,000	271,667	75,000	66,667	-	66,667	250,000	-	60,000	750,000	100,000	6,342,500	2,809,704	2,870,000	4,001,536

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - CITY - DIVISION FUND
2023 Budget (Draft 10-10-22)

CAPITAL WATER EXPENSES:

Annual Projects

Backflow Program Development
Distribution Mains - Dev & Svc Conn
East Side 36 Trans Main
Lehigh & MLK 36 Repair
General Water Sys Replacement
Lehigh-Union St Roadwork
Misc Concrete Repair
Mobile Equipment
New & Replacement Meter Installations (non AMR project)
Other Equipment
Penn Dot MPMS
Reservoir Rehabilitation Contract
SR 145 Bridge Project
Water Capital Mgmt/WFP Master Plan
WFP Chem Feed Tanks
WFP General Improvements *2 Asset

Non-CCRC Projects

Cedar Creek Bridge Replacement
Devonshire Main Break
Distribution System Improvements
EPA AWIA Act 2020
Gordon St Bridge Replace
Huck Ridge Main Break
Large Diameter Valve Replacement Project
Low Lift Painting
Misc Facility Permit
N 17th Main Replacement
Tank and Reservoir Rehabilitation
Various Water System Related Studies
Water Meter Replacement Project
WFP Indenture Upgrades

CCRC Projects

Annual Water Main Replacements
High Service Pump VFD Replacement Project
WFP Filter Evaluations

City Funded Projects

Itron/AMR Meter Project (1)

Administrative Projects

CMMS Upgrades
Computer System Hardware & Software Upgrades
Disaster Recovery/Security Upgrades
Document Management
GIS Upgrades & Application Development
Information Technology Master Plan Update
SCADA Programming, Hardware Upgrades, Software & Training

Total Capital Water Reserve Fund

City Division - Systems							Total			
Undesignated 400	Int Serv 490	WFP 491	DIST 492	WWTP 493	WWCOLL 494	LAB 495	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
-	-	-	-	-	-	-	-	219	-	-
-	-	-	5,000	-	-	-	5,000	388,216	-	40,997
-	-	-	-	-	-	-	-	10,907	-	-
-	-	-	-	-	-	-	-	-	225,000	-
-	-	-	370,000	-	-	-	370,000	34,217	-	682
-	-	-	-	-	-	-	-	91,161	-	-
-	-	-	10,000	-	-	-	10,000	-	-	3,155
-	-	-	75,000	-	-	-	75,000	-	10,000	-
-	-	-	75,000	-	-	-	75,000	159,638	50,000	50,564
-	-	-	200,000	-	-	-	200,000	130,799	75,000	161,677
-	-	-	-	-	-	-	-	78,901	200,000	96
-	-	-	300,000	-	-	-	300,000	181,595	315,000	307,088
-	-	-	-	-	-	-	-	823	-	-
-	-	-	10,000	-	-	-	10,000	101,618	10,000	8,777
-	-	-	-	-	-	-	-	-	-	270
-	-	-	250,000	-	-	-	250,000	127,667	250,000	54,571
-	-	-	1,295,000	-	-	-	1,295,000	1,305,760	1,135,000	627,876
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	69,660	-	269,414
-	-	-	-	-	-	-	-	119,467	-	729,752
-	-	-	-	-	-	-	-	1,448	-	-
-	-	-	-	-	-	-	-	-	-	1,902
-	-	-	-	-	-	-	-	365	-	102,245
-	-	250,000	-	-	-	-	250,000	-	100,000	-
-	-	-	-	-	-	-	-	-	-	504
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	300,000	-	-	-	-	300,000	-	-	-
-	-	10,000	-	-	-	-	10,000	6,688	300,000	-
-	-	525,000	-	-	-	-	525,000	-	250,000	-
-	-	200,000	-	-	-	-	200,000	47,323	300,000	195,522
-	-	1,285,000	-	-	-	-	1,285,000	244,950	950,000	1,299,340
-	-	-	3,200,000	-	-	-	3,200,000	98,740	1,100,000	2,013,280
-	-	-	-	-	-	-	-	845,439	2,400,000	26,951
-	-	500,000	-	-	-	-	500,000	70,083	200,000	22,362
-	-	500,000	3,200,000	-	-	-	3,700,000	1,014,263	3,700,000	2,062,593
-	-	-	-	-	-	-	-	-	-	229
-	-	-	-	-	-	-	-	-	-	229
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	16,449
-	-	-	-	-	-	-	-	-	-	16,449
-	-	1,785,000	4,495,000	-	-	-	6,280,000	2,564,973	5,785,000	4,006,488

LEHIGH COUNTY AUTHORITY
CAPITAL EXPENDITURES - CITY - DIVISION FUND
2023 Budget (Draft 10-10-22)

CAPITAL WASTEWATER EXPENSES:

Annual Projects

537 Capacity Problem
Capital Management
Collection System - Development & Service Connection
Mobile Equipment
Night Weiring - 2022
Other Equipment
Penn Dot MPMS
Sewer Main Replacements & Rehab
SR 145 Bridge Project
Various WW System Related Studies
WWTP Capacity Upgrades
WWTP Dechlorination System
WWTP Digester Cleaning
WWTP General Improvements
WWTP Sodium Hypo
WWTP Thickener Tank 3

Non-CCRC Projects

KIWWTP Digester Study
KIWWTP Indenture Upgrade
KIWWTP Master Plan

CCRC Projects

Boiler Replacement and Solids Process HVAC Upgrade Project
WWTP Elec Substation Replacement - Phase 2
WWTP Intermediate Pumping Station & 480V Motor Control Center
WWTP Main & Aux Pump Station Improvements

Regional Act 537 Projects

2020 Flow Characterization Study Preselection
2020 SBM Data Capture
Act 537 Alternatives Analyses (2)
2021 Flow Characterization Study Pre Model
2022 Flow Characterization Study Metering QA/QC
City RDII Analysis
KISS Model Expansion
Manhole Inspection & Sealing Program (3)
Miscellaneous Act 537 Planning (3)
KIWWTP Max Month Study
KIWWTP Peak Flow Study
Regional Flow Management Strategy (2)
Signatory Rain Delivered Inflow & Infiltration

Wet Weather Bioactiflow
Wet Weather Blend Hybrid

Total Capital WasteWater Expenses

TOTAL CAPITAL EXPENSES:

City Division - Systems							Total			
Undesignated 400	Int Serv 490	WFP 491	DIST 492	WWTP 493	WWCOLL 494	LAB 495	Budget 2023	Forecast 2022	Budget 2022	Actual 2021
-	-	-	-	-	-	-	-	85,139	-	-
-	-	-	-	-	10,000	-	10,000	10,111	10,000	8,104
-	-	-	-	-	-	-	-	36,354	-	21,707
-	-	-	-	-	319,000	-	319,000	954,791	200,000	-
-	-	-	-	-	-	-	-	291,940	-	-
-	-	-	-	-	350,000	-	350,000	352,357	350,000	337,135
-	-	-	-	-	-	-	-	-	-	96
-	-	-	-	-	150,000	-	150,000	47,579	100,000	16,292
-	-	-	-	-	-	-	-	8,558	-	810
-	-	-	-	-	-	-	-	182	-	307
-	-	-	-	-	-	-	-	678	-	-
-	-	-	-	-	-	-	-	170,896	-	12,088
-	-	-	-	-	-	-	-	46,359	-	-
-	-	-	-	900,000	-	-	900,000	124,568	800,000	307,507
-	-	-	-	-	-	-	-	170,167	-	544,921
-	-	-	-	-	-	-	-	72,038	-	54,742
-	-	-	-	900,000	829,000	-	1,729,000	2,371,718	1,460,000	1,303,709
-	-	-	-	-	-	-	-	877	-	9,962
-	-	-	-	300,000	-	-	300,000	323,237	300,000	315,527
-	-	-	-	-	-	-	-	332	-	89
-	-	-	-	300,000	-	-	300,000	324,447	300,000	325,578
-	-	-	-	2,800,000	-	-	2,800,000	208,007	800,000	55,940
-	-	-	-	200,000	-	-	200,000	19,033	-	-
-	-	-	-	100,000	-	-	100,000	60,959	100,000	578
-	-	-	-	100,000	-	-	100,000	82,755	150,000	1,615
-	-	-	-	3,200,000	-	-	3,200,000	370,754	1,050,000	58,133
-	-	-	-	-	-	-	-	-	-	7,758
-	-	-	-	-	-	-	-	2,195	-	5,873
-	-	-	-	700,000	-	-	700,000	2,967	920,000	7,005
-	-	-	-	-	-	-	-	2,995	-	226,272
-	-	-	-	300,000	-	-	300,000	-	-	-
-	-	-	-	-	-	-	-	-	-	478,202
-	-	-	-	-	-	-	-	74,187	-	911
-	-	-	-	-	700,000	-	700,000	-	-	-
-	-	-	-	-	-	-	-	770,013	-	208,291
-	-	-	-	-	-	-	-	171	-	18,453
-	-	-	-	-	-	-	-	171	-	1,559
-	-	-	-	-	300,000	-	300,000	-	-	-
-	-	-	-	250,000	-	-	250,000	7,964	250,000	14,772
-	-	-	-	-	800,000	-	800,000	278,033	1,500,000	774,982
-	-	-	-	-	-	-	-	105,554	-	803
-	-	-	-	-	-	-	-	4,233	-	22,875
-	-	-	-	-	-	-	-	26,837	-	43,243
-	-	-	-	1,250,000	1,800,000	-	3,050,000	1,275,323	2,670,000	1,811,000
-	-	-	-	5,650,000	2,629,000	-	8,279,000	4,342,242	5,480,000	3,498,419
-	-	1,785,000	4,495,000	5,650,000	2,629,000	-	14,559,000	6,907,215	11,265,000	7,504,907

Supplemental Information

LEHIGH COUNTY AUTHORITY
SUMMARY OF LONG TERM DEBT
2023 Budget (Draft 10-10-22)

	Long Term Debt for 2022									Long Term Debt for 2023								
	December 31, 2021						December 31, 2022			December 31, 2022						December 31, 2023		
	Short Term Portion	Long Term Portion	Total Debt	Additions Accretions	Retirements		Short Term Portion	Long Term Portion	Total Debt	Short Term Portion	Long Term Portion	Total Debt	Additions Accretions	Retirements		Short Term Portion	Long Term Portion	Total Debt
Suburban Water Fund																		
Bonds																		
Water Revenue Bonds Series of 2011	65,779	-	65,779	-	(65,779)		-	-	-	-	-	-	-	-		-	-	-
Water Revenue Bonds Series of 2017	340,000	13,910,000	14,250,000	-	(340,000)		350,000	13,560,000	13,910,000	350,000	13,560,000	13,910,000	-	(350,000)		360,000	13,200,000	13,560,000
Water Revenue Bonds Series of 2021	1,445,000	16,000,000	17,445,000	-	(1,445,000)		1,585,000	14,415,000	16,000,000	1,585,000	14,415,000	16,000,000	-	(1,585,000)		1,645,000	12,770,000	14,415,000
Subtotal	1,850,779	29,910,000	31,760,779	-	(1,850,779)		1,935,000	27,975,000	29,910,000	1,935,000	27,975,000	29,910,000	-	(1,935,000)		2,005,000	25,970,000	27,975,000
Bond Premium / Discount	-	3,340,520	3,340,520	-	(332,694)		-	3,007,826	3,007,826	-	3,007,826	3,007,826	-	(332,694)		-	2,675,131	2,675,131
Total Suburban Water Fund Bonds	1,850,779	33,250,520	35,101,299	-	(2,183,473)		1,935,000	30,982,826	32,917,826	1,935,000	30,982,826	32,917,826	-	(2,267,694)		2,005,000	28,645,131	30,650,131
Notes From Direct Borrowings																		
2011 Pennsylvania Infrastructure Investment Authority Note	74,410	787,494	861,904	-	(74,410)		75,541	711,953	787,494	75,541	711,953	787,494	-	(75,541)		76,689	635,264	711,953
Subtotal	74,410	787,494	861,904	-	(74,410)		75,541	711,953	787,494	75,541	711,953	787,494	-	(75,541)		76,689	635,264	711,953
Total Suburban Water Fund Direct Borrowings	74,410	787,494	861,904	-	(74,410)		75,541	711,953	787,494	75,541	711,953	787,494	-	(75,541)		76,689	635,264	711,953
Net Suburban Water Fund Long-Term Debt	1,925,189	34,038,014	35,963,203	-	(2,257,883)		2,010,541	31,694,779	33,705,320	2,010,541	31,694,779	33,705,320	-	(2,343,235)		2,081,689	29,280,395	31,362,084
Suburban Wastewater Fund																		
Bonds																		
2011 Sewer Revenue Bonds Series A	118,358	1,134,139	1,252,497	-	(118,358)		122,605	1,011,534	1,134,139	122,605	1,011,534	1,134,139	-	(122,605)		127,003	884,531	1,011,534
Subtotal	118,358	1,134,139	1,252,497	-	(118,358)		122,605	1,011,534	1,134,139	122,605	1,011,534	1,134,139	-	(122,605)		127,003	884,531	1,011,534
Bond Premium / Discount	-	-	-	-	-		-	-	-	-	-	-	-	-		-	-	-
Total Suburban WasteWater Fund Bonds	118,358	1,134,139	1,252,497	-	(118,358)		122,605	1,011,534	1,134,139	122,605	1,011,534	1,134,139	-	(122,605)		127,003	884,531	1,011,534
Notes From Direct Borrowings																		
2009 Pennsylvania Infrastructure Investment Authority Note	266,694	2,424,027	2,690,721	-	(266,694)		273,567	2,150,460	2,424,027	273,567	2,150,460	2,424,027	-	(273,567)		280,617	1,869,843	2,150,460
2013 Pennsylvania Infrastructure Investment Authority Note	140,107	1,744,846	1,884,953	-	(140,107)		142,237	1,602,609	1,744,846	142,237	1,602,609	1,744,846	-	(142,237)		144,400	1,458,209	1,602,609
2015 Pennsylvania Infrastructure Investment Authority Note	36,922	555,085	592,007	-	(36,922)		37,571	517,514	555,085	37,571	517,514	555,085	-	(37,571)		38,231	479,283	517,514
Total Suburban WasteWater Fund Direct Borrowings	443,723	4,723,958	5,167,681	-	(443,723)		453,375	4,270,583	4,723,958	453,375	4,270,583	4,723,958	-	(453,375)		463,248	3,807,335	4,270,583
Net Suburban Wastewater Fund Long-Term Debt	562,081	5,858,097	6,420,178	-	(562,081)		575,980	5,282,117	5,858,097	575,980	5,282,117	5,858,097	-	(575,980)		590,251	4,691,866	5,282,117
City Division Fund																		
Bonds																		
2013 Water and Sewer Revenue Bonds, Series A	-	107,615,000	107,615,000	-	-		-	107,615,000	107,615,000	-	107,615,000	107,615,000	-	-		-	107,615,000	107,615,000
2013 Water and Sewer Capital Appreciation Revenue Bonds, Series A	1,735,649	64,921,278	66,656,928	3,909,635	(1,895,000)		2,097,077	66,574,486	68,671,563	2,097,077	66,574,486	68,671,563	4,053,453	(2,410,000)		2,421,819	67,893,197	70,315,016
2020 Water and Sewer Revenue Bonds, Series 2020	-	161,035,000	161,035,000	-	-		-	161,035,000	161,035,000	-	161,035,000	161,035,000	-	-		-	161,035,000	161,035,000
Subtotal	1,735,649	333,571,278	335,306,928	3,909,635	(1,895,000)		2,097,077	335,224,486	337,321,563	2,097,077	335,224,486	337,321,563	4,053,453	(2,410,000)		2,421,819	336,543,197	338,965,016
Bond Premium / Discount	-	(4,466,580)	(4,466,580)	-	-		-	(4,466,580)	(4,466,580)	-	(4,466,580)	(4,466,580)	-	-		-	(4,466,580)	(4,466,580)
Total City Division Fund Bonds	1,735,649	329,104,698	330,840,348	3,909,635	(1,895,000)		2,097,077	330,757,906	332,854,983	2,097,077	330,757,906	332,854,983	4,053,453	(2,410,000)		2,421,819	332,076,617	334,498,436
Notes From Direct Borrowings																		
2020 Water and Sewer Revenue Bonds (Federally Taxable) Series A	-	15,850,000	15,850,000	-	(1,210,000)		-	14,640,000	14,640,000	-	14,640,000	14,640,000	-	(1,245,000)		-	13,395,000	13,395,000
Subtotal	-	15,850,000	15,850,000	-	(1,210,000)		-	14,640,000	14,640,000	-	14,640,000	14,640,000	-	(1,245,000)		-	13,395,000	13,395,000
Total Suburban City Division Fund Direct Borrowings	-	15,850,000	15,850,000	-	(1,210,000)		-	14,640,000	14,640,000	-	14,640,000	14,640,000	-	(1,245,000)		-	13,395,000	13,395,000
Net City Division Fund Long-Term Debt	1,735,649	344,954,698	346,690,348	3,909,635	(3,105,000)		2,097,077	345,397,906	347,494,983	2,097,077	345,397,906	347,494,983	4,053,453	(3,655,000)		2,421,819	345,471,617	347,893,436
Total Net Long-Term Debt	4,222,919	384,850,809	389,073,728	3,909,635	(5,924,964)		4,683,598	382,374,802	387,058,399	4,683,598	382,374,802	387,058,399	4,053,453	(6,574,215)		5,093,759	379,443,878	384,537,637

LEHIGH COUNTY AUTHORITY
 SCHEDULE OF PRINCIPAL MATURITY AND DEBT SERVICE
 2023 Budget (Draft 10-10-22)

	Suburban Water					Suburban Wastewater					City Division					Total LCA				
	Bonds		Direct Borrowings		Total Debt Service	Bonds		Direct Borrowings		Total Debt Service	Bonds		Direct Borrowings		Total Debt Service	Bonds		Direct Borrowings		Total Debt Service
	Principle Amount	Total Interest	Principle Amount	Total Interest		Principle Amount	Total Interest	Principle Amount	Total Interest		Principle Amount	Total Interest	Principle Amount	Total Interest		Principle Amount	Total Interest	Principle Amount	Total Interest	
2021 - Audit	21,146,453	1,193,591	1,376,204	28,321	23,744,569	114,595	72,843	434,775	111,229	733,442	1,339,642	11,106,719	1,175,000	493,725	14,115,086	22,600,690	12,373,153	2,985,979	633,275	38,593,097
2022 - Forecast	1,850,779	1,187,800	74,410	12,501	3,125,490	118,358	66,456	443,723	102,955	731,492	1,735,649	11,210,712	1,210,000	459,650	14,616,011	3,704,786	12,464,968	1,728,133	575,106	18,472,993
SubTotal Prior Obligations	22,997,232	2,381,391	1,450,614	40,822	26,870,059	232,953	139,299	878,498	214,184	1,464,934	3,075,292	22,317,431	2,385,000	953,375	28,731,097	26,305,477	24,838,121	4,714,112	1,208,381	57,066,090
2023 - Budget	1,935,000	1,119,114	75,541	11,370	3,141,025	122,605	59,840	453,375	93,303	729,123	2,097,077	11,364,284	1,245,000	424,560	15,130,921	4,154,682	12,543,238	1,773,916	529,233	19,001,069
SubTotal Current Obligations	1,935,000	1,119,114	75,541	11,370	3,141,025	122,605	59,840	453,375	93,303	729,123	2,097,077	11,364,284	1,245,000	424,560	15,130,921	4,154,682	12,543,238	1,773,916	529,233	19,001,069
2024	2,005,000	1,045,214	76,689	10,221	3,137,124	127,003	52,987	463,248	83,431	726,669	2,421,819	11,574,542	1,280,000	388,455	15,664,816	4,553,822	12,672,743	1,819,937	482,107	19,528,609
2025	2,090,000	961,414	77,856	9,055	3,138,325	131,560	45,888	473,347	73,332	724,127	2,710,368	11,835,993	1,320,000	351,335	16,217,696	4,931,928	12,843,295	1,871,203	433,722	20,080,148
2026	1,890,000	874,014	79,039	7,871	2,850,924	136,280	38,534	483,677	63,002	721,493	2,963,026	12,153,335	1,130,000	539,750	16,786,111	4,989,306	13,065,883	1,692,716	610,623	20,358,528
2027	2,200,000	794,414	80,241	6,670	3,081,325	141,169	30,916	494,243	52,434	718,762	3,186,176	12,530,185	1,185,000	483,250	17,374,611	5,527,345	13,345,515	1,759,484	542,354	21,174,698
2028	2,275,000	702,214	81,461	5,449	3,064,124	146,234	23,025	505,053	41,624	715,936	3,376,670	12,939,691	1,245,000	424,000	17,985,361	5,797,904	13,664,930	1,831,514	471,073	21,765,421
2029	2,365,000	615,614	82,700	4,211	3,067,525	151,480	14,850	516,112	30,566	713,008	3,542,176	13,409,185	1,310,000	361,750	18,623,111	6,058,656	14,039,649	1,908,812	396,527	22,403,644
2030	2,450,000	525,564	83,957	2,953	3,062,474	156,915	6,383	527,425	19,253	709,976	3,686,902	13,914,459	1,375,000	296,250	19,272,611	6,293,817	14,446,406	1,986,382	318,456	23,045,061
2031	2,540,000	432,214	85,234	1,677	3,059,125	20,893	237	231,269	10,932	263,331	3,813,734	14,467,627	1,440,000	227,500	19,948,861	6,374,627	14,900,078	1,756,503	240,109	23,271,317
2032	495,000	335,414	64,776	408	895,598	-	-	206,875	7,674	214,549	3,914,681	15,066,680	1,515,000	155,500	20,651,861	4,409,681	15,402,094	1,786,651	163,582	21,762,008
2033	510,000	320,564	-	-	830,564	-	-	210,125	4,425	214,550	3,995,718	15,705,643	1,595,000	79,750	21,376,111	4,505,718	16,026,207	1,805,125	84,175	22,421,225
2034	525,000	304,626	-	-	829,626	-	-	101,197	1,616	102,813	4,342,883	16,753,478	-	-	21,096,361	4,867,883	17,058,104	101,197	1,616	22,028,800
2035	535,000	288,220	-	-	823,220	-	-	46,304	642	46,946	4,927,020	18,294,341	-	-	23,221,361	5,462,020	18,582,561	46,304	642	24,091,527
2036	560,000	271,501	-	-	831,501	-	-	11,708	34	11,742	5,169,220	19,507,141	-	-	24,676,361	5,729,220	19,778,642	11,708	34	25,519,604
2037	580,000	253,581	-	-	833,581	-	-	-	-	-	5,392,132	20,834,229	-	-	26,226,361	5,972,132	21,087,810	-	-	27,059,942
2038	595,000	234,731	-	-	829,731	-	-	-	-	-	5,381,383	21,543,136	-	-	26,924,519	5,976,383	21,777,867	-	-	27,754,250
2039	615,000	214,650	-	-	829,650	-	-	-	-	-	10,090,000	11,051,361	-	-	21,141,361	10,705,000	11,266,011	-	-	21,971,011
2040	635,000	193,894	-	-	828,894	-	-	-	-	-	11,130,000	10,546,861	-	-	21,676,861	11,765,000	10,740,755	-	-	22,505,755
2041	660,000	172,462	-	-	832,462	-	-	-	-	-	12,235,000	9,990,361	-	-	22,225,361	12,895,000	10,162,823	-	-	23,057,823
2042	680,000	150,187	-	-	830,187	-	-	-	-	-	13,425,000	9,378,611	-	-	22,803,611	14,105,000	9,528,798	-	-	23,633,798
2043	705,000	127,237	-	-	832,237	-	-	-	-	-	14,685,000	8,707,361	-	-	23,392,361	15,390,000	8,834,598	-	-	24,224,598
2044	730,000	103,444	-	-	833,444	-	-	-	-	-	10,665,000	7,973,111	-	-	18,638,111	11,395,000	8,076,555	-	-	19,471,555
2045	750,000	78,806	-	-	828,806	-	-	-	-	-	11,210,000	7,426,530	-	-	18,636,530	11,960,000	7,505,336	-	-	19,465,336
2046	780,000	53,494	-	-	833,494	-	-	-	-	-	11,785,000	6,852,017	-	-	18,637,017	12,565,000	6,905,511	-	-	19,470,511
2047	805,000	27,168	-	-	832,168	-	-	-	-	-	12,390,000	6,248,036	-	-	18,638,036	13,195,000	6,275,204	-	-	19,470,204
2048	-	-	-	-	-	-	-	-	-	-	11,100,000	5,613,049	-	-	16,713,049	11,100,000	5,613,049	-	-	16,713,049
2049	-	-	-	-	-	-	-	-	-	-	11,460,000	5,254,297	-	-	16,714,297	11,460,000	5,254,297	-	-	16,714,297
2050	-	-	-	-	-	-	-	-	-	-	11,830,000	4,883,910	-	-	16,713,910	11,830,000	4,883,910	-	-	16,713,910
2051	-	-	-	-	-	-	-	-	-	-	12,210,000	4,501,564	-	-	16,711,564	12,210,000	4,501,564	-	-	16,711,564
2052	-	-	-	-	-	-	-	-	-	-	12,635,000	4,076,412	-	-	16,711,412	12,635,000	4,076,412	-	-	16,711,412
2053	-	-	-	-	-	-	-	-	-	-	13,075,000	3,636,461	-	-	16,711,461	13,075,000	3,636,461	-	-	16,711,461
2054	-	-	-	-	-	-	-	-	-	-	13,530,000	3,181,190	-	-	16,711,190	13,530,000	3,181,190	-	-	16,711,190
2055	-	-	-	-	-	-	-	-	-	-	14,005,000	2,710,075	-	-	16,715,075	14,005,000	2,710,075	-	-	16,715,075
2056	-	-	-	-	-	-	-	-	-	-	14,490,000	2,222,421	-	-	16,712,421	14,490,000	2,222,421	-	-	16,712,421
2057	-	-	-	-	-	-	-	-	-	-	15,015,000	1,696,144	-	-	16,711,144	15,015,000	1,696,144	-	-	16,711,144
2058	-	-	-	-	-	-	-	-	-	-	15,560,000	1,150,799	-	-	16,710,799	15,560,000	1,150,799	-	-	16,710,799
2059	-	-	-	-	-	-	-	-	-	-	16,125,000	585,660	-	-	16,710,660	16,125,000	585,660	-	-	16,710,660
SubTotal Future Obligations	27,975,000	11,318,869	863,035	71,255	44,098,159	1,256,744	332,500	5,177,333	575,571	7,342,148	331,668,063	370,934,466	15,885,000	4,156,660	722,644,189	364,769,807	382,585,835	21,925,368	4,803,486	774,084,496
TOTAL PRINCIPAL MATURITY AND DEBT SERVICE	52,907,232	14,819,374	2,389,190	123,447	74,109,243	1,612,302	531,639	6,509,206	883,058	9,536,205	336,840,431	404,616,181	19,515,000	5,534,595	766,506,207	395,229,965	419,967,194	28,413,396	6,541,100	850,151,655

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OPERATING REVENUES:

Large Industrial – This classification includes water revenue from utility billing customers classified as Large Industrial.

Other Industrial/Commercial – This classification includes water revenue from utility billing customers classified as Other Industrial and Commercial.

Residential – This classification includes water revenue from utility billing customers classified as Residential. The category includes apartments, mobile homes, single family attached and single family detached dwellings.

Penalties – Late fees assessed to past due accounts.

Private Fire Service – This classification includes charges for private fire protection for those industrial/commercial customers who have either a sprinkler system or private fire hydrants

Public Fire Service – This classification includes charges for public fire hydrants billed to municipalities in our service area.

User Charges – Municipal - The City is party to Municipal Sewer Service Agreements under which the Sewer Utility System provides sewer services to seven municipalities or municipal authorities: the Borough of Emmaus, Hanover Township, Salisbury Township, South Whitehall Township, Coplay-Whitehall Authority, Existing LCA System, and Lower Macungie Township. Pursuant to these agreements, LCA will act as the agent of the City and will perform all of the contractual obligations of the City under each Municipal Agreement, including the billing and collection of the revenues.

The Suburban division provides sewer service to Lower Macungie Township, Upper Macungie Township, Borough of Emmaus, Borough of Alburtis, and Borough of Macungie through the Western Lehigh Interceptor. Through the Little Lehigh Relief Interceptor, sewer service is provided to Lower Macungie, Upper Macungie, Salisbury and South Whitehall Townships and the Boroughs of Alburtis and Macungie.

User Charges - Residential & Commercial – This classification includes revenue from sewer service to residential and commercial customers in the Suburban and City Division.

User Charges – Hauler – This classification includes revenues from haulers based on strength and volume of waste brought to the wastewater treatment plants.

Hauler Fees – This classification includes revenue from annual permit fees.

Industrial Charges – This classification includes revenue from industrial strength surcharges to the Suburban Division Pretreatment Plant.

Industrial Pretreatment Revenues - This classification includes charges for the operation of the EPA approved Pretreatment Program, as described in 40 CFR 403.

Wastewater Analysis Reimbursement – This classification includes reimbursements for lab testing costs.

Leachate Program Revenues - This classification includes charges for the processing and treatment of hauled leachate to the Allentown WWTP.

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Other Income – This classification includes reimbursement of Lehigh County Authority expenses by other entities.

Other Water Sales – This classification includes revenues from water sold to Municipal Signatories and for bulk water drawn from hydrants.

Provision for Doubtful Debts - The provision for doubtful debts is the estimated amount of bad debt that will arise from accounts receivable that have been issued but not yet collected.

Rental Income – This classification includes the annual reimbursement from the various funds for a portion of the Authority Operations Center costs and expansion.

Miscellaneous – This classification includes revenue from other miscellaneous categories not part of other revenue classifications.

CONNECTION & SYSTEM CHARGES:

Supply/Tapping Fees – This classification includes charges to new customers which are based on connection size. These revenues offset costs related to construction of storage and supply facilities.

Capital Cost Recovery – This classification includes the portion of major capital project costs being reimbursed by customers.

Distribution Tapping Fees – This classification includes charges to new customers which are based on connection size. These revenues offset costs related to construction of transmission and distribution facilities. These charges are generally not applicable to customers connecting within a developer-installed distribution system.

Meter Sales – This classification includes charges to new customers for initial meter and backflow prevention device costs and installation.

Inspection & Review Fees – This classification includes the deposits made by developers for LCA construction inspection and plan review costs.

Developer Reimbursement - This classification includes the reimbursement from developers for LCA inspection and plan review costs.

NON-OPERATING REVENUES:

Other Non-Operating Income - This classification includes revenue from other non-operating miscellaneous categories not part of other revenue classifications.

OPERATING EXPENSES:

Personnel:

Salaries and Wages - Salary is a consistent payment to an employee based on working a full-time position. Wages are hourly or daily payments for work done during the working day.

Overtime - Overtime refers to any hours worked by an employee that exceed their normally scheduled working hours.

Taxes – Comprised of Employer portion of FICA, Social Security and Medicare contributions.

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Fringe Benefits - Comprised of medical coverage, defined benefit pension, long-term and short-term disability, flexible spending and unemployment insurance.

Purchase of Services:

Shared Services - General & Administrative - Overhead costs, which are not easily assignable to specific funds, are allocated based on a pro rate share of Salary and Wages and include the following types of expenses:

Postage - Represents cost to mail correspondence and customer billings.

Computer Services - Nominal services for computer services.

Advertising - Includes costs for advertising bid and meeting notices.

Building & Equipment Maintenance - Represents Operations Center costs, such as site and building maintenance and equipment maintenance.

Dues & Subscriptions - Organization membership fees and contributions and periodical subscriptions.

Travel and Mileage - Includes reimbursement to employees at prevailing IRS rate for personal vehicle use for business purposes.

Education and Training - Budget includes specifically identified training for employees, whether through participation in seminars or classes.

Workers Compensation - Workplace injury coverage.

Property & Liability Insurance – Insurance premiums for all properties, with the exception of the Wastewater Treatment Plant in Upper Macungie which is charged directly to that fund.

Legal/Litigation - Represents costs associated with labor relations, part-time Solicitor and other global legal issues.

Miscellaneous - Comprised of banking costs, printing services, contributions, employee activities and other miscellaneous expenses.

Risk Management - Includes safety equipment, training and miscellaneous expenses.

Public Relations - Represents costs associated with reaching out to stakeholders with educational programs and a host of interactive agendas.

Human Resources - Comprised of human resource projects.

Special Studies - Includes costs for conducting a customer survey, compensation study, strategic planning, and process improvement.

Utilities - This account includes electric costs, natural gas service, telephone and garbage hauling.

Compliance - This budget includes permit fees and renewals for the water and wastewater treatment plants

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Contract Operating Svcs - Budget includes such services as root control program, Farland Development Dump Site, system check support services and Trenchless spot repairs.

Engineering - This budget line item is for miscellaneous consultant assistance with reporting to the Pa DEP on RDII removal efforts and unanticipated situations at facilities requiring engineering services.

Exceptional Strength Analysis - This account provides for external laboratory analysis of samples containing higher strength concentrations.

Extraordinary Expenditures - This budget line maintains the same level of insurance against an extraordinary leak repair and restoration in all systems. It includes items such as well and booster pump replacements, piping re-configurations and other services utilized in various systems.

Fleet Management Services - This budget includes maintenance services for vehicles and mobile equipment

General Analyses - This account provides for external laboratory analysis of samples to support the biosolids disposal and the residuals disposal programs.

Industrial Meter Testing – This budget includes cost to test large commercial meters for accuracy.

Maintenance Services - This budget includes expenses required for site and building maintenance, transmission and distribution maintenance services, equipment maintenance and rental, janitorial services, and other miscellaneous maintenance services.

Miscellaneous Services - This budget includes property self-insured, Enterprize fleet program lease, traffic control, after hours dispatching service, communication center, PA One Call system, easement brush & tree cleaning, radio repairs, Trimble software maintenance, TV truck Win Can, railroad easement fees, miscellaneous services and miscellaneous shipping.

Rental - Allocation of expenses related to the Authority Operations Center renovations and expansion are being allocated over 30 years.

Residuals - This budget includes residuals disposal costs.

Water Purchases - This budget includes the purchase of water from the Northampton Borough Municipal Authority for customers in the North Whitehall Division, the purchase of water from the Borough of Slatington for customers in the Washington Township Division, the purchase of water from the Borough of Emmaus for the LCA Out-of-Borough customers in Lower Macungie, Salisbury and Upper Milford Townships and the purchase of water from the City Division for customers in the Central Lehigh Division.

System Planning / Capital Management – This budget includes allocation of certain capital management costs to the operating budgets.

Treatment and Transportation - Represents charges to the Upper Milford, Weisenberg Township, and Lowhill Collector Systems for flow and strength based on sample strength or normal strength levels for non-sampled customers. This category also includes costs associated with the Western Lehigh Interceptor, the Little Lehigh Interceptors and Emmaus transportation charges.

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Materials & Supplies:

Purification Chemicals - The treatment plant chemical budget includes: LOX, sodium hypochlorite, chlorine, polymer, larvicide, potassium permanganate and other chemicals.

Purification Supplies - This budget includes reagent sets, injectors and repair parts, analyzer supplies, and miscellaneous parts and supplies.

Pump Supplies - This budget includes pump supplies, well supplies and reservoir supplies.

Misc. Materials & Supplies - This budget includes SCADA / TELOG supplies, uniform costs, lab supplies, and miscellaneous supplies.

Fuel & Mileage – This budget includes the cost of unleaded and diesel fuels.

Fleet Management Supplies - This budget provides for mobile equipment supplies and lubricating oils.

Equipment - Funding to replace / update equipment used to maintain the distribution and collection systems. This budget includes line locators/metal and leak detector equipment, permaloggers, magnetic locators, curb/valve keys chemical pumps, valve replacement, sump pumps, prominent Cl2 analyzers, well depth probes, VFD purchase, dehumidifiers, booster pumps, TELOG equipment, pipe saws, trash pumps, hypo tanks, reservoir #5 mixer, submersible level transmitters, miscellaneous lab equipment, and miscellaneous tools & other minor equipment.

Leased Equipment – This budget includes costs to lease mobile and other equipment.

Distribution & Transmission Supplies - This item includes repair clamps, fittings, and pipes, “No-Lead” brass and copper, crushed stone and blacktop, valve and curb boxes, miscellaneous supplies, and hydrant supplies.

Collection System Supplies - This budget includes degreaser, inspection dye & deodorizer, concrete, manhole frames and covers, risers rings, ferncos & couplings / wrapid seal, SDR Pipe, hose lines paving material, salt, and topsoil, crushed clean stone, lubricating oils & grease, misc. supplies/gaskets/seals, and maintenance & construction materials.

Depreciation and Amortization - This expense is calculated by the straight-line method using standard depreciation periods. Annual amortization over the life of the financing is included.

Other Expenses:

Major Maintenance Expenses – Includes the City Capex charged to expense.

Other Miscellaneous – This expense includes financing costs related to new debt and annual fees from the Trustees overseeing the various bond series, cost of goods sold, and allocation of GIS capital costs to wastewater operating funds.

NON-OPERATING INCOME (EXPENSE):

Investment Earnings – Interest earned on Authority investments and deposit accounts.

Interest Expense – Interest paid on Authority bonds and Pennvest loans.

Capital Contributed – This includes infrastructure contributed by developers .



LEHIGH COUNTY AUTHORITY

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MEMORANDUM

Date: September 26, 2022

To: Board of Directors & Management Staff

From: Jennifer Montero

Re: Proposed 2023 WLI, LLRI-Phase 1 and LLRI-Phase 2
Wastewater User Charges

Attached is a copy of the *2023 Report on Wastewater User Charges*. This is the annual report that explains the derivation of the various billing rates that are charged to the users of the Western Lehigh Interceptor, Little Lehigh Relief Interceptor Phase 1, and Little Lehigh Relief Interceptor Phase 2.

As you will read in the Executive Summary on page 3, **costs to an average residential user associated with the use of the WLI, LLRI-I and LLRI-2 are expected to increase overall by 16%**. This is primarily due to the inclusion of the \$1,500,000 cost for the second phase of the Park Pump Station Rehabilitation and Improvement project in the Little Lehigh Relief Interceptor operating and maintenance costs, more than doubling these costs from 2022. This project includes the replacement of the original generator from the 1980's to provide 24/7 service to this critical facility. Another factor is a 20% increase in City Costs that are passed on through the WLI rates. These higher City Costs include both standard operating and maintenance and annual and Interim Act 537 project costs

LCA has implemented estimated quarterly billing procedures effective January 2009. Estimating the quarterly bills have provided consistent Signatory payments and has resulted in having payments approximately one month prior to remitting LCA payment for to the City Division. The estimates are based on a prior four quarter average and projected growth reviewed by the respective Signatory. The four quarterly estimated bills are reconciled the following year.

We request that the Board give preliminary approval of the rates.

LEHIGH COUNTY AUTHORITY

2023 REPORT ON WASTEWATER USER CHARGES

September 26, 2022



Lehigh County Authority

LEHIGH COUNTY AUTHORITY

2023 REPORT ON WASTEWATER USER CHARGES

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EXECUTIVE SUMMARY

This summary provides an overview of the various assumptions included in the Lehigh County Authority (LCA) *2023 Report on Wastewater User Charges*. Further detailed information can be found in the report.

1. Waste Strength

The assumed wastewater concentration for all non-exceptional strength Western Lehigh Interceptor (WLI) users is 250 ppm for BOD, 275 ppm for TSS, and 35 ppm for TKN. Exceptional strength charges are applied to users with waste samples having concentrations greater than 300 ppm for BOD, 360 ppm for TSS, and 85 ppm for TKN. Many commercial WLI users have strengths above these limits. LCA assists its WLI Signatories in sampling these users to identify those that are subject to exceptional strength charges (see Appendix A).

By comparison, the estimated concentration for LCA's Western Lehigh Interceptor (WLI) Signatory combined discharge to the City of Allentown's Kline's Island Wastewater Treatment Plant (City Plant) is 126 ppm for BOD, 136 ppm for TSS, and 33 ppm for TKN, well below the assumed wastewater concentrations. These lower strengths are attributed to the operation of the LCA-owned Wastewater Treatment Plant (PTP) in Fogelsville reducing all waste strength that passes through it. The highest strength waste the PTP treats is discharged from brewing operations at Boston Beer.

2. Payments to the LCA Wastewater Pretreatment Plant (PTP)

The PTP produces effluent that is near direct discharge quality. Because it essentially does the work of the City Plant in this regard, the WLI Signatories (Signatories) pay their proportionate share of these treatment costs through excess removal credits (Credits). Credits will be paid to the PTP fund, at City unit rates, for pounds of BOD and TSS removed beyond or "in excess" of City Plant allowable loadings. These Credits are calculated according to the terms of an agreement between LCA, the LCA Signatories, and the County, which was the owner of the PTP at the time of the agreement's execution.

3. User Rates

The following rates are proposed for 2023 as shown in comparison to the budgeted 2022 rates and represent an increase of 16% from the 2022 rates for a typical residential customer.

	<u>2022 Approved</u>	<u>2022 Proposed</u>
<u>LCA SIGNATORIES</u>		
Western Lehigh Interceptor		
FLOW (per 1,000 gals)	\$1.16	\$1.17
BOD (per pound)	\$0.33	\$0.33
TSS (per pound)	\$0.25	\$0.30
TKN (per pound)	\$0.38	\$0.43
ALLOCATION (per 1,000 gals per day)	\$0.21	\$0.21
Little Lehigh Relief Interceptor		
PHASE 1 (per 1,000 gals)	\$0.23	\$0.57
PHASE 2 (per 1,000 gals)	\$0.011	\$0.013
<u>EMMAUS</u>		
Western Lehigh Interceptor		
FLOW (per 1,000 gals)	\$0.36	\$0.39
 <u>OTHER USERS – L. Macungie, Salisbury, & S. Whitehall - Little Lehigh Relief Interceptor – Phase 1</u>		
FLOW (per 1,000 gals)	\$0.21	\$0.51

3. User Rates (continued)

Western Lehigh Interceptor (WLI): For 2023, LCA's WLI Signatory representatives have chosen to incorporate the budgeted annual cost of WLI capital projects into the operating and maintenance (O&M) costs that comprise the cost basis of the WLI flow rate. An itemization of these projects can be found at Table 2a on page 15. This ends prior years' practice of including a reserve amount in the O&M costs to build cash reserves for capital expenses expected in the future. The change was made to provide cash flow for Interim 537 Plan project execution planned for 2023, such as the Signatory I&I Investigation and Remediation Program and the Upper WLI Pump Station and Force Main, and to align budget more closely with actual costs. This allows the possibility of preserving existing cash reserves for use in defraying part of the cost of larger capital projects expected to be included in the final regional 537 plan, due to DEP in March 2025. Capital Recovery Fees collected from new connections will also be applied to regulatory and system improvement capital projects costs.

Little Lehigh Relief Interceptor – PHASE 1: The rates for 2023 will increase significantly from the 2022 rates for both the non-WLI signatory and WLI signatory users. Included in the rates' cost basis is \$1,500,000 for the second phase of the Park Pump Station upgrade, an asset management-driven project. See Table 8 on page 23.

Little Lehigh Relief Interceptor – PHASE 2: The rate for 2023 will increase from the 2022 rate of .010/1,000 gallon to \$.013/1,000 gallons and reflects an increase in the proposed 2023 operating and maintenance costs budget.

4. User Payments

Quarterly Estimated Payments: To improve the WLI operating fund cash flow, Signatories receive a quarterly bill that contains estimated flows and loads. Estimating the quarterly bills provides consistent Signatory payments and results in having payments arriving prior to LCA's payment to its City Division Fund for treatment and

transportation costs incurred on the Signatory's behalf. Submission of the actual Signatory flow and load data is still required for the annual reconciliation of the rates, but the timing of the submission is no longer as critical. The estimated quarterly billing procedure is described and attached to this report, "Estimated Quarterly Bill Procedures" as Appendix B.

I. INTRODUCTION

This report is intended to demonstrate how the user rates for 2023 were developed. It also reports comparative historical data. The wastewater facilities owned by LCA - the Western Lehigh Interceptor (WLI) and the Little Lehigh Relief Interceptor, Phases 1 and 2 (LLRI-P1 and LLRI-P2) - are legally and financially independent of each other.

Background – WLI

In 1971, LCA constructed the WLI to serve four municipalities: Upper and Lower Macungie Townships and the Boroughs of Alburtis and Macungie. Since then, Upper Milford, Lowhill and Weisenberg Township service areas have been added. Collectively, the municipalities are referred to as the “Signatories” (or “Signatory”). LCA also provides transportation service through the WLI to a portion of the Borough of Emmaus (“Emmaus”).

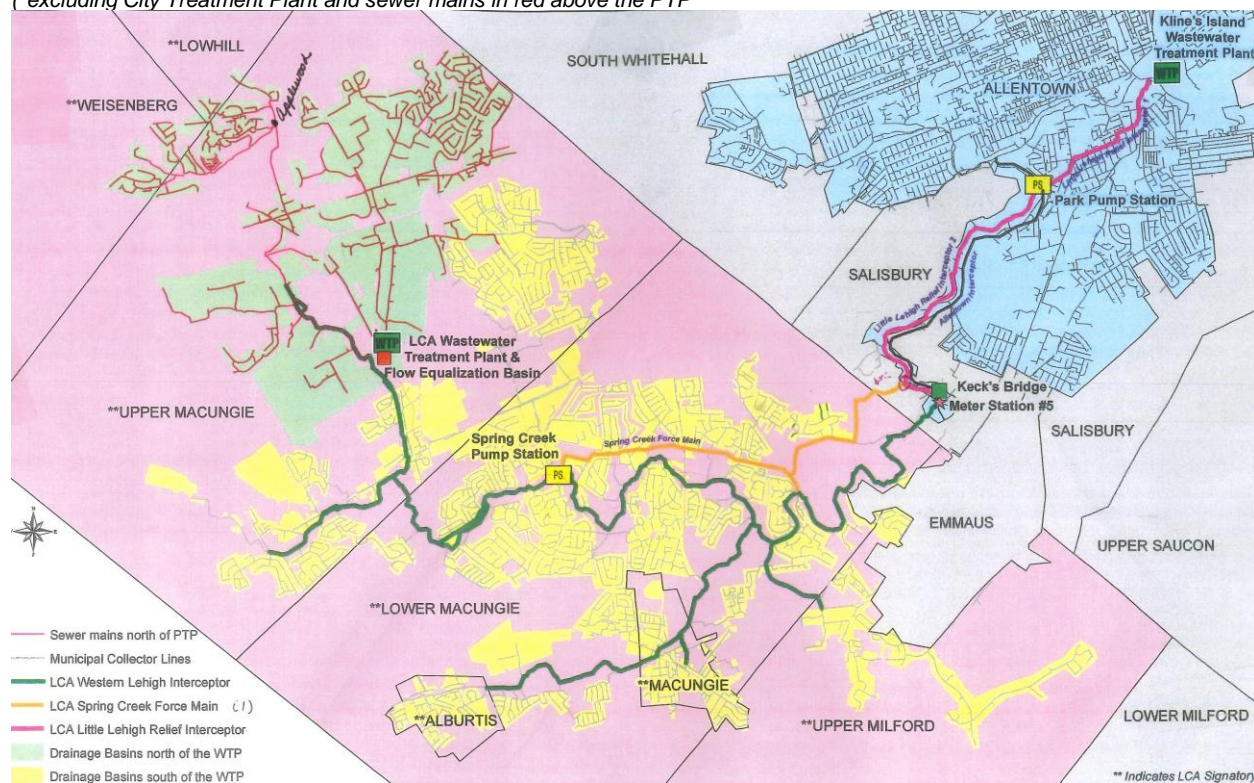
LCA, serving as agent for the Signatories, contracts with the City of Allentown (City) for the transportation, treatment, and disposal of wastewater from the Signatory area (see “Existing Billing Practices -City of Allentown Concession Lease” on page 7).

Currently, the WLI system consists of approximately 18 miles of gravity sewer interceptors ranging from 8 inches to 36 inches in diameter. It starts near the Pretreatment Plant (PTP) in Upper Macungie Township and follows the Little Lehigh Creek to an area known as “Keck’s Bridge.” This is where the WLI ends, and the City-owned Allentown/Emmaus Interceptor begins. It is also where meter station 5 is located and where LCA discharges to the City undergo constant flow measurements and periodic sampling and analyses to determine discharge strength. These loadings provide the basis for the LCA City Division Fund’s billing (“City Costs”) to the Signatories. The 2023 estimation for the daily flow and waste strength into the City is noted on page 11 under “City Cost Assumptions”.

In 1998, the Spring Creek Pump Station (SCPS) began operation. This relief pumping system includes roughly 2,500 feet of 20-inch diameter force main and 11,900 feet of 24-inch diameter force main, allowing the bypass of approximately 24,000 linear feet of the WLI in Lower Macungie Township. In 2005, the SCPS force main was extended by approximately 10,000 feet to relieve further hydraulic bottlenecks in the downstream portion of the WLI. SCPS temporarily mitigated WLI capacity issues, however, recent sanitary sewer overflows necessitate additional improvements in anticipation of increased flows through 2050. This is part of the focus of current regional Act 537 planning efforts.

In 2010, the 3-million-gallon Flow Equalization Basin (FEB) was constructed at the PTP to be utilized for storing wet weather flows. The FEB is used during times of wet weather and helps reduce the risk of sanitary sewer overflows within the WLI system.

Figure 1: *LCA-Owned Wastewater Assets
 (*excluding City Treatment Plant and sewer mains in red above the PTP)



Background – LLRI

Under the provisions of municipal service agreements with the City, Municipal Signatories are required to construct relief facilities whenever jointly used City-owned sewer lines become overloaded. In 1973, the City notified four of its Municipal Signatories—LCA, Lower Macungie Township-Phase II and Brookside Diversion; a small part of Lower Macungie Township located east of the turnpike that bypasses the WLI ("LMT Phase II & Brookside"), Salisbury Township (Salisbury), and South Whitehall Township (South Whitehall)--that the City-owned Little Lehigh Interceptor required relief.

Under an agreement dated February 10, 1981, LCA was authorized to plan and construct the required facilities. The agreement contemplated two financially independent sets of facilities. The first, known as Phase 1, relieves the City's Little Lehigh Interceptor and serves the Signatories, LMT Phase II & Brookside, Salisbury, and South Whitehall. It consists of the Park Pump Station and a large diameter force main, extending from the Park Pump Station to the Allentown Interceptor, just upstream of the City treatment plant. The second, known as Phase 2, relieves the City's Emmaus Interceptor from Keck's Bridge to the Park Pump Station and serves the Signatories.

Existing Billing Practices – WLI

Costs attributable to the WLI and the use of the City facilities are allocated through user rates among the Signatories based on three criteria: (1) flow, (2) strength, and (3) treatment allocation. Costs attributable to the operation of the WLI, the City interceptors, and a portion of the City treatment plant and collections department operational costs are allocated based on

flow. The balance of the City treatment plant operational and the LCA PTP excess removal credits are allocated to the three waste strength parameters of BOD, TSS and TKN. Distribution of the City Costs to the Signatories are based on the City's user charge methodology, developed in 1979. All City and LCA debt service costs are assigned to each Signatory based on its proportionate share of LCA's 10.78 MGD of purchased wastewater treatment capacity in the city treatment plant.

Emmaus, because it contracted directly with the City for its treatment and transportation needs and has made a capital contribution to LCA in lieu of paying future WLI debt service, pays user charges based only on WLI operating costs.

Billing practices used herein were established in the April 1, 1983 Service Agreement. Billable flows and strengths to each Signatory are based on a summation of the individual customer discharges within each Signatory service area. Inflow and infiltration (I/I) attributable to the WLI service area is shared proportionately by all Signatories.

Existing Billing Practices – LLRI

Costs attributable to LLRI-P1 are allocated among the Signatories, LMT Phase II & Brookside, Salisbury, and South Whitehall in proportion to metered wastewater flows tributary to the City's Little Lehigh Interceptor. South Whitehall flows are reduced by 500,000 gallons per day (gpd), based on a City commitment to transmit that wastewater on South Whitehall's behalf.

Costs attributable to LLRI-P2 are shared with the Signatories (LMT Phase II & Brookside, Salisbury and South Whitehall do not share in these costs) based on billable wastewater flow.

Existing Billing Practices - City of Allentown Concession Lease

In August 2013, through the Concession and Lease Agreement (Lease), LCA assumed responsibility for the operation of the City of Allentown water and wastewater systems (City System), now referred to as the LCA City Division. As part of this 50-year lease, LCA is responsible for calculating annual Municipal Signatory wastewater rates under existing Municipal Service Agreements. City Municipal Signatories include LCA as agent for its Signatories for their wastewater treatment usage, therefore City treatment and transportation costs are passed on to the Signatories and included in the WLI rates. Other Municipal Signatories discharging to the City Plant include the townships of South Whitehall and Salisbury, Lower Macungie Phase II & Brookside, the Borough of Emmaus, and Coplay Whitehall Sewer Authority. City Municipal Signatories remain responsible for their share of the pre-lease debt service incurred by the City prior to LCA's operation. Since 2016, additional debt service is also being paid for ongoing capital improvements completed by LCA as operator of the City System. The City System is legally and financially independent of the LCA-owned systems, identified in the WLI and LLRI Background sections above.

II. BILLING BASIS DETERMINATION

The term “billing basis” refers to the discharge from each residential, commercial, or industrial user. It is estimated and summed within each Signatory service area.

Flow Determination

Flows are determined based on one of the following methods:

- Commercial and industrial customers
 - Where a sewer meter is available, periodic readings are used.
 - If a sewer meter is not available, periodic readings of the water meter are used.
- Residential customers
 - Those receiving water service as of 1 January: the first quarter’s metered water usage is used.
 - Those connecting after 1 January or for users not having a water meter: 220 gpd is used.

Strength Determination

Assumed Average Strength and Exceptional Strength Limits proposed for 2023 are:

Discharge Type	Parameter	
	Assumed Average Strength	Exceptional Strength
BOD	250 ppm	300 ppm
TSS	275 ppm	360 ppm
TKN	35 ppm	85 ppm

As in previous years, all industrial and certain commercial users with discharges greater than 25,000 gallons of sewage per billing period will be sampled and tested at least once per year in order to determine the strength of their wastewater. Any user with BOD, TSS or TKN discharge in excess of the Exceptional Strength Limit shown in the above chart will be billed based on those test results. All users with discharge below the Exceptional Strength Limit will be billed at the Average Strength level.

Sampling and testing frequency, duration and other related guidelines are described in the “User Charge Sampling & Analysis Procedures and Billing Computations,” attached to this report as Appendix A.

The LCA Pretreatment Plant (PTP) is required to treat Boston Beer industrial discharges to 210 ppm for BOD and 230 ppm for TSS, designated by the City Plant as its allowable loadings. Waste hauler discharges are required to be treated to 250 ppm for BOD and 275 ppm for TSS. Through the operation of the PTP, those industrial discharges, together with other customer discharges located upstream of the PTP, will be significantly reduced below those required levels. The terms of an agreement between the Signatories, LCA and the County (prior PTP owner) specifies how billings, and credits for those additional removals, will be calculated. Those terms have been used in calculating total system billables and the credits for this report.

Emmaus Billing Basis

The Emmaus Service Agreement (7/1/86) provides that Emmaus will participate in WLI operating and maintenance costs, including administrative costs, but excluding debt service. administrative costs are allocated based on the ratio of salaries applicable to WLI operation and

maintenance to total WLI salaries. The minimum and maximum limits for allocation of administrative costs are 32% and 52% respectively. Only a portion of Emmaus' sewage is transported through the WLI and discharged to the Allentown-Emmaus Interceptor at Keck's Bridge. The remainder of Emmaus' wastewater is discharged at the very beginning of the Allentown Emmaus Interceptor at the connection point with the Emmaus collection system.

III. CAPITAL RECOVERY FEES

Background

Since 1985, capital recovery fees (CRFs) have been charged to property owners located in Signatory municipalities for new sewer connections. CRFs include three separately calculated fees and recover the purchase cost of City Plant capacity through the treatment allocation fee and the construction costs of major capital improvements to the WLI and LLRI-1&2 through the WLI and LLRI fees.

A review of all fees is conducted annually with proposed changes made effective when finalized, typically in July. All fees are calculated in accordance with Pennsylvania law (Act 57 of 2003).

Use of Capital Recovery Fees

The WLI and LLRI fees collected for new user connections to the WLI and LLRI are currently held in a reserve account to retire additional WLI and LLRI debt, fund WLI and LLRI capital projects, and pay for unexpected expenses to those funds.

As the service area continues to undergo new development and the need for treatment capacity grows, the treatment fees collected are placed in a reserve fund to either purchase additional capacity or to fund additional capacity options.

IV. WLI USER CHARGE DEVELOPMENT

This section describes the methods used to calculate WLI User Charges. Four general steps are followed:

1. Estimated 2023 operating and maintenance (O&M) costs are based on prior years' costs and annual inflation. In 2023, O&M costs include capital costs, taking the place of prior years' practice of charging a reserve amount earmarked for future capital costs.
2. Costs have been allocated to five billing parameters – FLOW, BOD, TSS, TKN and ALLOCATION.
3. A billing basis (the sum of each Signatory's actual prior four quarters' flow, loadings, and share of purchased treatment allocation) has been estimated for each billing parameter.
4. Unit costs are determined for each parameter by dividing the total costs by the billing basis.

Two types of costs are incurred – City and LCA. City charges include three types of costs – debt service, interceptor use, and operation and maintenance. City O&M costs include annual and Act 537 planning capital project costs. LCA charges include three types of costs – debt service, operation and maintenance, and treatment costs for PTP excess strength removals at or well below City Plant allowable loading limits.

City Cost Assumptions

For estimating City Costs, the following assumptions have been made for LCA total discharge to the City:

	<u>2022</u>	<u>2023</u>
LCA Total Allocation in City Plant	10.78 MGD	10.78 MGD
Average Daily Flow	9.5 MGD	9.5 MGD
Average BOD Concentration	118 ppm	126 ppm
Average TSS Concentration	123 ppm	136 ppm
Average TKN Concentration	30 ppm	33 ppm

City Debt Service

LCA is required to pay its proportionate share of pre-Lease debt service on the bonds that were purchased to finance improvements and upgrades when the City operated the Plant. LCA's share of these total debt service costs is \$100,515 for 2023. This pre-Lease debt will be completely paid off by the end of 2026. An additional debt service amount of \$263,869 is also being charged for projects which LCA has executed since it began operating the Plant in 2013. These projects include the replacement of the belt filter press, motor control center, substation #2 rehabilitation, and digester cover replacement at the Plant and roof replacements at both the Plant and the Distribution and Collections Building. Also included in total City debt service is an annual payment of \$79,092 for financed Regional Flow Management Strategy (formerly called Administrative Order) projects, bringing total City Debt Service for 2023 to \$443,476.

City Interceptor Use

LCA pays a fixed rate of \$0.01 per 1,000 gallons for the use of the City interceptors. For 2023, the estimated cost is \$34,023.

City Operation and Maintenance

Part of the revenue that LCA collects from Signatory WLI billings is used to pay the City fund for O&M costs. The Signatories are responsible for City O&M costs in proportion to all flow and pounds they collectively discharge. The following City Division Municipal Signatory usage rates are shown below in comparison to the previous year's estimated rates:

City Rates	2022 Rates - Estimated	2023 rates - Estimated
FLOW (per 1,000 gals)	0.231	0.246
BOD (per pound)	0.298	0.321
TSS (per pound)	0.262	0.280
TKN (per pound)	0.392	0.411

The components of the City Costs are summarized in Table1 - Allentown Estimated Costs, below. For 2023, we have estimated the City Division's Municipal Signatory unit O&M rates ("City Rates") using a 2022 estimate for total hydraulic and organic loadings based on actual Signatory flows and loads into the City Plant from the prior four quarters. The total cost basis used to calculate the City rates is higher than those in 2022, therefore the 2023 estimated rates are higher than those estimated in 2022.

Table 1: City of Allentown Estimated Costs

	2022 Est Budget	2023 Estimate
DEBT SERVICE:		
Summary	\$ 442,904	\$ 443,476
Other Interceptor	34,484	34,023
DEBT SERVICE SUBTOTAL	\$ 477,388	\$ 477,499
 OPERATION AND MAINTENANCE:		
Flow	\$ 795,936	\$ 835,764
BOD	977,678	1,142,602
TSS	870,784	1,081,453
TKN	339,959	388,651
OPERATION AND MAINTENANCE SUBTOTAL	\$ 2,984,357	\$ 3,448,470
 TOTAL ALLENTOWN COSTS	 \$ 3,461,745	 \$ 3,925,969

LCA Debt Service - WLI

2023 debt service is estimated at \$398,555. This covers the annual principal and interest payment for the Penn Vest loan approved to fund the FEB project mentioned in the Introduction.

LCA Operation and Maintenance

WLI O&M costs are shown in Table 2 – WLI Operation & Maintenance Costs, page 14. As mentioned previously, since Emmaus does not participate in all operation and maintenance costs, separate costs that Emmaus and the Signatories share in are shown in Table 3 - O&M Costs Shared by Signatories and Emmaus, page 16.

Billing Basis

To estimate the 2023 billable discharges, the prior four quarters' actual billed flows and loadings were reviewed. A summary of this information may be found in the Table 4- Billing Basis O&M, page 17.

Table 2 - Western Lehigh Interceptor: Operating and Maintenance Costs

ITEM	2022 BUDGETED LCA COSTS	2023 ESTIMATED LCA COSTS
DEBT SERVICE:		
Financing and Bond Issues	\$ 398,555	\$ 398,555 ▼
OPERATING & MAINTENANCE CHARGES:		
Personnel		
Personnel Subtotal	\$ 279,013	\$ 259,964
Purchase of Services		
General Services	\$ 91,153	\$ 130,371
Employee Benefits	\$ 186,782	\$ 225,813
Utilities	\$ 99,735	\$ 77,875
Engineering	\$ 25,000	\$ 15,846
Exc. Str. Analyses (External)	\$ -	\$ -
General Analyses (External)	\$ -	\$ 25,900
Fleet Management Services	\$ 18,000	\$ 20,000
Maintenance	\$ 149,600	\$ 143,200
Misc. Purchase of Services	\$ 4,300	\$ 8,800
I/I Rehabilitation Program		
Rental Charges	\$ -	\$ -
Purchase of Services Subtotal	\$ 574,570	\$ 647,805
Materials and Supplies		
Fuel	\$ 10,000	\$ 15,900
Misc. Materials & Supplies	\$ 54,500	\$ 58,900
Equipment	\$ 28,500	\$ 21,000
Amortized Equipment	\$ 140,248	\$ -
Materials & Supplies Subtotal	\$ 233,248	\$ 95,800
Capital Funding (Sig. + Emmaus)		
Capital Management	\$ 7,500	\$ -
Amortized Planning & Flow Monitoring:	\$ 250,000	\$ -
*Pay-Go Capital Projects		1,485,000
Capital Funding Subtotal	\$ 257,500	\$ 1,485,000
TOTAL OPERATING & MAINTENANCE	\$ 1,344,331	\$ 2,488,569
Reserve Amount for Future Projects	\$ 1,160,000	\$ -
TOTAL LCA EXPENSES	\$ 2,504,331	\$ 2,488,569
Less: Miscellaneous Revenue	\$ -	
LCA CHARGES (includes debt service)	\$ 2,902,886	\$ 2,887,124

Table 2a – Breakdown of Capital Costs Included in WLI O&M Costs

*Pay-Go Capex for 2023	
ANNUAL PROJECTS	
General Sewer System Improvements	\$ 100,000
Capital Management	\$ 10,000
Mobile Equipment	\$ -
	\$ 50,000
Subtotal	\$ 160,000
OPERATING FUND PROJECTS	
Signatory VI Investigation and Remediation Program	
Internal LCA Costs	\$ 20,000.00
WLI Manhole Rehab Construction Contract	\$ 280,000.00
WLI Manhole inspection program	\$ 150,000.00
Misc items (flow metering of WLI, etc)	\$ 50,000.00
Subtotal	\$ 500,000.00
SCPS FM relocation design costs	\$ 50,000
SCFM A/V Valve Replacements	\$ -
SCFM FM Inspection	\$ 100,000
Upper WLI PS & FM - design and construction	\$ 250,000
SCPS Upgrade	\$ 100,000
WW Capacity Planning	
AECOM	\$ 220,000
Kleinfelter	\$ 30,000
Arcadis	\$ 50,000
LCA	\$ 25,000
Subtotal	\$ 325,000
TOTAL	\$ 1,485,000

Table 3 - Western Lehigh Interceptor: O&M Costs Shared by Signatories and Emmaus

ITEM	2023 ESTIMATED LCA COSTS	PERCENT ALLOCABLE TO EMMAUS	PORTION SHARED BY SIGNATORIES AND EMMAUS
DEBT SERVICE:			
Financing & Bond Issue	\$ 398,555	0.0%	\$ -
OPERATING & MAINTENANCE CHARGES:			
Personnel			
Personnel Subtotal	\$ 259,964	52.0%	\$ 135,181
Purchase of Services			
General Services	\$ 130,371	52.0%	\$ 67,793
Employee Benefits	225,813	52.0%	117,423
Utilities	77,875	100.0%	77,875
Engineering	15,846	100.0%	15,846
Exc. Str. Analyses (External)	-	0.0%	-
General Analyses (External)	25,900	0.0%	-
Fleet Managent Services	20,000	100.0%	20,000
Maintenance	143,200	100.0%	143,200
Misc. Purchase of Services	8,800	100.0%	8,800
I/I Rehabilitation Program	-	100.0%	-
Rental Charges	-	52.0%	-
Purchase of Services Subtotal	\$ 647,805		\$ 450,937
Materials and Supplies			
Fuel	\$ 15,900	100.0%	\$ 15,900
Misc. Materials & Supplies	58,900	100.0%	58,900
Materials & Supplies Subtotal	\$ 74,800		\$ 74,800
Equipment	\$ 21,000	100.0%	\$ 21,000
Amortized Equipment		100.0%	\$ -
Equipment Subtotal	\$ 21,000		21,000
Capital Funding			
Capital Management	10,000	100.0%	\$ 10,000
I/I Investigation and Remediation	500,000	100.0%	500,000
Capital Funding Subtotal	\$ 1,485,000		\$ 510,000
TOTAL OPERATING & MAINTENANCE	\$ 2,488,569		1,191,918
Reserve Fund Allocation	\$ -	0.0%	0
TOTAL LCA EXPENSES	2,488,569		\$ 1,191,918
Less: Miscellaneous Revenue	\$ -		0
TOTAL LCA CHARGES	\$ 2,887,124		\$ 1,191,918

Table 4 - Billing Basis O&M

	Flow gpd	BOD lb/day	TSS lb/day	TKN lb/day
<u>Signatory Area</u>				
Alburtis	146,110	340	380	57
Macungie	180,006	397	435	54
Lower Macungie	1,437,818	3,369	3,419	446
Upper Macungie *	5,461,203	22,825	13,020	1,766
Weisenberg	23,252	49	53	7
Upper Milford	204,286	600	551	68
Lowhill	6,642	14	15	2
Pretreatment Plant & Haulers	<u>214,447</u>	<u>447</u>	<u>492</u>	<u>63</u>
LCA SYSTEM SUBTOTAL	7,673,764	28,041	18,365	2,463
Emmaus	<u>628,872</u>			
TOTAL	<u>8,302,636</u>	<u>28,041</u>	<u>18,365</u>	<u>2,463</u>

* Includes UMT and LCA direct customers Boston Beer & Hilton Homewood Suites

Rate Design

Although rate calculation options are almost limitless, several legal requirements eliminate many of the options. First, federal law and regulations provide that “each recipient of the wastewater treatment services within the applicant’s service area will pay its proportionate share of the cost of operation (including replacement) of all waste treatment service provided by the applicant.”

Second, Pennsylvania’s Municipality Authorities Act requires that rates be “uniform and reasonable.”

Finally, the Service Agreements require that a rate methodology substantially identical to that adopted by the City be used and that debt service costs attributable to the City facilities and to the WLI be allocated in proportion to each Signatory’s purchased City Plant treatment capacity.

Based on the aggregate of these restrictions, unit costs for FLOW, BOD, TSS, TKN, and ALLOCATION are calculated using the Billing Basis divided into the total cost for each parameter. City and LCA debt service and other costs are only allocated to the Signatories and not Emmaus. LCA operation and maintenance costs related to the WLI are allocated to both the Signatories and Emmaus.

User Rate Adequacy

Using the proposed unit rates shown on Table 7, multiplied by the various individual Signatory flows and loads (shown in Table 4), and purchased treatment plant allocation, a total expected revenue of \$9,944,741 is estimated. Comparing this revenue to the expense of \$9,994,741 shown on Table 5 - Total System Costs –City and LCA and Table 6 -Total System Cost Allocation Summary, indicates an overall coverage of 0%.

Table 5 - Total System Costs: City of Allentown and LCA

	2022 Budget	2023 Estimate
DEBT SERVICE:		
Allentown	\$ 477,388	\$ 477,499
LCA	398,555	398,555
DEBT SERVICE SUBTOTAL	\$ 875,943	\$ 876,054
OPERATION AND MAINTENANCE:		
Allentown	\$ 2,984,357	\$ 3,448,470
LCA	2,504,331	2,488,569
OPERATION AND MAINTENANCE SUBTOTAL	\$ 5,488,688	\$ 5,937,039
COUNTY CREDITS		
BOD	\$ 2,042,913	\$ 2,219,839
TSS	726,532	911,809
TOTAL COUNTY CREDITS SUBTOTAL	\$ 2,769,445	\$ 3,131,648
TOTAL SYSTEM COST	\$ 9,134,075	\$ 9,944,741

Table 6 – Total System Cost Allocation Summary

	ALLOCATION PARAMETER					
	Total Cost	Flow	Allocation	BOD	TSS	TKN
O&M						
Allentown O&M	\$ 3,448,470	\$ 835,764	\$ -	\$ 1,142,602	\$ 1,081,453	\$ 388,651
LCA O&M	2,488,569	2,488,569		-	-	-
Total O&M	\$ 5,937,039	\$ 3,324,333	\$ -	\$ 1,142,602	\$ 1,081,453	\$ 388,651
LCA WTP CREDITS *	\$ 3,131,648	\$ -	\$ -	\$ 2,219,839	\$ 911,809	\$ -
DEBT SERVICE						
Allentown Interceptor	\$ 34,023	\$ 34,023	\$ -	\$ -	\$ -	\$ -
Summary of Allentown Debt	443,476	-	443,476	-	-	-
LCA	398,555	-	398,555	-	-	-
Total Debt Service	\$ 876,054	\$ 34,023	\$ 842,031	\$ -	\$ -	\$ -
TOTAL COSTS	\$ 9,944,741	\$ 3,358,356	\$ 842,031	\$ 3,362,441	\$ 1,993,262	\$ 388,651

* Credits to the LCA WTP are paid at City unit rates for non-required removals

Table 7 - Unit Cost Summary

Item	Annual Cost	Billing Basis (gpd or lb/day)	Unit Cost (\$/1000 gal or \$/lb)
FLOW - Allentown Costs	\$ 869,787	7,673,765	\$0.3105
- Interceptor Costs/ Signatories	\$ 1,296,651	7,673,765	\$0.4629
- Interceptor Costs/ Signatories & Emmaus	\$ 1,191,918	8,302,637	\$0.3933
			<hr/> \$1.1668
BOD (lb)	\$ 3,362,441	28,041	\$0.3285
TSS (lb)	\$ 1,993,262	18,365	\$0.2974
TKN (lb)	\$ 388,651	2,463	\$0.4323
ALLOCATION	\$ 842,031	11,189,912	\$0.2062

V. RELIEF INTERCEPTOR USER CHARGE DEVELOPMENT

This section describes the methods used to calculate user rates for the Little Lehigh Relief Interceptor System.

For both Phases, the total costs are divided by the billable flow. Phase 1 provides service to the Signatories, Salisbury, South Whitehall, and Lower Macungie Phase II & Brookside. Billable flows differ for Phase I between the Signatories and the other users per contract terms. Phase 2 provides service only to the WLI Signatories.

Costs for both Phases are shown in Table 8 - Phase 1-Operation & Maintenance Costs and Table 9 - Phase 2-Operation & Maintenance Costs).

Debt Service - Phase 1

In January 1993, the bonds issued for construction of Phase 1 were retired. No additional projects that required bond issues are ongoing and no debt service is included in the O&M cost tables for 2023. However, the annual capital cost of \$1,500,000 for the second phase of the park pump station rehabilitation/improvement project is included in O&M costs. This project replaces the original generator from the 1980's to provide the required 24/7 service to this critical facility. The generator construction is expected to be completed in 2023.

User Rate Adequacy

For Phase 1, using the rates proposed, multiplied by the flows estimated in Table 10--Billing Basis—Little Lehigh Relief Interceptor Phase 1, total revenue of \$1,861,229 is estimated. Comparing this revenue to the total expense of \$1,838,927, as shown on Table 8 indicates an overall coverage of 2%. The extra revenue collected from the rate that applies to the non-WLI signatories is being used to pay-off their capital cost contribution for the first phase of the park pump station rehabilitation. The reason for this is that the LCA WLI Signatory portion of the project was partially paid for by funds available to them via reserves paid from WLI rates and capital recovery fees.

For Phase 2, using the rate proposed, multiplied by the billing basis derived in Table 12, total revenue of \$37,651 is estimated. Comparing this revenue to the total expense of \$37,651 as shown on Table 9, indicates an overall coverage of 0%.

Table 8 – Little Lehigh Relief Interceptor- Phase 1 – Operating and Maintenance Costs

ITEM	2022 BUDGETED LCA COSTS	2023 ESTIMATED LCA COSTS																		
DEBT SERVICE & FINANCING EXPENSES:																				
OPERATING AND MAINTENANCE CHARGES:																				
Personnel	41,057	44,979																		
Personnel Subtotal	41,057	44,979																		
Purchase of Services																				
General Services	13,413	23,179																		
Employee Benefits	35,151	39,894																		
Utilities	134,137	122,175																		
Maintenance Services	81,800	64,000																		
Miscellaneous Services	300	800																		
Engineering	5,000	5,000																		
Rental Charges	-	-																		
Compliance - PA DEP Tank Registration	125	200																		
Purchases of Services Subtotal	269,927	255,248																		
Materials and Supplies																				
Fuel	3,000	2,800																		
Misc. Materials & Supplies	19,700	1,700																		
Misc. Equipment	16,000	34,200																		
Materials and Supplies Subtotal	38,700	38,700																		
TOTAL OPERATING & MAINTENANCE COSTS	349,684	338,927																		
*Pay-as-you-go Capital Project Funding	-	1,500,000																		
Reserve Amount for Future Projects	400,000	-																		
TOTAL LCA EXPENSES	749,684	1,838,927																		
Less: Miscellaneous Revenue	-	-																		
TOTAL LCA CHARGES	749,684	1,838,927																		
<table> <tr> <td>* Pay-as-you-go capex 2023</td><td>MUNIS #</td><td></td></tr> <tr> <td>ANNUAL PROJECTS</td><td></td><td></td></tr> <tr> <td>None</td><td></td><td></td></tr> <tr> <td>OPERATING FUND PROJECTS</td><td></td><td></td></tr> <tr> <td>Park Pump Station Rehabilitation/Improvements</td><td>30314</td><td>1,500,000</td></tr> <tr> <td>TOTAL</td><td></td><td>1,500,000</td></tr> </table>			* Pay-as-you-go capex 2023	MUNIS #		ANNUAL PROJECTS			None			OPERATING FUND PROJECTS			Park Pump Station Rehabilitation/Improvements	30314	1,500,000	TOTAL		1,500,000
* Pay-as-you-go capex 2023	MUNIS #																			
ANNUAL PROJECTS																				
None																				
OPERATING FUND PROJECTS																				
Park Pump Station Rehabilitation/Improvements	30314	1,500,000																		
TOTAL		1,500,000																		

Table 9 - Little Lehigh Relief Interceptor – Phase 2: Operation and Maintenance Costs

ITEM	2022 BUDGETED LCA COSTS	2023 ESTIMATED LCA COSTS
DEBT SERVICE & FINANCING EXPENSES:		
OPERATING AND MAINTENANCE CHARGES:		
	3,082	7,560
Personnel		
Personnel Subtotal	3,082	7,560
Purchase of Services		
General Services	1,007	3,753
Employee Benefits	2,786	6,338
Maintenance Services & Misc. Services	8,000	8,000
Utilities	138	200
Rental Charges	-	-
Purchases of Services Subtotal	11,930	18,291
Materials and Supplies		
Fuel	350	700
Misc. Materials & Supplies	1,500	4,400
Equipment	15,000	6,700
Materials and Supplies Subtotal	16,850	11,800
TOTAL OPERATING & MAINTENANCE COSTS	31,862	37,651
TOTAL LCA EXPENSES	31,862	37,651
Less: Miscellaneous Revenue	-	
TOTAL LCA CHARGES	31,862	37,651

Table 10- Billing Basis – Little Lehigh Relief Interceptor

LLRI-Phase 1

<u>Municipality</u>	<u>Flow (gpd)</u>	<u>% Share</u>
Salisbury	381,436	3.55
South Whitehall	777,864	7.23
Lower Macungie-Phase II & Brookside	272,374	2.53
LCA Signatories	9,321,355	86.69
Total	10,753,028	100.00

LCA SIGNATORY BREAKDOWN BILLING BASIS (For Phase 1 and Phase 2)

<u>Signatory</u>	<u>Billable Flow (gpd)</u>	<u>% Share</u>
Alburtis	146,110	1.90
Lower Macungie	1,437,818	18.74
Macungie	180,006	2.35
Upper Macungie	5,461,203	71.17
Upper Milford	204,286	2.66
Weisenberg	23,252	0.30
Lowhill	6,642	0.09
LCA PTP	214,447	2.79
Subtotal	7,673,765	100.00
Infiltration/Inflow	1,647,591	
Total	9,321,355	

Table 11 - LLRI-Phase1: Cost Allocation

AMONG ALL USERS

Municipality	Flow % Share	Costs
Salisbury	3.55	\$ 65,231
South Whitehall	7.23	133,026
Lower Macungie - Phase II & Brookside	2.53	46,580
LCA Signatories	86.69	1,594,090
Total	100.00	\$ 1,838,927
1655769.824	Billing Basis	Unit Costs
<u>Annual Cost</u>	<u>(gpd)</u>	<u>\$/1000 gals.</u>
\$1,838,927	10,753,028	\$0.4685

(See Table "Phase I- Operation and Maintenance Costs")

\$167,510	10,753,028	\$0.0427
(\$3.35M amortized over 20 years at 0% for Park Pump Station Rehabilitation)		
<u>Total costs</u>		<u>Total Rate</u>
\$2,006,437	10,753,028	\$0.5112

Note: To determine unit cost: Divide total annual cost by converted billing basis
(Converted billing basis = ((11,000,971/1000)*365)

AMONG LCA SIGNATORIES

Signatory	Flow % Share	Costs
Alburtis	1.90	\$ 30,352
Lower Macungie	18.74	298,681
Macungie	2.35	37,393
Upper Macungie	71.17	1,134,469
Upper Milford	2.66	42,437
Weisenberg	0.30	4,830
Lowhill	0.09	1,380
LCA PTP	2.79	44,548
WLSP pays 87% of LLRI-1 Cost; proportionate to its total flow	Total	\$ 1,594,090
	Billing Basis	Unit Costs
	<u>(gpd)</u>	<u>\$/1000 gals.</u>
\$ 1,594,090	7,673,765	\$ 0.5691

Note: To determine unit cost divide annual cost by billing basis times number of days in year
divided by 1,000.

Table 12 - LLRI-Phase 2: Cost Allocation

<u>Signatory</u>	<u>Flow % Share</u>	<u>Costs</u>
Alburtis	1.90	\$ 717
Lower Macungie	18.74	7,055
Macungie	2.35	883
Upper Macungie	71.17	26,795
Upper Milford	2.66	1,002
Weisenberg	0.30	114
Lowhill	0.09	33
LCA PTP	2.79	1,052
Total	100.00	\$ 37,651

<u>Annual Cost</u>	<u>Billing Basis (gpd)</u>	<u>Unit Costs \$/1000 gals.</u>
\$ 37,651	7,673,765	\$ 0.013

Note: To determine unit cost, divide annual cost by billing basis times number of days divided by 1,000.

APPENDIX A: USER CHARGE SAMPLING AND ANALYSIS PROCEDURES

The purpose of this document is to assist signatory municipalities using the Western Lehigh Interceptor (WLI) regarding sampling and analysis of non-residential users of their respective wastewater collection system. This document also describes the billing process and how test results are applied to the process.

LCA'S ROLE AS THE AGENT FOR THE MUNICIPALITIES

As the agent of the requesting municipality, Lehigh County Authority (LCA) will provide sampling and coordinate analysis of all designated users. Results reports with calculated averages used for billing ("Monitoring Data") and if applicable, additional sampling/analysis costs will be sent to the municipalities the month following sample collection. Difficulties encountered with an appropriate sampling site location, customer service or other inquiries will be directed to the municipality. LCA will be available to assist in addressing concerns.

MUNICIPALITIES' ROLE

Using Monitoring Data provided by LCA and flow data (provided by LCA or municipality), the municipality will prepare monthly and/or quarterly reports for billing purposes, depending on user flow and monitoring frequency. Prepared reports will be submitted to LCA by the end of the month following the previous quarter. Agreed upon summary figures will be used for final billing to the municipality.

WLI USERS—LIST OF CUSTOMER TYPES

1. Residential Users
2. Non-residential Users
 - a. Non-sampled Users
 - b. Sampled Users
 - i. Sampled-low flow
 - c. Restaurant
 - i. Restaurant-low flow

NON-RESIDENTIAL TYPES TABLE

Non-Residential Type	Abbreviation	Description
Non-Sampled User	N	Industrial/commercial user assumed to have residential (flow) strength, such as banks and office buildings.
Sampled User	S	Industrial/commercial user whose flow strength has the potential to surpass the Extra Strength Limit (ESL) (based on technical literature on type of operation at facility, spot tests, and experience of other wastewater utilities).
Sampled-Low Flow User	S-LF	Used when a typically sampled site has quarterly flow less than 25,000 per annual average.
Restaurant	R	Commercial user whose facility processes food--has direct service connection to the municipal sewer system. Does not include facilities where food is served but prepared elsewhere.
Restaurant-Low Flow	R-LF	Used when a typically sampled restaurant site has an annual average flow of less than 25,000 gallons per billing period.

Parameter	Average Strength Limit (ASL) (ppm)	Extra Strength Limit (ESL) (ppm)
BOD (Biochemical oxygen demand)	250	300
TSS (Total suspended solids)	275	360
TKN (Total Kjeldahl nitrogen)	35	85
FOG (Fats, oils & grease)	N/A	50

WASTEWATER STRENGTH TABLE BY PARAMETER

INITIAL DESIGNATION DETERMINATION

The initial sample type designation of a non-residential user is based on the probability of high strength discharge, as determined from technical literature, spot tests, experience of other utilities, or from the information provided by the user.

Types of businesses to sample:

Restaurants

Manufacturing

Brewing and distilling operations

Water Bottlers

Food processing

Soft drink/juice processing/bottling

Grocery stores that process meat or other food preparation

The municipality shall have a process in place where-by they identify new users and notify LCA of any new non-residential users and add them to the monthly/quarterly billing report in the appropriate section of the report—Sampled/Restaurants or Non-sampled (non-residential users). LCA may contact the municipality to discuss and arrange initial monitoring of facilities not listed on the billing report or listed as non-sampled when it appears as though they have the potential for producing extra strength waste.

During the municipal review process for a new Sampled User or new Restaurant, a sampling location will be required to be shown on the drawings and approved by the municipality. The municipality will also make the determination if a grease interceptor/grease trap is required. For existing buildings, LCA will review the proposed sampling location and determine if the installation of a sampling manhole and/or a grease interceptor is necessary.

The municipality shall furnish LCA with the following information for all Sampled and Restaurant Users and of the interceptor prior to the selection of the sample site:

1. User designation—Sampled User (S) or Restaurant (R)
2. Name of company
3. Property address
4. Municipal building identification code (if applicable) or account number
5. Business contact information—responsible person and phone number
6. Number of normal working days or days of operation
7. Description of business operations
8. Sampling location

This information will be used for scheduling and reporting. Please promptly provide updates to LCA to ensure proper scheduling and correct information for reports.

ANNUAL DESIGNATION

By December 15 of each year, the municipality shall furnish LCA with an annual average flow report for non-residential users. For this calculation, average the prior year QTR 4, the current year QTRs 1, 2, and 3 flows. This is an example of a basic report design:

SITE ID	BUSINESS NAME	2015 QTR 4	2016 QTR 1	2016 QTR 2	2016 QTR 3	ANNUAL AVG FLOW
4	Company X	200,000	200,000	200,000	200,000	200,000

Notes: Unless the site has flow >1,000,000 in a billing period, the annual average flow calculated in December of the prior monitoring year sets the monitoring frequency for the non-residential user for the next monitoring year. Do not change the monitoring frequency of sites based on the flow of one billing period or at any other time throughout the year.

Low Flow Sites: All industrial/commercial sites that were previously sampled but now have an annual average flow per billing period <25,000 gallons will be excluded from monitoring. These sites will be listed as either S-LF or R-LF indicating low flow. LF sites will be placed back on the schedule for monitoring if the annual average flow per billing period exceeds 25,000 gallons. Low flow sites should be moved to the non-sampled portion of your quarterly billing report with LF added to the site type and ID number to make them easier to track. Use Average Strength billing parameters for LF sites regardless of previously reported test results. Treat LF sites like any other non-sampled site while the flow remains low (less than 25,000 annual average).

SAMPLING FREQUENCY

SAMPLING FREQUENCY BASED ON ANNUAL AVERAGE FLOW

Annual Average Flow per Billing Cycle	Sample Frequency-Sampled User	Sample Frequency-Restaurant
<25,000 gals	Not sampled	Not sampled
25,000 to 99,999 gals	One day per year	3-days per year (Wed, Thurs, Fri or Thurs, Fri, Sat) plus FOG for 1 day
100,000 to 999,999 gals	Work week per year	
> 999,999 gals	Work week per billing period	3-days per billing period (Wed, Thurs, Fri or Thurs, Fri, Sat) plus FOG for 1 day
Notes: Any new Sampled User will initially be sampled for a work week. Scheduling will be required per billing period, if a site has a flow >1,000,000 gallons per billing period and has exceeded one of the extra strength limits.		

The discharge from each Sampled User will be analyzed at least once per year. Each sample will be analyzed for pH, BOD (biochemical oxygen demand), TSS (total suspended solids), and TKN (total Kjeldahl nitrogen). Fats-Oils-Grease (FOG)

concentration will be analyzed if food products are produced at the facility or at the request of the municipality.

LCA may sample the non-residential location at any time during the calendar year but will try to schedule sampling in the same quarter each year.

Initial sampling for any new Sampled User will be for a work week (providing flow is greater than 25,000 gallons per billing period). The Table for sampling frequency by annual flow does not apply for initial monitoring. This also does not apply to Restaurant Users, which are sampled for 3 consecutive days with quarterly flow >25,000 gallons.

The discharge from each Restaurant will be analyzed at least 3 consecutive days annually, either Wednesday-Thursday-Friday or Thursday-Friday-Saturday. Each daily sample will be analyzed, at a minimum, for pH, BOD, TSS, and TKN. FOG concentration will be analyzed at least one day during the sampling period.

REQUESTED ADDITIONAL SAMPLING AND ANALYSIS

A municipality may request additional sampling and analysis of any Sampled or Restaurant User. Sample collection and analysis costs will be noted on the results reports to the municipality. Billing for additional Monitoring Data will be addressed in the final bill of the year.

The Monitoring Data will be used for billing purposes for that billing period and all successive billing periods until new Monitoring Data become available after the completion of the next monitoring event.

NON-SAMPLED USER SAMPLING AND ANALYSIS

A municipality may request sampling and analysis of any non-residential user not included in the Sampled or Restaurant User definition. Test costs and sample collection costs will be billed to the municipality with the results reports.

While the municipality may use the results of the sampling and analysis for billing, LCA will not use the results for purposes of billing the municipality. However, results greater than the extra strength limits may indicate that the user should be added to the municipality's Sampled list.

BILLING COMPUTATION

With the exception of pH, results for each parameter will be averaged and used for billing purposes. The acceptable pH range is 6.5-10.5 pH units upstream of the LCA Wastewater Pretreatment Plant, or 5.0-12.0 pH units below the plant. The municipality will be notified if any result is out of range so that they can determine the cause and initiate corrective action.

To calculate pounds:

If all average results—other than pH—are less than the ESL (BOD-300ppm, TSS-360ppm, and TKN-85ppm), the ASL (BOD-250ppm, TSS-275ppm, and TKN-35ppm) will be used for billing calculations. If any average result is greater than the ESL, the result will be used for billing that parameter and ASL will be used for any parameter average result less than the ESL. The calculation for pounds is $\text{flow} \times 8.34 \times \text{ppm}$.

Example: Average results are BOD-400, TSS-300, and TKN-100. The BOD result is greater than the ESL of 300--calculate using 400. TSS is less than the ESL of 360--calculate using the ASL of 275. The TKN is greater than the ESL of 85--calculate using the result of 100.

SAMPLING AND ANALYSIS CHARGES

If a user in the Sampled User or Restaurant category is sampled and found to discharge flow with strength below the ESL, sampling and analysis charges will be waived.

If a user is found to discharge greater than the ESL (a result greater than any one of the billing parameters not including FOG), sampling and analysis charges will be billed to the municipality for annual sampling, or any repeated sampling found to exceed any extra strength limit.

The limit for FOG (fats-oils-grease) analysis is 50 ppm. If result is greater than this limit, the municipality will be billed for sample collection and analysis.

APPENDIX B: ESTIMATED QUARTERLY BILL PROCEDURES

Estimated Quarterly Bills

- The estimated quarterly bill amount for the upcoming year will be calculated and shared with LCA WLI Signatories prior to the presentation of the User Charge Report to the LCA Board of Directors. Any feedback received from the Signatories will be shared.
- The estimated quarterly bill will be based on the information contained in the User Charge Report.
- Quarterly estimated bills will be issued on or about the first of the following months: April, July, November, and January.
- Quarterly estimated bill payments will be due 30 days after the billing date.
- LCA will enforce a 5% penalty for overdue payment. The penalty shall be 5% of the payment due if not paid within 30 days from the billing date and an additional 5% of the payment due if not paid within 60 days, and thereafter an additional 1% per month or fraction thereof.
- Signatories must provide actual quarterly flow and load data in a timely manner.
- Actual quarterly flow, load, O&M and capital cost data will be tracked throughout the year and actual bills calculated no later than July. The timing can be adjusted due to the availability of audited costs and actual flows and loads.
- Adjustments (increase or decrease) for reconciliation of the prior year's quarterly estimated bills will be applied to the current year's second quarter estimated bill.

MEMORANDUM

Date: 10/10/2022

To: Lehigh County Authority Board of Directors
From: Charles Volk, CCWO, and Bryan Geissel, Project Engineer
Subject: Allentown Division – KIWWTP: Effluent Disinfection System Improvements Project - Construction Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Construction Phase	\$843,403.65
2 ⁽¹⁾	Professional Services Authorization – D’Huy Engineering, Inc.	\$58,500.00
3 ⁽¹⁾	General Contract Award – LB Industries, Inc.	\$495,509.85
4 ⁽¹⁾	Electrical Contract Award – Diefenderfer Electric Contractors, Inc.	\$214,393.80

(1) Included in the Capital Project Authorization.

SODIUM HYPOCHLORITE PROJECT HISTORY:

The LCA Board authorized construction phase of the KIWWTP Sodium Hypochlorite System Project in June 2020. The objective of the project was to discontinue the use of chlorine gas for both effluent disinfection and sludge thickening tank odor control. As determined by staff and supported by the KIWWTP Master Plan, the gas chlorination equipment (chlorinators, evaporators, related piping, and appurtenances) reached the end of their service life and required replacement. The conversion to sodium hypochlorite was listed in the 2018 KIWWTP Master Plan as a “near term” project to eliminate the risks associated with chlorine gas disinfection and replace outdated equipment. Construction of a phase of the project was completed at the Intermediate Sludge Thickening (IST) pump station in summer 2021 to control thickener tank odor. A temporary hypochlorite effluent disinfection system along with the permanent tank mixers were installed by the contractor at the chlorine contact tank and placed into service in spring 2021 to allow for demolition and removal of the gaseous chlorine system, in order to facilitate installation of the permanent hypochlorite system piping and pumps. The contractor was on schedule to complete the remainder of the work for the permanent effluent disinfection system by the end of 2021; however, as a result of operational difficulties encountered in balancing fecal coliform kill with residual chlorine concentration in the final plant effluent, completion of the project was paused in late 2021 pending a detailed hydraulic study of the chlorine contact tank.

UNFORESEEN OPERATIONAL CHALLENGES:

Upon activation of the temporary hypochlorite effluent disinfection system, variations in fecal coliform counts and chlorine residual concentrations were observed between the two channels of the chlorine contact tank (at simultaneous monitoring times). The variations were largely attributed to an apparent flow imbalance between the two channels due to the connection locations of the final clarifier effluent pipes, and possible short circuiting of the flow (around the

newly installed hypochlorite mixers) into the two channels at the head end of the tank. Three pipes (2 each - 54" and 1 each - 66") convey undisinfected effluent from the ten final clarifiers to the chlorine contact tank. Permanent mixers were installed at the head end of the tank in the vicinity of the final clarifier effluent pipes as part of the hypochlorite project. One mixer is located at each hypochlorite solution injection point (2 mixers total). The mixer type selected for the project is the industry standard for hypochlorite disinfection systems. Note that the alternative of re-purposing the existing submerged 4-inch diffuser system (from the chlorine gas system) was precluded by the high volume of softened carrier water that would be required to make up the diffuser volume, as the hardness of the water would quickly calcify and block the diffusers.

In summer and fall 2021, plant operations staff and the design engineer performed extensive troubleshooting and fine tuning of the temporary effluent disinfection system to strike a balance between fecal coliform kills and maximum chlorine residual concentration in accordance with the NPDES permit for the discharge of disinfected plant effluent to the river. This involved some trial and error proportioning the solution feed between the inner and outer tank channels, with the overall equivalent pounds per day of chlorine used being generally constant. No discharge violations were incurred; however, challenges associated with high flows and monthly chlorine contact tank maintenance (cleaning of each channel once per month) necessitated consideration of a dechlorination system. Note that the challenges associated with meeting permit limits during tank cleaning is due to an unchanged rate of flow going through approximately half the tank volume at half the contact time with one channel out of service. Also note that the fecal coliform discharge limit is more stringent from May to October per the NPDES permit.

Troubleshooting of the temporary hypochlorite system included a detailed investigation of the tank hydraulics. A Computational Fluid Dynamics (CFD) analysis of the tank was performed by Gannett Fleming Engineering, which included dye testing of tank influent and computer assisted modeling of the tank hydraulics. The CFD modeling revealed that the tank experiences some short circuiting of influent flow was occurring at head of the tank around the mixers, with complete mixing occurring in the channels. Possible solution alternatives mentioned were structural modifications in the tank (installation of baffles) and effluent dechlorination. The long-term recommendation of the study was the installation of a permanent Sodium Bisulfite System for dechlorination to ensure discharge permit compliance.

DECHLORINATION SYSTEM PILOT PROGRAM

A pilot program is typically required by DEP to assess the effectiveness of a dechlorination system prior to permitting and installing a permanent system. In October 2021, LCA staff and the hypochlorite system design engineer (D'Huy Engineering) conducted a virtual meeting with the DEP Northeast Regional Office to discuss piloting a Sodium Bisulfite chemical feed system for effluent dechlorination. DEP indicated that effluent dechlorination systems are common with plants that utilize sodium hypochlorite for disinfection, particularly those that also have strict NPDES limits for residual chlorine concentration. DEP also reminded LCA that the draft NPDES permit (to be finalized and re-issued after Act 537 Plan approval) has stricter effluent chlorine residual limits. Without effluent dechlorination, it is anticipated that plant staff will experience difficulties meeting the proposed limits for residual chlorine while achieving satisfactory fecal coliform kills. DEP concurred with need to perform pilot testing of a temporary dechlorination system. A pilot program testing plan was submitted to DEP in February 2022 and was approved shortly thereafter.

The effluent dechlorination pilot program commenced in spring 2022 and continued through the summer. Performance of the dechlorination chemical (sodium bisulfite) was successful in

reducing effluent residual chlorine levels while managing fecal coliform kills within permit limits. Following staff review of initial program results, D'Huy was authorized to perform design phase services for a permanent effluent dechlorination system, which included incorporation of the unfinished elements of the hypochlorite project. A DEP Part 2 Water Quality Management Permit application was submitted to DEP in late March 2022 and the permit was issued in May 2022. Design was completed in summer 2022.

SCOPE OF PROJECT

This Project consists of the following major components:

- 1) **Sodium Bisulfite storage tanks:** 3 each double wall chemical storage tanks (2-2,550 and 1-1,150 gallon) to be installed in the existing Chlorine Building chemical storage room with immersion heaters, solution temperature sensors and ultrasonic tank level meters connected to the plant SCADA system, supply and vent piping, and concrete containment curb to be constructed.
- 2) **Chemical feed pumps:** 3 each peristaltic metering pumps on a pump skid to be installed in the existing Chlorine Building sulfonator room.
- 3) **Sodium Bisulfite solution conveyance and distribution:** Installation of yard piping (consisting of PVC conduit housing flexible hoses) and 2 manholes to convey chemical solution to diffusers to be located at 3 points within the chlorine contact tank, one at the downstream end of each channel and one at the upstream side of the effluent pump station for use during high flow events. Utility water piping connections are also included for providing carrier water for the diffusers.
- 4) **Controls:** The dechlorination system alarms and status notifications will be connected to the plant SCADA system, and the chemical dosage rate will be flow paced based on effluent flow and residual chlorine levels.
- 5) **Completion of Permanent Sodium Hypochlorite disinfection system:** Upon completion and testing of the permanent dechlorination system, the contractor will complete the previously unfinished work for the paused hypochlorite disinfection project. This includes demolition of the gaseous chlorine system, demolition and removal of the gas scrubber, chlorine building modifications, relocation of all temporary hypochlorite equipment and installation of the permanent chemical metering pump skid, installation of the chemical storage tanks (4 each 2,550 gallon tanks) within the Chlorine Building chlorine storage room, installation of the permanent hypochlorite solution hoses and conduit, SCADA system integration, instrumentation, electrical and HVAC modifications, and all process piping, valves, controls, and appurtenances.

FINANCIAL ANALYSIS:

This Project will be funded by the LCA Allentown Division.

PROJECT STATUS:

Design work for the dechlorination system and re-packaged sodium hypochlorite system project commenced in early 2022 following early results of the pilot program for sodium bisulfite dechlorination. The project was advertised for bid in late August 2022, a pre-bid meeting was held on 9/6/22 at KIWWTP, and bids were received on 9/28/22.

THIS APPROVAL – CONSTRUCTION PHASE:

The contract time for construction phase is 180 days from Notice to Proceed to substantial completion. Assuming construction phase authorization of the 10/10/22 LCA Board meeting, construction is anticipated to conclude in spring 2023.

BIDDING SUMMARY:

Bids were opened on 9/28/22. The project consists of a General Construction (GC) Contract and an Electrical Construction (EC) Contract. The bid results are summarized as follows:

GENERAL CONTRACT:

Bidder	Bid Results
LB Industries, Inc.	\$495,509.85
JEV Construction LLC	\$557,400.00
Eastern Environmental Contractors, Inc.	\$645,500.00

ELECTRICAL CONTRACT:

Bidder	Bid Results
Diefenderfer Electric Contractors, Inc.	\$214,393.80
Eastern Environmental Contractors, Inc.	\$319,170.00

The total cost of the low bids for the General and Electrical Contract bids is \$709,903.65. The final design Engineer's Estimate for the total of the two contracts is \$562,000. A factor that may have influenced the bid prices coming in higher than the engineer's final design estimate is strict construction phasing coordination while maintaining continuous disinfection operations and the inflationary economy.

The low bidder for the General Contract was submitted by LB Industries, Inc. (LB), located in Hellertown, PA. LB completed several small general/mechanical projects for LCA at the KIIWWTP and the WFP and the firm was recently awarded the General Contract for the KIIWWTP Boiler Replacement and Solids Process HVAC Upgrade Project. LB completed three large improvements projects at the City of Bethlehem Wastewater Treatment Plant, and the engineer for those projects (D'Huy Engineering) reported that the contractor performed well and successfully completed the work. The contractor has similar project experience and appears qualified to perform the work.

The low bidder for the Electrical Contract is Diefenderfer Electric Contractors, Inc. (Diefenderfer), located in Allentown, PA. The company has significant similar project experience with water and wastewater facilities electrical systems, with several prior KIIWWTP projects (including the partially completed 2020 Sodium Hypochlorite Disinfection Project), and one completed electrical contract in the Suburban Division within the last 5 years. Diefenderfer is well qualified to complete this project. The documents submitted with the bid are complete and in accordance with the bidding requirements. Based upon the review of the bids, we recommend award of the Electrical Construction contract to Diefenderfer, subject to the receipt of the necessary bonds, insurance and other required documentation.

PROFESSIONAL SERVICES:

D'Huy Engineering has been our design consultant on this project and will provide construction engineering services for the construction phase of the project. Their work will include:

1. Facilitate completion of the Agreement and other elements of the Contract with LCA.
2. Prepare for, attend and facilitate a pre-construction conference.
3. Prepare for and attend regular job conference meetings.
4. Review and approve contractor's submittals.
5. Respond to Contractor requests for information (RFIs).
6. Process applications for payment and any necessary change orders.
7. Provide part-time construction observation over an estimated 20-week onsite construction period, including substantial and final completion inspections.
8. Prepare punch list, final project close-out and certify final payment to contractors.

PROJECT SCHEDULE:

Based on construction phase authorization on 10/10/22, the project is anticipated to be completed in spring 2023.

FUTURE AUTHORIZATIONS: none

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.: AD-S-A **BUDGET FUND:** Allentown Div\Wastewater\Capital

PROJECT TITLE: Allentown Division –KIWWTP Effluent Disinfection System Improvements Project **PROJECT TYPE:**

☒ Construction
☐ Engineering Study
☐ Equipment Purchase

THIS AUTHORIZATION TO DATE (W/ABOVE) \$843,403.65
\$2,157,814.65

DESCRIPTION AND BENEFITS:

The scope of this project consists of the installation of a sodium bisulfite chemical feed system for dechlorination of plant effluent prior to stream discharge and the completion of the unfinished work for the installation of a permanent sodium hypochlorite disinfection system for plant effluent. Implementation of hypochlorite disinfection will eliminate serious health and safety concerns with gas chlorination and replace gas chlorination equipment identified in the Master Plan to be at the end of its service life. Installation of the dechlorination equipment will ensure year-long compliance with DEP permit discharge requirements.

Previous Authorizations	
Design, bid & construction phase for the 2020 sodium hypochlorite disinfection system plus design & bid phase for bisulfite dechlorination system	\$1,314,411

REQUESTED THIS AUTHORIZATION	
Construction Phase	
General Construction Contract – LB Industries, Inc.	\$495,509.85
Electrical Construction Contract – Diefenderfer Electric Contractors, Inc.	\$214,393.80
Professional Services:	
Construction Administration/Engineering – D’Huy Engineering	\$58,500
Staff	\$25,000
Contingency	\$50,000
Total This Authorization	\$843,403.65

Total Estimated Project	\$2,157,814.65
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REVIEW AND APPROVALS:

_____ Project Manager	_____ Date	_____ Chief Executive Officer	_____ Date
_____ Chief Capital Works Officer	_____ Date	_____ Chairman	_____ Date



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

PROFESSIONAL SERVICES AUTHORIZATION

Professional: D;HUY ENGINEERING, INC.
One East Broad St., Suite 310
Bethlehem, PA 18018

Date: October 10, 2022

Requested By: Charles Volk, P.E.

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division – KIWWTP Effluent Disinfection System Improvements, Construction Phase

D'Huy Engineering, Inc. will perform construction administration and engineering support the Effluent Disinfection System Improvements project. Professional services will include the following:

Professional Services ⁽¹⁾
1. Pre-construction meeting coordination, attendance and follow-up
2. Prepare for and attend job conferences
3. Review and approve contractor submittals
4. Respond to Requests for Information (RFI) from contractor
5. Process payment applications
6. Process change orders as required
7. Provide weekly part-time construction observation from 11/22 through 4/23 plus allowance of additional 60 hours of inspection during critical tie-ins or outside that period.
8. Substantial completion inspection & punchlist preparation
9. Contract closeout administration

(1) Reference the cover Memo for additional information.

Cost Estimate (not to be exceeded without further authorization): \$58,500

Time Table and Completion Deadline: As required to meet deadlines as set forth in the construction contract.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____

MEMORANDUM

Date: October 10, 2022

To: LCA Board of Directors
Liesel Gross, CEO

From: Phil DePoe, Senior Planning Engineer

Subject: Kline's Island Sewer System: Preliminary Screening of Alternatives (PSOA) - Planning Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Plan Authorization: Arcadis – PSOA	\$454,000
1A	Professional Services Authorization: Arcadis – PSOA	\$404,000*

**Included in the Capital Project Authorization*

1. Preliminary Screening of Alternatives (PSOA)

AUTHORIZATION OVERVIEW:

As Arcadis concludes work on the Capacity Problem Definition authorization, the next phase of Act 537 planning covers the Preliminary Screening of Alternatives (PSOA) modeling work. This work will evaluate an initial group of potential solutions to both the dry weather and weather flow problems (current and through 2050). The PSOA will be used to inform a set of options to be analyzed during the subsequent Final Alternatives Analysis (FAA) phase. See attached for clear identification of proposal goals, objectives, and deliverables.

FINANCIAL:

Costs associated with the execution of the Preliminary Screening of Alternatives (PSOA) proposal will be paid by the City of Allentown and reimbursed through existing intermunicipal agreements and by City customers through the use of the Administrative Order Fee.

CURRENT STATUS:

- Authorization to create the KISS model occurred in early 2021
- As the flow characterization study ended in the fourth quarter of 2021, the model calibration commenced on schedule and concluded in early July 2022
- The Capacity Problem Definition phase of work occurred from July through September of 2022

This next critical phase of Act 537 will begin upon approval of this authorization.

THIS APPROVAL – PLANNING PHASE:

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide these services. These services include, but are not limited to, the following:

Professional Services
• Common Component Modeling and Sizing
• Source Reduction Modeling
• Conveyance and Treatment Module Modeling
• Alternatives Modeling

<ul style="list-style-type: none"> • Alternatives Costing
<ul style="list-style-type: none"> • Meetings, Presentations, Workshops, and Project Management

There are a multitude of different preliminary alternatives to model. In order to maintain schedule and minimize extraneous modeling costs, the PSOA will be split into three phases (for a total of 15 different model runs) as follows:

- Phase 1: An initial set of major alternatives (6 model runs)
- Phase 2: Using a portion of the initial set of model runs, insert Signatory supplied SRPs (4 model runs)
- Phase 3: Additional model runs as deemed appropriate (5 model runs)

See attached proposal for further details.

CONSULTANT SELECTION PROCESS:

In addition to serving as LCA's engineering consultant for annual ongoing sewer program support services, Arcadis has worked with the City of Allentown since the 2009 EPA Administrative Order. They are also a critical Act 537 Partner and are developing crucial elements related to the Plan's development.

SCHEDULE:

Services listed in this proposal will conclude by the end of April 2023.

FUTURE AUTHORIZATIONS:

- None anticipated for this specific phase of work
- The next phase of work (the Final Alternatives Analysis) will commence upon the PSOA conclusion (Spring 2023)
- The final major authorization related to modeling efforts involves the Selection of Solutions (late 2023 or early 2024)

Mr. Philip DePoe
Capital Works Program Manager
Lehigh County Authority
1053 Spruce Road
Allentown, PA 18106-0348

Arcadis U.S., Inc.
1600 Market Street
Suite 1810
Philadelphia
Pennsylvania 19103
Tel 215 625 0850
www.arcadis.com

Subject:

Scope and Budget Kline's Island Sewer System (KISS) Preliminary Screening of Alternatives (PSOA) Project

Date:

September 27, 2022

Dear Mr. DePoe:

Arcadis is pleased to provide LCA with this scope and budget for above work. This work will follow on the heels of the Kline's Island Sewer System (KISS) Capacity Problem Definition work. This work will evaluate an initial group of potential solutions to the dry weather and wet weather flow and treatment problems present currently and through 2050 in the KISS to determine effectiveness and cost. This Preliminary Screening of Alternatives will be used to inform a set of options to be analyzed during the subsequent Final Alternatives Analysis stage.

Contact:

Jim Shelton

Phone:

302.723.1450

Email:

James.Shelton@arcadis.com

Potential solutions to the KISS capacity problems include variations under four main cohorts:

- Common Components – These are modifications or impact to the system that will occur regardless of the final Selection of Solution.
- Treatment
- Conveyance
- Storage

A list of abbreviations is provided at the end of this document.

Within the Convey and Storage cohorts, there are a nearly infinite number of solutions. Within the Treatment cohort, there are many variations on treatment schemes. Some of these variations are listed in Appendix A. This list was generated during several workshops with City, LCA, AECOM, and other Program Steering Committee (PSC) members. Combinations of these 4 cohorts present a universe of technically viable solutions but with wide variety of implementation and costing pros and cons. As permutations, there are thousands of potential options to evaluate. The preliminary screening of alternative (PSOA) is intended to provide a coarse screen to identify potential solutions that either might not work or might offer great benefit. To help narrow the alternatives for the PSOA to

This proposal and its contents shall not be duplicated, used or disclosed — in whole or in part — for any purpose other than to evaluate the proposal. This proposal is not intended to be binding or form the terms of a contract. The scope and price of this proposal will be superseded by the contract. If this proposal is accepted and a contract is awarded to Arcadis as a result of — or in connection with — the submission of this proposal, Arcadis and/or the client shall have the right to make appropriate revisions of its terms, including scope and price, for purposes of the contract. Further, client shall have the right to duplicate, use or disclose the data contained in this proposal only to the extent provided in the resulting contract.

those of greatest screening benefit, several workshops with the KISS Act 537 Program Manager Team and Program Steering Committee were held. It was decided that the below aspects will be included in the PSOA work. Most of these include both modeling and subsequent cost estimation, though some are strictly cost impacts with no impact on capacity.

- a) **Common** to all solutions would be the following gravity conveyance, treatment improvements, pumping modifications, and assumptions. These are detailed in Appendix B.
- b) For **Source Reduction**, three scenarios (in addition to those in the Common Components) will be evaluated:
 - a. No Source Reductions
 - b. Benchmark Source Reductions
 - c. Signatory Source Reduction Plans
- c) No new **Storage** solutions given the current dry weather surcharge conditions of the primary interceptors, so tanks will only be considered as adjuncts to conveyance and source reduction solutions.
- d) For **Conveyance**, four scenarios (in addition to those in the Common Components) will be evaluated. These are detailed in Appendix C.
 - a. Pure Gravity to KIWWTP.
 - b. Little Sister Pump Station to KIWWTP
 - c. Krick Lane Pump Station
 - d. PTP Effluent Pump Station and Force Main:
- e) For **Treatment**, only one scenario (in addition to those in the Common Components) will be evaluated: All flow continues to be conveyed and treated at KIWWTP, with PTP continuing its duty as an industrial pretreatment facility. The specifics of this are detailed in Appendix D.

Benchmark SRPs include only the worst leaking areas and represent the “biggest bangs for the buck”. They are based on work done during the Capacity Problem Definition phase. They are based on conclusion drawn from 2021 flow data analyses, night-time weiring, and understanding of the physical conditions and locations of the various components of the KISS gained from field experience and discussions with Signatory system operators.

PSOA analyses will include:

1. Using the model to solve system capacity limitations:
 - a. Calculate pipe diameter, slopes, and locations
 - b. Calculate pump station rates and head pressures and force main sizes
 - c. Calculate reductions in baseline and wet weather flows from source reduction activities
 - d. Calculate peak flow rates to wastewater treatment
 - e. Calculate impact on flows from various treatment plant modifications at both Kline’s Island WWTP and at LCA’s Pretreatment Plant.
2. Calculating capital costs of the above solutions (operating costs, net present revenue costs, and other more nuanced aspects of costing will be done in the subsequent Final Alternatives Analyses and Selection of Solution project work in 2023 and 2024).

OBJECTIVES

Using a suite of actions, determine the size, extent, and cost of infrastructure improvements needed to eliminate all overflows and achieve the site specific hydraulic grade line level of service (HGLLOS) that protects homes near the interceptors from basement backups when presented by the occurrence of rainfall from Hurricane Ida as presented at the Allentown Airport NOAA station (which has been selected by the Signatories as the alternatives evaluation surrogate event) under year 2050 wastewater usage demands.

SCOPE OF WORK

Task 1 – Common Component Modeling and Sizing

Using the 2021 KISS model, Arcadis will first model the Common Components as described above.

Arcadis will also meet with City, South Whitehall Township, Salisbury Township, and CWSA to determine each of their segment by segment HGLLOS goals for their interceptors (as part of source reduction meetings in Task 2) as well as to determine years remaining service life for critical interceptors, pump stations, and forcemains.

Task 2 – Source Reduction Modeling

First, Arcadis will model the system without any I&I reductions (as-is 2021 flow conditions).

Using the 2021 flow data analyses, night-time weiring, and understanding of the physical conditions and locations of the various components of the KISS gained from field experience and discussions with individual system operators, Arcadis analyzed several I&I reduction scenarios. Using this, the KISS Steering Committee will identify a single I&I reduction scenario that acts as a Benchmark Source Reduction Plan. Percentages of manholes and pipes to be rehabilitated and their method of rehabilitation will be determined by Arcadis based on the available flow and SSES record. Arcadis will assign rehabilitation techniques and adjust I&I runoff surfaces in model based on these actions. Using the 2021 KISS model, Arcadis will model this Benchmark Source Reduction Plan.

Arcadis will meet with each Signatory to discuss how various sewer rehabilitation methods are modeled, facilitate a group meeting to share ideas for optimizing the cost:benefit of SRPs, and meet with each Signatory to understand the terms of their individual SRPs vis a vis incorporation into the model.

Arcadis will then take the individual Signatory Source Reduction Plans (currently scheduled to be delivered on December 20th), which for the purposes of this scope and budget we assume will be delivered in the Arcadis-provided Excel templates by either asset ID or by catchment and list the assets or percentage of assets within a catchment that will be rehabilitated and what method of rehabilitation will be conducted. Using the 2021 KISS model, Arcadis will model these Signatory Source Reduction Plans.

Task 3 – Conveyance and Treatment Module Modeling

To the extent practical, Arcadis will develop basic modules for each treatment and conveyance component, including basic location, rough sizing, and tentative control logic (for treatment and pumping aspects) to serve as starting points for the alternatives modeling. For example, the LSPS will be tentatively located in the model with connections to the LLRI, operational controls relative to PPS preliminarily determined, and force main alignment placed and tentatively sized under this task.

Arcadis will model the changes treatment and treatment pumping options proposed by Jacobs, AECOM, and Kleinfelder as described above and match these modifications with the conveyance options described above.

Arcadis will identify logical reaches of interceptors and trunklines based on slope diameter pinchpoints.

Arcadis will upsize Eberhardt, Applewood, and Rabenold Pump Stations to handle the peak flows to these locations (indicated by the 2050 flow projections for the design event).

For each SBM, Arcadis will calculate the peak flows to these locations (indicated by the 2050 flow projections for the design event) and identify if the current meters are undersized.

Task 4 – Alternatives Modeling

Using the 2021 KISS Model, Arcadis will model the several alternatives to evaluate the impact of major corrective measures and assess their costs. Because the impact of these changes won't be understood until the first series of model run, this work is broken into two rounds. All PSOA alternatives will include all of the Common Components listed above. Round 1 alternatives are:

PSOA #	Source Reduction Action	Conveyance Actions	Treatment Actions	Details	Differential Purpose
1	No SRPs	Gravity + LSPS	KIWWTP	Park PS + SCPS stays in place as is	Low Carbon Footprint, Impact of insignificant SRP
2	Benchmark SRP	Gravity	KIWWTP	Park PS + SCPS stays in place as is	Low Carbon Footprint, Impact of meaningful SRP
3	Benchmark SRP	Gravity + LSPS	KIWWTP	Park PS + SCPS stays in place	Minimizes construction in City

PSOA #	Source Reduction Action	Conveyance Actions	Treatment Actions	Details	Differential Purpose
4	Benchmark SRP	Gravity + LSPS + Krick PS	KIWWTP	Park PS + SCPS stays in place	Minimizes construction in horseshoes and ABM TL
5	Benchmark SRP	PTP EPS FM + Gravity + "FM tie-in" (old SCPS)	KIWWTP	Park PS stays in place; SCPS expanded and tied into new PTP EPS FM	Can PTP FM eliminate KLPS and/or LSPS if add in SCPS flow?
6	Benchmark SRP	PTP EPS FM + Gravity + "FM tie-in" (new Krick PS) + SCPS abandoned	KIWWTP		Can SCPS be eliminated using KLPS?

The results from these six alternatives will be used to define up to the conveyance alternatives to be considered using Signatory SRPs. For the purposes of this scope and budget, we have assumed up to 4 Signatory SRP-related alternatives will be modeled. Once these 10 alternatives are completed, for the purposes of this scope and budget, we have assumed up to 5 additional alternatives may also be defined by the PSC (15 total alternatives).

Task 5 – Alternatives Costing

Arcadis will update our cost model to reflect changes in construction prices since the 2020 costing effort for AECOM support work was completed. Once that is complete, and once each of the above PSOA alternatives are modeled such that the overflows are eliminated and the HGLLOS goals are largely achieved, Arcadis will estimate capital construction and energy cost for each above PSOA alternative.

Task 6 – Meetings, Presentations, Workshops, and Project Management

During the course of this work, Arcadis will prepare for and lead meetings, presentation, and workshops to LCA staff, the PSC, the KISS Signatories, and regulators. For the purposes of this scope and budget, we have assumed regular monthly meetings. This task will also account for project management costs.

DELIVERABLES

1. Figures and tables showing impact of Benchmark and Signatory Source Reduction Plans compared to No Source Reductions using the current physical constraints of the KISS system.
2. Signatory Source Reduction Memo - Documents how and why we adjusted runoff surfaces for Signatory SRP Plans.
3. Cost Estimating Spreadsheet with updated unit costs.
4. Common Component Model Descriptions Memo – Settings in the model for each of the common components, including pump sizing, pipe sizing, etc.
5. Common Component Cost Estimate – Compilation of estimates prepared by Arcadis, Kleinfelder, AECOM, and Jacobs for the various aspects of the Common Component list.
6. Pipe Upsizing Methodology Memo – Documents the philosophy and guidelines used for determining diameter, slope, maximum HGL, and parallel vs. replacement of gravity pipes.
7. Pump Station and Force Main PSOA Model Memo – Documents how we modeled pump stations and forcemains in the PSOA alternatives.
8. PSOA Figures and Tables describing the PSOA alternatives, including new pipe sizes and locations, pump station and wet well locations, pump station and PTP dry day and peak flow capacities, forcemain alignments and diameters, and treatment system improvements and modifications.
9. PSOA Cost Estimate Table showing capital costs and energy costs for Common, Treatment, Conveyance, and Source Reduction Components.

SCHEDULE

Work will begin once the Capacity Problem Definition work is completed. Work is slated to start around October 10, 2022, and be completed by end of April 2022. Meetings and workshops to review deliverables will be scheduled throughout this period.

BUDGET ESTIMATE

We estimate the cost and level of effort of this work as shown in the below table.

Task	Description	Hours	Cost
1	Common Component Modeling and Sizing	183	\$ 30,000
2	Source Reduction Modeling	147	\$ 26,000
3	Conveyance and Treatment Module Modeling	155	\$ 23,000
4	Alternatives Modeling	1209	\$ 172,000
5	Alternatives Costing	459	\$ 77,000

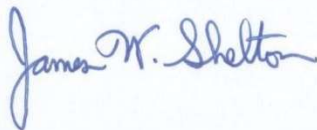
Task	Description	Hours	Cost
6	Meetings, Presentations, Workshops, and Project Management	318	\$ 76,000
	Total	2471	\$ 404,000

We propose to complete these services on a time and materials basis in accordance with the Agreement between LCA and Malcolm Pirnie, Inc., and the current Summary of Standard Charges for Lehigh County Authority. Arcadis will track the costs associated with this work and report them to LCA monthly throughout the project; we will not exceed the authorized budget without written professional services authorization from LCA. Payment for services will be based upon the actual labor and expenses incurred. Invoicing will be completed monthly. The invoice will include the defined contract tasks listing the day-by-day personnel performing the task with hourly rate and hours worked. The invoice will provide total billed for month. Support documents will be provided if there are any expenses incurred.

Please contact me with your authorization to proceed if this scope and budget are acceptable to you. If you have any questions, please do not hesitate to call me.

Sincerely,

ARCADIS U.S., Inc.



James W. Shelton, PE
Vice President

Cc: Tony Dill

APPENDIX A

RANGE OF POTENTIAL SOLUTION COMPONENTS FOR CAPACITY PROBLEM

1. **Treatment** – This includes:
 - a. Variations on treatment at Kline's Island
 - b. Variations on full NPDES treatment as a direct discharge from PTP to Lehigh River (discharge to Jordan Creek and discharge via land application were reviewed and dismissed during SCARP/AO work).
 - c. Variations on partial treatment at PTP (8:30, 4:30, 0:30, and 0:40 dry:wet schemes) with multiple possible discharge points, including:
 - i. Iron Run
 - ii. Spring Creek Pump Station wet well
 - iii. Upper Macungie Trunkline
 - iv. Park Pump Station wet well
 - v. Kline's Island headworks
 - vi. Kline's Island expanded headworks
 - vii. Kline's Island treatment system
2. **Source Reduction** – This includes:
 - a. SRPs to significantly reduce peak inflow from the worst inflow-impacted areas of the KISS collection system. Specifically:
 - i. Floodplain-located manholes
 - ii. Manholes in basins with peaking factors >4x
 - iii. Clipped cleanouts in basins with peaking factors >4x
 - b. SRPs to significantly reduce baseline infiltration and rainfall induced infiltration from the worst leaking areas of the KISS collection system. Specifically:
 - i. Catchments defined as having base infiltration > 5 gpd/lf
 - ii. Catchments in basins with baseline infiltration > 33% or RDII > 4 gpd/lf
 - c. Signatory-proposed SRPs idiosyncratic to each Signatories' individual ideas about appropriate leakage rates and the need to control them
 - d. Moderate SRPs to eliminate leakage from catchments with high inflow and infiltration leakage
 - e. Aggressive public SRPs to eliminate leakage from catchments with moderately high and high inflow and infiltration leakage
 - f. Private lateral and private sump pump programs to increase I&I removals
3. **Conveyance** – This includes:
 - a. Variations on gravity transmission to Kline's Island
 - i. Replacements with larger pipes
 - ii. Parallels of existing pipes
 - iii. Removal of bottlenecks

1. Water Treatment Plant siphons
 2. Confluence of Jordan Creek and Little Lehigh Interceptors
 3. Eastside Interceptor Lehigh River siphon
 - b. Use of various pumping schemes, including:
 - i. Spring Creek Pump Station (as is and upgrade, and with various current and potential force mains discharging to LLRI (as currently), to Little Sister Pump Station, or to ahead of, at, or inside KIWWTP)
 - ii. Little Sister Pump Station (with force main alignments and discharge points ahead of, at, and inside KIWWTP)
 - iii. PTP Direct Discharge Pump Station and force main to Lehigh River outside KIWWTP
 - iv. PTP Pump Station and force main to KIWWTP headwork or inside KIWWTP
 - v. Fogelsville Pump Station and forcemain capture ~1/2 the PTP flow before PTP treatment and conveying it to the Upper Macungie Trunk Line north of Grange Road
 - vi. Various other pump stations and force mains, including but not limited to:
 1. Breinigsville Pump Station and Force Main
 2. Kecks Bridge Pump Station and Force Main
 3. Cedar Creek Pump Station and Force Main
 4. Jordan Creek Pump Station and Force Main
 5. Lehigh River West Pump Station and Force Main
 6. Lehigh River East Pump Station and Force Main
 7. Eberhart Pump Station Expanse and Force Main extension
4. **Storage** – This includes storage at:
- a. Cedar Creek Park Tank
 - b. Spring Creek Tank
 - c. Lehigh Interceptor West Tank
 - d. Jordan Creek Tank
 - e. Kecks Bridge Tank
 - f. Emmaus CedarCreek Boulevard Tank
 - g. Trout Creek Tank
 - h. Sumner Tank
 - i. Alburtis Macungie Tank
 - j. Hump Bridge Tank
 - k. U6 Tank
 - l. Breinigsville Tank

APPENDIX B

COMMON COMPONENT DETAILS

- a. I&I will continue to increase by a rate of 0.5% per year. Rehabilitation efforts will reduce the I&I from a given asset, but its deterioration will continue at this percentage moving forward in time.
- b. Replacement of high water use fixtures (washing machines, dish washers, shower head, toilets, etc.) and in industrial water consumption reduction practices will continue to reduce water consumption rates through 2035 at a rate of 0.2%. By 2035, the impact from these changes will reduce to 0.1% for the balance of the planning period.
- c. Future flows will be those provided by the Signatories.
 - i. For WLSP and City, the assumed residential water consumption rate for new residential development is 170 gpd/edu.
 - ii. All other Signatories have used their standard policy rates (which vary by Signatory).
 - iii. Commercial and industrial development flows remain based on standard estimates of flow.
 - iv. Flows will be loaded in at present to 2035 and 2035-2050 planning horizons, but during the PSOA work, only the 2050 flows will be modeled.
- d. Add in peak flows during design event from UMT industrial flows from the Upper Iron Run Trunkline, Industrial Blvd, and Niagara TL to account for how the model uses average daily flows instead of shift-period flow peaks (so we don't undersize downstream infrastructure, PTP upsizing, and FEB control logic during infrastructure sizing).
- e. Maximum pressurization goals provided by City, LCA, UMT, CWSA, ST, and SWT for their specific Interceptor and trunkline for wet weather and dry weather operating conditions.
 - i. A default value of dry weather $d/D=1$ will be used where no specific goal is given by individual Signatory.
 - ii. A default value of wet weather depth below rim of 3' will be used where no specific goal is given by individual Signatory.
- f. Basement protection maximum wet weather hydraulic grade line to protect houses near interceptors and trunklines will be 3' below rim will be used where no specific goal is given by individual Signatory.
- g. Identify where manholes will be raised or sealed to minimize parallel demands.
 - i. Raised manholes will not exceed 5' above grade.
 - ii. Sealing will be done where raising is not possible.
- h. Upgrade Substation 1 electrical station.

- i. Modify KI MPS/APS to increase capacity from 84 MGD to 100 MGD. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
- j. Extend Park PS forcemain as 60" Hobas pipe (sized to handle both PPS and LSPS through the mixing bowl area) to new influent screening facility upstream of the existing aerated grit chambers at KIWWTP (elevation 26' when compared against KI MPS wet well invert of 4').
 - i. Modify PPS capacity performance based on this additional static and friction head. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
- k. Modify KIWWTP trickling filters from series to parallel for wet weather flow wet weather biological treatment capacity of 120 MGD.
 - i. New screening facility
 - ii. Additional aerated grit chamber
 - iii. Additional primary effluent pumping capacity to 100 MGD
- l. Operate PTP using PTP LS pumps as VFDs with levels to provide flow optimized control logic (as present in the current model).
- m. Operate FEB fill and drain cycles and levels with levels to provide flow optimized control logic (as present in the current model).
- n. Operate SCPS influent gates, comminutor, and pump control with levels to provide flow optimized control logic (as present in the current model).
- o. Operate PPS influent gates in so that it is in 20% open position as the default position and pump control levels to provide flow optimized control logic (as present in the current model). For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
- p. Planned construction of the Interim Dry Weather Pump Station at PTP with forcemain to UMT Trunkline will be a capital cost, but for the purposes of PSOA modeling, this station will be abandoned under all future scenarios.
- q. Install LLI parallel interceptor from U_4_1 to J_2_1 junction chamber to eliminate WTP siphon pinch point.
- r. For any interceptors or trunklines planned for CIPPL rehabilitation, reduce ID by 1.5" and alter manning coefficient to 0.013. Planned rehabilitations to primary interceptors and trunklines are:
 - i. Little Lehigh Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
 - ii. Jordan Creek Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
 - iii. Eastside Trunkline Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
 - iv. Lehigh River Siphon – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.

- v. Hanover Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- vi. Sumner Avenue Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- vii. Trout Creek Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- viii. Trout Creek Relief Interceptor – No rehab or inspection planned. This line gave no evidence of leakage during flow monitoring. PVC pipe installed in 2000. ST expects this pipeline to not require rehabilitation until after 2050.
- ix. Cedar Creek Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- x. Cedar Creek Relief Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xi. Lehigh Interceptor – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xii. Little Cedar Creek Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xiii. Cedar Creek Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xiv. Allentown-Emmaus Interceptor – 19XX VCP pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xv. CWSA Lehigh Interceptor – PCCP pipe installed in 1993. CWSA expects this pipeline to not require rehabilitation until after 2050.
- xvi. CWSA Lehigh Interceptor – RCP interceptor was built in 1965 with O-ring joints and exterior cement mortar diaphragms. It has not been inspected so its condition is not known. This pipeline will need to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xvii. CWSA Lehigh Relief Interceptor – PCCP interceptor was built in 1993 and it has not been inspected so its condition is not known. 2500 lf of the 4100 lf relief interceptor was replaced with DIP in 2018; CWSA expects this portion of the pipeline to not require rehabilitation until after 2050. The 1993 PCCP portion is pipeline need to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xviii. CWSA Jordan Creek Interceptor – No rehab or inspection planned. Replaced with DIP in 2009, CWSA expects this pipeline to not require rehabilitation until after 2050.

- xix. CWSA Coplay Trunkline– No rehab or inspection planned. Replaced with DIP in 2013. CWSA expects this pipeline to not require rehabilitation until after 2050.
- xx. Little Lehigh Relief Interceptor – Entire pipeline was inspected ~2009 and found to be in excellent condition. Test and Seal of entire pipe planned for 2025.
- xxi. Upper Western Lehigh Interceptor – Entire pipeline was inspected and found to be in excellent condition in 2019. Any leaking joints were sealed in 2019.
- xxii. Alburtis Macungie Trunkline – Entire pipeline was inspected and found to be in excellent condition in 2014. Any leaking joints were sealed in 2014.
- xxiii. Upper Milford Trunkline – Entire pipeline was inspected and found to be in excellent condition in 2014. Any leaking joints were sealed in 2014.
- xxiv. Breinigsville Trunkline– Entire pipeline was inspected and found to be in excellent condition in 2014. Any leaking joints were sealed in 2014.
- xxv. Iron Run Trunkline – Entire pipeline was inspected and found to be in excellent condition in 2014. Any leaking joints were sealed in 2014.
- xxvi. Upper Iron Run Trunkline– Entire pipeline was inspected in 2020. Leaking end seals and burst liners were repaired in 2020.
- xxvii. Upper Macungie Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xxviii. Industrial Boulevard Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- xxix. Southside Trunkline – 19XX ZZZ pipeline needs to be inspected to determine if it needs rehabilitation within the 2050 planning horizon.
- s. Planned improvements to KIWWTP as part of the 2018 KIWWTP Master Plan
 - xxx. Capacity improvements
 - 1. None planned beyond those listed above
 - xxxi. Refurbishment improvements
- t. Planned improvements to PTP as part of the 2023 PTP Master Plan
 - i. Capacity improvements
 - 2. None planned beyond those needed detailed in specific alternative scenarios
 - ii. Refurbishment improvements
 - iii. Organic and solids loading improvements
- u. Planned improvements to SCPS and PPS as part of the Pump Station Master Plan that impact capacity
 - i. Pumping capacity improvements
 - 1. None planned
 - ii. Force main capacity improvements
 - 1. None planned
 - iii. Pump Station refurbishment improvements
 - 1. Generator replacement

- iv. Force Main refurbishment improvements
 - 1. SCPS FM 2023 Inspection
 - 2. PPS FM 2030 Inspection
 - 3. SCPS FM ARV 2025 replacement
 - 4. PPS FM ARV 2025 replacement
 - 5. PPS FM 2035 rehabilitation
 - a. Assume rehab does not reduce internal diameter or change Manning's coefficient
 - 1. SCPS FM rehabilitation
 - a. Assumed 2035 rehabilitation
 - b. Assume rehab does not reduce internal diameter or change Manning's coefficient
- v. Planned improvements to CWSA Eberhart and UMT Applewood and Rabenold Pump Station and forcemains
 - i. Pumping capacity improvements
 - 1. None planned
 - ii. Forcemain capacity improvements
 - 1. None planned
 - iii. Pump Station refurbishment improvements
 - 1. Eberhardt PS Station was built in 1999 and refurbished with new MCC, gates, generator, and comminutor in 2022. CWSA does not anticipate any major capital refurbishment needed for this facility until after 2050.
 - iv. Force Main refurbishment improvements
 - 1. CWSA does not intend to inspect or rehabilitated Eberhart PS FM's 3 1999 era DIP forcemains until after 2050 Inspections. There are no ARVs on these 460 lf forcemains.

APPENDIX C

CONVEYANCE COMPONENT DETAILS

- a. Pure Gravity to KIWWTP.
 - i. No new relief pump stations constructed. Park and Spring Creek Pump Stations and their forcemains remain at their current capacities. For the PSOA work, PPS will be modeled as wet well influent pipe only to determine average and peak flow demands.
 - ii. Upstream pump stations like Rabenold, Eberhardt, and Applewood are expanded as needed.
 - iii. KI MPS wet well remains at its current size and elevation, but capacity is increased to pass the peak flow into the treatment plant without impediment. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
 - iv. All additional conveyance capacity is addressed via new/larger interceptors and trunklines
 - 1. Where there is presently only one pipeline, a parallel pipeline is installed where needed. For purposes of PSOA, it is assumed the new line would be immediately parallel to and at same elevations as the current pipeline.
 - 2. Where there are presently two pipelines (e.g., LLRI and AEI, CCI and CCRI, TCI and TCRI), the oldest/smallest of the two lines would be replaced with a new pipeline.
- b. Little Sister Pump Station to KIWWTP
 - i. Same as Pure Gravity to KIWWTP except:
 - 1. A new LSPS and forcemain would be constructed next to the PPS.
 - 2. LSPSFM would discharge to a new headworks and aerated grit chamber inside KIWWTP (This is additional to those headworks and grit facilities constructed under the Common Components to handle the PPS FM extension into KIWWTP.
 - 3. A plug will be installed at MH U613.
 - 4. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
- c. Krick Lane Pump Station
 - i. Same as LSPS to KIWWTP plus:
 - 1. A new KLPS would be constructed at Macungie and Krick Lane in Lower Macungie to relieve the WLI, UMiT Trunkline, and Alburtis-Macungie Trunklines. The KLPS FM would discharge into the LSPS force main.
 - 2. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.

- d. PTP Effluent Pump Station and Force Main: All dry and wet day flows from the PTP will be pumped to KIWWTP via a new PTP Effluent Pump Station. Under normal operating conditions, all pretreatment treated flow from the PTP will then be fully treated at the KIWWTP. During dry weather, flow will be pumped via the PTP Effluent Pump Station to somewhere inside KIWWTP downstream of the MPS. *(The location of this pretreated wastewater needs to be determined and may be to several locations depending on wet weather flow treatment scheme).* During wet weather conditions above the capacity of the PTP, flow will be fully treated at the KIWWTP via a new treatment or storage.
- i. Variations on this scheme include connecting the SCPS, KLPS, LSPS to this new PTP Effluent PS FM.
 - ii. Abandon the Interim Dry Weather Pump Station.
 - iii. Assume FEB is used only to minimize expansion of PTP and not shave peaks for KIWWTP. Assumes FEB only fills during flows above the 9.5 MGD (Estimated normal dry day peak flow) and drains when PTP flow less than 7 MGD PTP hydraulic capacity (assumes PTP ADDF capacity is 6.5 MGD).
 - iv. Expand PTP to X/X/X MGD to handle 2050 dry weather flows.
 - v. Install a PTP Effluent PS and FM to inside KI beyond MPS/APS and at elevation 26. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
 - vi. For variations that utilize SCPS, upsize SCPS to XX MGD *(2019 modeling indicated this upsized SCPS and force main would need to handle a 23 MGD peak 15 minute flow, but the 2021 model will set this new flows)* and tie it into the new PTP Effluent Pump Station Forcemain using a new force main. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.
 - vii. For variations that utilize KLPS and/or LSPS, use the descriptions in b. and c. above, but use tributary forcemains to tie these pump stations into the PTP Effluent PS FM. For the PSOA work, these will be modeled as wet well influent pipe only to determine average and peak flow demands.
 - viii. Add treatment or storage at KIWWTP for flows over the 120 MGD base peak flow capacity of the KIWWTP after Common Components are completed.
 - ix. Add KI Low Well Lift Station to elevation -2 to handle flows over 120 MGD. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.

APPENDIX D

TREATMENT COMPONENT DETAILS

- a. KIWWTP: All flow continues to KIWWTP, with PTP continuing its duty as an industrial pretreatment facility.
 - i. Abandon the Interim Dry Weather Pump Station.
 - ii. Assume FEB only fills during flows above the 9.5 MGD (Estimated normal dry day peak flow) and drains when PTP flow less than 7 MGD PTP hydraulic capacity (assumes PTP ADDF capacity is 6.5 MGD).
 - iii. Expand PTP to X/X/X MGD (dry/max dry/peak wet) to handle normal, seasonal max day flow, and transient peak wet weather flows coming into the normal northern side of the PTP. (2019 modeling indicated this upsized PTP would be 6.1/8.4/10.0 MGD, but the 2021 model will set this new flows).
 - iv. Add treatment or storage at KIWWTP for flows over the 120 MGD base peak flow capacity of the KIWWTP after Common Components are completed.
 - v. Add KI Low Well Lift Station to elevation -2 to handle flows over 120 MGD. For the PSOA work, this will be modeled as wet well influent pipe only to determine average and peak flow demands.

APPENDIX E

ABBREVIATIONS

- ADDF – Average Dry Day Flow
- AO – Administrative Orders (closed under Trump Administration orders; recursor to subsequent PADEP Chapter 94 action that triggered current 537 Planning)
- ARV – Air Release Valve (let's unwanted air out of forcemain_
- City – City of Allentown
- Common Components – things needed or desired to be done regardless of final solution
- CWSA – Coplay Whitehall Sewer Authority
- FAA – Final Alternatives Analyses
- FEB – Flow Equalization Basin (at PTP)
- FM - Forcemain
- HGL – Hydraulic Grade Line (how high sewer flow goes)
- HGLLOS – Hydraulic Grade Line Level of Service (how high the flow in sewer should be allowed to go)
- I&I – Inflow and Infiltration (leakage into the sewers)
- KISS – Kline's Island Sewer System
- KIWWTP - Kline's Island Wastewater Treatment Plant
- KLPS – Krick Lane Pump Station (a conceptual facility)
- LCA – Lehigh County Authority
- LSPS – Little Sister Pump Station (a conceptual facility next to PPS)
- LLRI – Little Lehigh Relief Interceptor
- MGD – Millions of gallons per day
- MPS – Main Pump Station (influent PS at KIWWTP)
- NOAA – National Oceanic and Atmospheric Administration
- NPDES – National Pollution Elimination Discharge System (permit to discharge treated wastewater to river)
- PSOA – Preliminary Screening of Alternatives
- PS – Pump Station
- PPS – Park Pump Station
- PSC – Program Steering Committee

- PTP – Pretreatment Plant
- PTP EPS - Pretreatment Plant Effluent Pump Station (a conceptual facility)
- RDII – Rainfall Derived Inflow and Infiltration (storm-triggered increases in I&I leading to peak wet weather flows)
- SBM – Sewer Billing Meter
- SCARP – Sewer Capacity Assurance and Rehabilitation Program (the precursor to the 537 Program)
- SCPS – Spring Creek Pump Station
- SOS – Selection of Solution
- SRP – Source Reduction Plan (I&I removal plan)
- SSES – Sanitary Sewer Evaluation Study (investigation for I&I)
- VFD – Variable Frequency Drive (motors)
- WLSP – Western Lehigh Sewer Partnership (LCA customers)

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	AD-S-12	BUDGET FUND:	Allentown Div\Wastewater\Capital
PROJECT TITLE:	Kline's Island Sewer System Preliminary Screening of Alternatives (PSOA) – Planning Phase		PROJECT TYPE:
THIS AUTHORIZATION:	\$454,000	<input type="checkbox"/>	Construction
TO DATE (W/ ABOVE)	\$454,000	<input checked="" type="checkbox"/>	Engineering Study
		<input type="checkbox"/>	Equipment Purchase
		<input type="checkbox"/>	Amendment

DESCRIPTION AND BENEFITS:

As Arcadis concludes work on the Capacity Problem Definition authorization, the next phase of Act 537 planning covers the Preliminary Screening of Alternatives (PSOA) modeling work. This work will evaluate an initial group of potential solutions to both the dry weather and weather flow problems (current and through 2050). The PSOA will be used to inform a set of options to be analyzed during the subsequent Final Alternatives Analysis (FAA) phase. See attached for clear identification of proposal goals.

Prior Authorizations: None specifically related to this authorization or current Act 537 planning. To date, Arcadis has been granted multiple authorizations throughout this Act 537 planning process. Arcadis performed a PSOA for LCA during the prior SCARP era planning period (2010-2019).

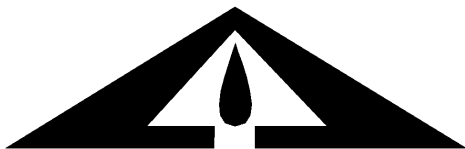
This Authorization: Completion of the work associated with this "Preliminary Screening of Alternatives" proposal. See attached Board Memo for further project details.

Authorization Status:

Requested This Authorization	
<i>Design Phase</i>	
Staff	\$30,000
Contractor	\$0
Engineering Consultant	\$404,000
Contingency	\$20,000
Total This Authorization	\$454,000
Prior Act 537 Authorizations (2019-present)	Various
Subtotal	\$454,000
<i>Future Authorizations</i>	<i>To be determined</i>

REVIEW AND APPROVALS:

_____	_____	_____	_____
Project Manager	Date	Chief Executive Officer	Date
_____	_____	_____	_____
Chief Capital Works Officer	Date	Chairman	Date



Lehigh County Authority

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(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

PROFESSIONAL SERVICES AUTHORIZATION

Professional: ARCADIS U.S., INC.
1600 Market Street
Suite 1810
Philadelphia, PA 19103

Date: October 10, 2022

Requested By: Phil DePoe

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division: Kline's Island Sewer System Preliminary Screening of Alternatives (PSOA) – Planning Phase

As Arcadis concludes work on the Capacity Problem Definition authorization, the next phase of Act 537 planning covers the Preliminary Screening of Alternatives (PSOA) modeling work. This work will evaluate an initial group of potential solutions to both the dry weather and weather flow problems (current and through 2050). The PSOA will be used to inform a set of options to be analyzed during the subsequent Final Alternatives Analysis (FAA) phase. See attached for clear identification of proposal goals. The services of the proposal include, but are not limited to, the following:

Professional Services ⁽¹⁾
1. Common Component Modeling and Sizing
2. Source Reduction Modeling
3. Conveyance and Treatment Module Modeling
4. Alternatives Modeling
5. Alternatives Costing
6. Meetings, Presentations, Workshops, and Project Management

(1) Planning phase only

This Approval: \$404,000 *(see attached proposal)*

Total Amount (not to be exceeded without further authorization): \$404,000

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____

Lehigh County Authority – Monthly Report to Board of Directors

Upcoming Board Agenda Items & Project Updates – October 2022

Published: October 3, 2022

PART 1 – Upcoming Agenda Items – Action & Discussion Items

FINANCE & ADMINISTRATION

Project Title: WLI User Charge Report

Division / Funding: Suburban Division

Status or Action Desired: Approval

Board Action Date: 10/10/2022

Project Phase: n/a

Project Notes: The Western Lehigh Interceptor (WLI) User Rates will be presented to the Board for review and preliminary approval. The rates will be presented to the municipal signatories for comment, and final rates incorporated into the 2023 Budget. Staff Responsibility: Jennifer Montero

Project Title: 2023 Budget - Preliminary Review

Division / Funding: All Divisions

Status or Action Desired: Approval

Board Action Date: 10/10 & 10/24/2022

Project Phase: n/a

Project Notes: The Board will receive a second presentation on the 2023 Budget and preliminary rates, and review the schedule for the remainder of the budget process including seeking approval at the last meeting in October. Staff Responsibility: Ed Klein

Project Title: LCA Strategic Plan - 2022 Quarterly Progress Reporting

Division / Funding: All Divisions

Status or Action Desired: Discussion

Board Action Date: 10/24/2022

Project Phase: n/a

Project Notes: A quarterly report of staff progress on key initiatives outlined in LCA's Strategic Plan will be presented for Board review and discussion. Staff Responsibility: Liesel Gross

Project Title: Asset Management Roadmap & Strategic Asset Management Plan (SAMP)

Division / Funding: All Divisions

Status or Action Desired: Approval

Board Action Date: 10/24/2022

Project Phase: Planning Phase

Project Notes: Within the recently adopted 2022-2027 Strategic Plan, LCA has identified the need to develop a comprehensive and standardized approach to managing its water and sewer system assets across the entire organization. This asset management approach is considered to be a best practice for water and sewer utilities, and is a regulatory requirement in some states. The overall goal of an asset management program is to increase the level of service delivered to the community while also managing the overall asset life-cycle cost and minimizing the risk of asset failure. An internal staff team has developed preliminary definitions and concepts for a comprehensive asset management approach for LCA, but external support is required to fully develop the strategic asset management plan (SAMP). Consultant proposals were solicited for this work, and staff will recommend authorization for a selected engineering firm at the October 24, 2022 Board meeting. Staff Responsibility: Liesel Gross

Project Title: Monthly Financial ReviewDivision / Funding: n/aStatus or Action Desired: DiscussionBoard Action Date: 10/24/2022Project Phase: n/aProject Notes: September 2022 monthly financial report will be presented. Staff Responsibility: Ed Klein**SYSTEM OPERATIONS****Project Title: Monthly Operations Report**Division / Funding: n/aStatus or Action Desired: DiscussionBoard Action Date: 10/24/2022Project Phase: n/aProject Notes: September 2022 monthly operations report will be presented. Staff Responsibility: Andrew Moore & Chris Moughan**WASTEWATER PROJECTS - SUBURBAN****Project Title: Western Lehigh Manhole Rehabilitation Project - Phase 3**Division / Funding: Suburban DivisionStatus or Action Desired: ApprovalBoard Action Date: 11/14/2022Project Phase: Construction Phase

Project Notes: This project involves the rehabilitation of key manholes in the Western Lehigh Interceptor Service Area. The project includes flood-proofing, interior pipe connection grouting, exterior concrete work and sealing of manholes, particularly those manholes in close proximity to the floodway, which experience floodwater inundation. The purpose of the project is to eliminate floodwater inflow into the system. The project scope for Phases 1 & 2 included 100 manholes that were rehabilitated over the past 2 years. Design of Phase 3 of this project is set to commence investigation efforts by early March 2022 with an anticipated construction phase Board authorization at the November 14, 2022 meeting. Staff Responsibility: Jason Peters

WASTEWATER PROJECTS – ALLENTOWN DIVISION

Project Title: Kline's Island WWTP: Effluent Disinfection and Dechlorination System Improvements

Division / Funding: Allentown Division

Board Action Date: 10/10/2022

Status or Action Desired: Approval

Project Phase: Construction Phase

Project Notes: Results from a Computational Fluid Dynamics (CFD) modeling of the chlorine contact tank indicated that dechlorination of disinfected plant effluent will enable balancing fecal coliform kill and residual chlorine effluent limits, which has been a challenge with plant operations since the hypochlorite disinfection system was activated. Plant operations staff are currently utilizing hypochlorite disinfection of plant effluent installed in 2021, however, demolition of the old gaseous chlorination system (under the sodium hypochlorite project) was delayed pending a permanent dechlorination system. This is further necessitated by stricter residual chlorine effluent limits proposed in the draft KIWWTP NPDES permit, which is anticipated to become effective in a few years following DEP approval of the long-term Act 537 Plan. A dechlorination system pilot program was performed to verify the effectiveness of chemical addition in removing free and combined chlorine residuals from the plant effluent. Design was substantially completed in Spring 2022 and a permit for the permanent dechlorination system was issued by DEP in May 2022. Final design includes the demolition of the gaseous chlorine system following installation of the permanent dechlorination system. The project was advertised for bid in August 2022 and bids were opened on 9/28/22. Construction phase authorization is to be requested at the 10/10/22 LCA Board meeting. Staff Responsibility: Bryan Geissel

Project Title: KISS System Modeling - Preliminary Screening of Alternatives (PSOA)

Division / Funding: Allentown Division - AO

Board Action Date: 10/10/2022

Status or Action Desired: Approval

Project Phase: Planning Phase

Project Notes: As work on the Capacity Problem Definition phase of Act 537 planning concludes in October 2022, the next major phase of work involves the Preliminary Screening of Alternatives (PSOA). The PSOA phase will commence in October 2022 and will conclude in late April 2023. This work includes the narrowing down of all the potential storage, gravity conveyance, pumped conveyance, source reductions, and treatment options into manageable (realistic) options for modeling purposes. After the PSOA concludes, the next major Act 537 planning phase is the Final Alternatives Analysis (FAA). Board authorization on the PSOA proposal is requested at the October 10, 2022 Board Meeting. Staff Responsibility: Phil DePoe

PART 2 – Project Updates – Information Items

Project Title: 2021 Audit & Financial Statements

Division / Funding: n/a

Status or Action Desired: NEW

Board Action Date: n/a

Project Phase: n/a

Project Notes: The 2021 Audited Financial Statements have been delayed due to the delayed completion of the Pennsylvania Municipal Retirement System (PMRS) financial audit. A notice of delay has been sent to the appropriate parties. The LCA statements are complete and will be presented to the Board for review and acceptance upon receipt of the PMRS audit information. Staff Responsibility: Ed Klein

Project Title: Kline's Island WWTP: Substation No. 1 and Switchgear Replacement

Division / Funding: Allentown Division

Status or Action Desired: NEW

Board Action Date: n/a

Project Phase: Preliminary Design

Project Notes: The KIWWTP electrical service is supplied by two 12.4 kV power feeds from PPL, which enter Substation No. 1 and connect to the 12.4 kV switchgear, which distributes the 12.4 kV power to 480v Substation No. 1 and Substation No. 2. The substations distribute power to the various MCCs and loads throughout the plant. Per prior electrical condition assessments performed by consultants, the substations and primary switchgear (which are from the 1970s) are at the end of their useful life and in need of replacement. Substation No. 2 was replaced in 2019. Preliminary engineering is in progress to design the replacement of Substation No. 1 and the primary switchgear. Conceptual design was submitted to the City on 9/23/22 as part of Major Capital Improvement protocol, and final design will be completed in early 2023. Staff Responsibility: Chuck Volk

PART 3 – Open Project List – No Updates

Finance & Administration	LCA Munis ERP System Planning & Re-Implementation	All Divisions	Planning Phase	Brooke Neve
System Operations	Large Diameter Valve Prioritization Program	Allentown Division	Planning Phase	Chris Moughan
System Operations	Suburban Water Facilities - SCADA System Upgrade	Suburban Division	Construction Phase	Chris Moughan
System Operations	Watershed Monitoring Program	Suburban Division	Ongoing	Andrew Moore
Water - Suburban	Water Main Replacement Program Cycle 6	Suburban Division	Construction Phase	Jason Peters
Water - Suburban	I-78 Water Main Crossing	Suburban Division	Construction Phase	Ed Hoyle
Water - Suburban	Fixed Base Meter Reading Stations	Suburban Division	Planning Phase	Amy Kunkel
Water - Suburban	2022 Commercial Meter Replacement Project	Suburban Division	Construction Phase	Amy Kunkel
Water - Suburban	Far View Farms Pump Station Demolition	Suburban Division	Project Closeout	Ed Hoyle
Water - Suburban	Upper System Pump Station and Main Extension	Suburban Division	Design Phase	Ed Hoyle
Water - Suburban	Central Lehigh and North Whitehall Systems – Water Supply Study	Suburban Division	Planning Phase	Phil DePoe
Water - Allentown	Lead Service Line Replacement Program Planning	Allentown Division	Planning Phase	Andrew Moore
Water - Allentown	Water Filtration Plant & System Master Plan	Allentown Division	Planning Phase	Phil DePoe
Water - Allentown	Water Main Replacement Program Cycles 7 & 8	Allentown Division	Design	Jason Peters
Water - Allentown	Water Main Replacement Program Cycle 6	Allentown Division	Construction Phase	Jason Peters

Water - Allentown	SmartBall Inspection - 30" and 36" Transmission Main - East Side	Allentown Division	Planning Phase	Chris Moughan
Water - Allentown	Water Filtration Plant: Filter Upgrade Project	Allentown Division	Design Phase	Chuck Volk
Water - Allentown	Water Filtration Plant: 2022 Indenture Upgrades	Allentown Division	Construction Phase	Bryan Geissel
Water - Allentown	Water Filtration Plant: High Lift Pump VFD Replacements	Allentown Division	Construction Phase	Chuck Volk
Sewer - Act 537	Sanitary Sewer Collection System: Rain Derived Inflow and Infiltration (RDII) Analysis - Signatory Systems	Allentown Division	Project Closeout	Phil DePoe
Sewer - Act 537	KISS System Modeling - Capacity Problem Definition	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	KISS System Modeling - Hydraulic Model Expansion and Calibration	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	KIWWTP - Wet Weather Treatment Options	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	Regional Sewer Capacity & Wet-Weather Planning - Regional Act 537 Plan Preparation	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	Kline's Island WWTP: Phase 1 AO Design Improvements	City of Allentown (AO)	On Hold	Phil DePoe
Sewer - Act 537	KISS System Modeling - Sewage Billing Meter QA/QC Data Analytics and 2021 Flow Metering Preparation	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	Resolution 6-2022-1: Trexlertown Act 537 Special Study	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	Regional Sewer Capacity & Wet-Weather Planning: Engineering & Program Support	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	Upper Western Lehigh Pump Station and Force Main	Suburban Division	Design Phase	Amy Kunkel
Sewer - Act 537	Western Lehigh Service Area - Engineering & Program Support	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	Industrial Pretreatment Plant Master Plan	Suburban Division	Planning Phase	Phil DePoe

Sewer - Suburban	Heidelberg Heights 2021 and 2022 Sanitary Sewer Replacement Project	Suburban Division	Construction Phase	Jason Peters
Sewer - Suburban	Heidelberg Heights Wastewater Treatment Plant - Mechanical Screen Project	Suburban Division	Design Phase	Chuck Volk
Sewer - Suburban	Heidelberg Heights Sanitary Sewer Consent Order & Agreement	Suburban Division	Planning Phase	Chuck Volk
Sewer - Suburban	Lynn Township Corrective Action Plan	Suburban Division	Ongoing	Jason Peters
Sewer - Suburban	Park Pump Station Phase 2 Upgrade	Suburban Division	Construction Phase	Chuck Volk
Sewer - Allentown	Kline's Island WWTP: Solids Process Boiler and HVAC System Upgrade Project	Allentown Division	Construction Phase	Bryan Geissel
Sewer - Allentown	Kline's Island WWTP: Wet Weather Capacity Enhancements	Allentown Division	Preliminary Design	Bryan Geissel
Sewer - Allentown	Kline's Island WWTP: 2022 Indenture Upgrades	Allentown Division	Construction Phase	Bryan Geissel
Sewer - Allentown	KIWWTP Primary Digester No. 1 Cleaning	Allentown Division	Construction Phase	Bryan Geissel
Sewer - Allentown	Kline's Island WWTP: Sludge Thickener Tank No. 3 Mechanical Upgrade	Allentown Division	Construction Phase	Bryan Geissel
Sewer - Allentown	Kline's Island WWTP: Main and Auxiliary Pump Station Improvements	Allentown Division	Preliminary Design	Chuck Volk
Sewer - Allentown	Kline's Island WWTP: Intermediate Pump Station Improvements	Allentown Division	Preliminary Design	Chuck Volk
Sewer - Allentown	Lehigh Street (Rte. 145) Water and Sewer Main Relocation Project	Allentown Division	Construction Phase	Jason Peters
Sewer - Allentown	Sanitary Sewer Collection System: I&I Source Reduction Program Plan (Year 3)	City of Allentown (AO)	Construction Phase	Phil DePoe