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Agendas & Minutes Posted:
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LEHIGH COUNTY AUTHORITY

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BOARD MEETING AGENDA – May 20, 2024 – 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

- *April 22, 2024 Board Meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *Resolution No. 5-2024-1: Destruction of Authority Documents (Approval) (blue) (digital Board packet, pages 7-9)*
- *Water Utility Benchmarking Study: Staffing Survey (Discussion)*

WATER

- *Water System Interconnections - Design Phase Cost-Sharing Agreement (Approval) (yellow) (digital Board packet, pages 10-25)*

WASTEWATER

- *Pretreatment Plant - Critical Upgrades (Approval) (purple) (digital Board packet, pages 26-39)*
- *Sanitary Sewer Collection System: I&I Source Reduction Program (LCA Year 2) (Approval) (green) (digital Board packet, pages 40-44)*

6. Monthly Project Updates / Information Items (1st Board meeting per month) (digital Board packet, pages)
7. Monthly Financial Review (2nd Board meeting per month) (digital Board packet pages 45-57) – **April 2024 report attached**
8. Monthly System Operations Overview (2nd Board meeting per month) (digital Board packet, pages 58-60) – **April 2024 report attached**
9. Staff Comments
10. Solicitor's Comments
11. Public Comments / Other Comments
12. Board Member Comments
13. Executive Sessions
14. Adjournment

UPCOMING BOARD MEETINGS		
June 10, 2024	June 24, 2024	July 8, 2024

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

April 22, 2024

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:01 p.m. on Monday, April 22, 2024, 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, Amir Famili, Ted Lyons, Jeff Morgan, Norma Cusick, and Sean Ziller were present for Roll Call, and remained for the duration of the meeting. Marc Grammes joined the meeting at 12:03 p.m.

Attorney Kevin Reid, the Authority's Solicitor, was present along with Authority Staff, Liesel Gross, Ed Klein, Andrew Moore, AJ Capuzzi, Phil DePoe, Chuck Volk, Susan Sampson, and Lisa Miller.

Chairman Nagle announced that the Board received their electronic and hard copies of the Board packet in advance. He then 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, she noted the agenda was updated to include the financial report that was distributed after the packet was mailed. Also, an Executive Session is planned after the close of the regular session to discuss a personnel matter.

APPROVAL OF MINUTES

March 25, 2024 Meeting Minutes

Jeff Morgan noted a grammatical error. On a motion by Jeff Morgan, seconded by Amir Famili, the Board approved the minutes from the March 25, 2024 meeting as corrected (6-0).

PUBLIC COMMENTS

None.

Resolution No. 4-2024-1: Authorizing the Authority's Application for Pennvest Funding

Liesel Gross explained the resolution regarding the submission of the Pennvest application for the next round of funding for the replacement of public and private lead service lines. She noted that grant funding may not be available to fully cover the project cost, but the Authority should expect to receive a mix of grant and loan funding for this project.

On a motion by Amir Famili, seconded by Ted Lyons, the Board approved Resolution No. 4-2024-1 (7-0).

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

Brian Nagle – yes
Amir Famili – yes
Ted Lyons – yes
Jeff Morgan – yes
Norma Cusick – yes
Sean Ziller – yes

Marc Grammes – yes

Allentown Division – Water Main Replacement Program Cycles 7 & 8

Jason Peters provided an overview and background of the project to replace approximately 2 miles of water main in the City of Allentown. The project is coordinated with the City's Compliance Office, Streets Program, PennDOT, and private utilities. Funding for this project is from the Authority's Allentown Division and City grant funds from the American Rescue Plan Act of 2021 (ARPA). The contractor N. Abbonizio Contractors is recommended for approval, and has worked with the Authority's design consultant to perform several water main replacements for other utilities with satisfactory results.

The Board asked if there has been a difference in the quality of work between the different contractors that have performed the work during the different water main replacement cycles. Mr. Peters said there have been some differences in contractors, but the quality of work has been the same. There have also been some cost increases, but it mainly depends on the project and what is found underground and the location of the project. Higher labor costs are also a factor in the cost increases.

Sean Ziller asked about the availability of additional ARPA funding from the City. Liesel Gross said the funds from the City have been designated primarily for the water main replacements and the Water Filtration Plant projects. Jennifer McKenna, City of Allentown Office of Compliance, commented that the City Council has allocated \$15 million of the ARPA funds to these projects as well as sewer collection system upgrades. The City and the Authority met to review the projects to determine what was working and decided to look at mobilization costs and work in a different sector each year to streamline projects.

Chairman Nagle asked if the paving project will include the ADA curbing and ramp installations. Mr. Peters explained that the ADA requirements are included as they are part of the City ordinance for paving projects.

On a motion by Sean Ziller, seconded by Marc Grammes, the Board approved the Capital Project Authorization for the Construction Phase – Allentown Division Cycle 7 & 8 Water Main Replacement in the amount of \$5,053,203.00 which includes the Professional Service Authorizations for the Construction Engineering and Administration Services to Gannett Fleming Inc. in the amount of \$89,280.00 and Construction Inspection Services to Keystone Consulting Engineers in the amount of \$89,300.00, General Construction Contract to N. Abbonizio Contractors, Inc. in the amount of \$3,912,403.00 and the Final Paving Restoration Contract Cost Sharing Agreement, City of Allentown, in the amount of \$737,220.00. The authorization also includes authorization for Staff or the CEO to execute the cost-sharing agreement for street restoration and repaving (7-0).

Kline's Island WWTP – Final Settling Tanks 1-4 Upgrades

Amy Rohrbach provided background and a review of the project to upgrade components of the four settling tanks that have reached the end of their useful life. The project includes structural upgrades, electrical upgrades, and mechanical upgrades, as described in the proposal from GHD. The project will also include conduit with fiber line to extend to other parts of the plant for future SCADA enhancements. The City of Allentown has approved the conceptual design, and the project is considered a Major Capital Improvement project allowing for costs to be recovered in the Capital Cost Recover Charges (CCRC).

On a motion by Jeff Morgan, seconded by Ted Lyons, the Board approved the Capital Project Authorization for the Design & Bidding phase in the amount of \$166,400.00 which includes the Professional Services Authorization to GHD in the amount of \$146,400.00 (7-0).

MONTHLY FINANCIAL REVIEW

Ed Klein gave an overview of the March 2024 financial statements, highlighting variances between actual expenses and budgeted or forecasted expenses. Mr. Klein reported that all three funds were favorable for March with both net income and cash flows performing better than forecast.

MONTHLY SYSTEM OPERATIONS OVERVIEW

Andrew Moore reviewed the March 2024 report and reported that there were no injury or vehicle incidents. March was a wet month with 5.14 inches of rain. Water production from the Lehigh River source was a little higher last month mainly due to the turbidity events in the Little Lehigh Creek. Wastewater flows remain elevated due to rain events this month.

STAFF COMMENTS

Liesel Gross announced that she will be providing an annual update to the Lehigh County Board of Commissioners on Wednesday, April 24th. The update will be focused on wastewater planning for the region and the meeting is virtual for anyone who would like to view the meeting.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

Jeff Morgan asked when the force main construction will be completed in Grange Park. Chuck Volk stated the force main project should be completed in the park by early fall.

Sean Ziller thanked the Staff for sharing the media updates with the Board and happy to see the outreach that the Authority is doing.

Chairman Nagle announced that a Stakeholder Advisory Panel is being assembled to look at the upgrade options related to the Authority's Pretreatment Plant. Amir Famili and Ted Lyons have been assigned as Authority Board representatives i, with Kevin Baker as an alternative. He said that community involvement with this project is important, and the Board looks forward to the results from this effort.

EXECUTIVE SESSION

There will be an Executive Session after the regular meeting to discuss personnel matters.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 12:50 p.m.

Jeffrey J. Morgan
Secretary

RESOLUTION No. 5-2024-1

(Duly adopted 20 May 2024)

A RESOLUTION AUTHORIZING DISPOSITION OF CERTAIN RECORDS.

WHEREAS, by virtue of Resolution No. 11-2019-1, adopted November 11, 2019, Lehigh County Authority (“Authority”) declared its intention to follow the *Municipal Records Manual – Retention and Disposition Schedule for Records of Pennsylvania Municipal Governments* (the “State Retention Schedule”), as currently published or as may be amended in the future, but with modifications that are no less stringent or not addressed by the State Retention Schedule in order to address special Authority circumstances or needs; and

WHEREAS, in accordance with the Pennsylvania Municipal Records Act, as amended, found at 53 Pa.C.S.A. 1381 et seq., each individual act of disposition shall be approved by resolution of the Authority’s Board.

NOW THEREFORE, the Lehigh County Authority Board, pursuant to powers invested in it by the Pennsylvania Municipality Authorities Act, as amended, hereby resolves that:

- 1 . In accordance with the State Retention Schedule, the Authority is authorized to dispose of the records contained in the Schedule “A” hereto (“Scheduled Records”).
- 2 . Authority staff members are authorized and directed to take such steps as are necessary or convenient to implement the disposition of the Scheduled Records.
- 3 . This Resolution shall take effect immediately.

On motion of _____, seconded by _____, this Resolution was adopted the 20th day of May, 2024.

Tally of Votes: Yeas _____ Nays _____

I, Jeffrey J. Morgan, Secretary of Lehigh County Authority Board of Directors, do hereby certify that the foregoing is a true, correct and complete copy of a resolution which was duly adopted by the Authority at a public meeting of the Authority held on 20 May 2024, after notice thereof had been duly given as required by law, at which meeting a quorum was present and voting and which Resolution No. 5-2024-1 is now in full force and effect on the date of this certification.

Jeffrey J. Morgan	Date
Secretary	
Lehigh County Authority Board of Directors	

Attest:

Lisa J. Miller	Date
Executive Administrative Support Specialist	

SCHEDULE "A"
to
RESOLUTION NO. 5-2024-1

SCHEDULE OF RECORDS SUBJECT TO DISPOSITION

[illegible]

**INTERMUNICIPAL WATER SERVICE AGREEMENT
BETWEEN
LEHIGH COUNTY AUTHORITY,
CITY OF ALLENTOWN,
BETHLEHEM AUTHORITY AND
CITY OF BETHLEHEM**

THIS AGREEMENT made this ____ day of _____, 2024 between the ***CITY OF BETHLEHEM*** (“COB”), a Municipal Corporation with its principal address at 10 East Church Street, Bethlehem, PA 18018; the ***BETHLEHEM AUTHORITY*** (“BETHLEHEM AUTHORITY”), a Municipal Authority organized and existing under the Municipality Authorities Act of 1945, as amended, with its principal address at 10 East Church Street, Bethlehem, PA 18018; the ***LEHIGH COUNTY AUTHORITY*** (“LCA”), a Municipal Authority organized and existing under the Municipality Authorities Act of 1945, as amended, with its principal address at 1053 Spruce Road, P.O. Box 3348, Allentown, PA 18106 and the ***CITY OF ALLENTOWN*** (“COA”), a Municipal Corporation with its principal address at 435 Hamilton Street, Allentown, PA 18101. The COB, LCA, Bethlehem Authority and COA hereinafter referred to as “Party” or “Parties”. The COB and BETHLEHEM AUTHORITY hereinafter referred to as “COB Parties”, and COA and LCA hereinafter referred to as “COA Parties”.

WHEREAS, the BETHLEHEM AUTHORITY, owns a certain 28.6 million gallon per day regional public water supply and distribution system consisting of customers and both real and personal property including reservoirs, treatment facilities, pumping facilities, transmission mains, distribution lines, service connections, valves, meters, wells and pumping/treatment stations, electrical and instrumentation equipment, fire hydrants, and appurtenances with respect to certain easements and right-of-way herein called “BETHLEHEM WATER SYSTEM”; and

WHEREAS, the COB operates the BETHLEHEM WATER SYSTEM pursuant to certain Pennsylvania Department of Environmental Protection (“PADEP”) permits and to a

Certificate of Public Convenience obtained from the Pennsylvania Public Utility Commission (“PUC”) for a certain Certificated Service Territory; and

WHEREAS, the COA owns, in accordance with PADEP permits, a 39 million gallon per day public water supply and distribution system including reservoir, river intake and pumping station, treatment facilities, distributive pumping facilities, finished water storage reservoirs, transmission mains and distribution system appurtenances herein called the “COA WATER SYSTEM”; and

WHEREAS, the LCA operates the COA WATER SYSTEM PURSUANT TO certain PADEP permits and a 50-year Concession Lease Agreement between LCA and COA dated May 2, 2013, as amended from time to time; and

WHEREAS, in the mutual interests of all Parties hereto, the LCA, BETHLEHEM AUTHORITY, COB and COA desire to design and construct interconnects between the BETHLEHEM WATER SYSTEM and the COA WATER SYSTEM for the sale and purchase of public water in the event of an emergency condition in either water system (the “PROJECT”) in accordance with the provisions of this Agreement.

NOW, THEREFORE, the Parties hereto, intending to be legally bound, and for the good, sufficient, and valuable consideration herein identified, and the mutual promises and covenants hereinafter set forth, do agree as follows:

1. The “WHEREAS” Clauses herein before set forth are incorporated and made a part of this Agreement.
2. The Parties agree to design and construct the PROJECT at certain locations more fully described in **EXHIBIT “A”** attached hereto and made a part hereof, under the following conditions:

(a) Design – The Parties agree to design the PROJECT utilizing the AECOM Water Supply Interconnection Evaluation and Conceptual Design Criteria dated December 9, 2021 (the “Design”). COB will contract with, and hold a design contract with AECOM and be reimbursed by LCA for 50% of the design costs. The Parties will jointly review the Design and provide timely written comments to AECOM for incorporation into final Design documents to be used for construction of the PROJECT, including delineation of PROJECT improvements to be constructed individually by the COA Parties and the COB Parties and those PROJECT improvements to be constructed jointly, as described in Section 2 (b) of this agreement.

(b) Construction – The Parties agree to jointly develop a construction schedule for all PROJECT improvements and make reasonable efforts to complete the PROJECT in accordance with this schedule. The construction of the PROJECT shall require that the COB Parties and the COA Parties each be solely responsible for the management, construction and payment of costs for such management and construction of the PROJECT improvements that occur on their respective sides of each interconnection. In addition, COB will contract for the construction of the interconnection chamber, located within the PROJECT, and be reimbursed by LCA for 50% of the construction cost. In conjunction with the construction schedule, the Parties shall enter into such construction agreements as may be appropriate and required for their respective sides of each interconnection. Any construction agreement for the interconnection chamber shall provide appropriate indemnification and liability protection for the Parties and also contain appropriate dispute resolutions and choice of law provisions, all of which shall be approved by the Parties.

(c) Operation/Maintenance – The Parties agree that upon substantial completion of the construction of the PROJECT, the Parties shall enter into a separate agreement to provide for the operation, maintenance and conditions of the PROJECT.

3. Each Party hereto agrees to indemnify and hold harmless the others, their employees, agents, officials, representatives, attorneys and assigns from any and all liability, arising directly out of the indemnifying Party’s negligent activities conducted in connection with this Agreement. Each Party to this Agreement agrees to indemnify and hold harmless the other

Parties, their employees, agents, officials, representatives, attorneys and assigns from any and all liability arising from or out of any third party claims.

4. This Agreement may be executed by electronic signature or electronic transmission which shall be regarded for all purposes as an original.

5. This Agreement and the obligations of the Parties are contingent upon receipt of all applicable approvals and consents required from all governmental entities having jurisdiction of or over the matters contained in this Agreement.

~ REMAINDER OF PAGE LEFT BLANK INTENTIONALLY ~

IN WITNESS WHEREOF, the Parties hereto have hereunder set their hands and seals the day and year first above written.

WITNESS:

CITY OF BETHLEHEM

By: _____
Print Name: _____
Title: _____

By: _____
Print Name: _____
Title: _____

WITNESS:

BETHLEHEM AUTHORITY

By: _____
Print Name: _____
Title: _____

By: _____
Print Name: _____
Title: _____

WITNESS:

LEHIGH COUNTY AUTHORITY

By: _____
Print Name: _____
Title: _____

By: _____
Print Name: _____
Title: _____

WITNESS:

CITY OF ALLENTOWN

By: _____
Print Name: _____
Title: _____

By: _____
Print Name: _____
Title: _____

August 4, 2023
Revised September 26, 2023

Edward J. Boscola, PE
Director - Water and Sewer Resources
City of Bethlehem
10 East Church Street
Bethlehem, PA 18018

RE: Proposal for Emergency Water Supply Interconnections Detailed Design – COB-LCA

We appreciate the opportunity to provide professional engineering services to the City of Bethlehem for the detailed design of emergency water system interconnections between the City of Bethlehem (COB) and Lehigh County Authority (LCA). The interconnections are based on those recommended in AECOM's Emergency Water Supply Interconnections Evaluation and Conceptual Design report dated December 9, 2021.

Attached to this letter, you will find our technical approach to preparing the detailed design for the following interconnections, as **Attachment A**:

- LCA-3 at Club Avenue and East Tremont Street
- LCA-1 at Central Park Ave and Florence Avenue (add alternate)
- LCA-2 at West Broad Street and Hanover Avenue (add alternate)

Attachment B includes maps of the above mentioned interconnection sites.

Our fee proposal is included in **Attachment C**. Two fees are provided for LCA, the first with LCA-3 and the second with adding LCA-1 and LCA-2 as add alternates. Our fee was developed based on the assumption that work would be performed concurrently with interconnections between the City of Bethlehem and Easton Suburban Water Authority presented under a separate proposal.

If you require additional information, please feel free to call me directly at 302.379.0267 or email me at chris.curran@aecom.com. We highly value our relationship with the City of Bethlehem and look forward to continuing to serve you in this very important project.

Yours sincerely,



Christopher T. Curran, PE
Vice President, Water
AECOM
T: 610-234-0404
E: chris.curran@aecom.com

enclosures: Attachment A: Scope of Services
Attachment B: Maps of Interconnection Sites
Attachment C: Fee Proposal

Attachment A: Project Understanding and Approach

In the December 9, 2021 report entitled **Emergency Water Supply Interconnections Evaluation and Conceptual Design** prepared by AECOM for the Bethlehem Authority, fourteen interconnections were evaluated to provide the maximum demand of up to 15 mgd to the City of Bethlehem (COB) water supply system. Of these, the following were selected for further development:

Interconnections between the City of Bethlehem and Lehigh County Authority (COB-LCA):

- LCA-3 at Club Avenue and East Tremont Street *(base)*
- LCA-1 at Central Park Ave and Florence Avenue, *(add alternate)*
- LCA-2 at West Broad Street and Hanover Avenue, *(add alternate)*

This document describes the technical approach to preparing the detailed design for all interconnections. Refer to **Attachment B: Maps of Interconnection Sites** for the locations of the abovementioned interconnections. Refer to **Attachment C: Fee Proposal** for our fee proposal and basis of fee.

The following scope of work is to establish 100% designs for the abovementioned interconnections. Project execution will occur in two major tasks: **Hydraulic Modeling** to confirm the interconnect design basis and **Interconnection Design** to prepare contract documents for construction.

Task 1: Hydraulic Modeling

AECOM will use the WaterGEMS water distribution system model of the City of Bethlehem's system to evaluate system operation with various interconnection configurations and coordinate with the connecting utility, the Lehigh County Authority (LCA), and their consulting engineer, Gannett-Fleming, to confirm the design parameters for the interconnections and associated pumping and metering facilities. In parallel, AECOM is developing the preliminary design for interconnections with the Easton Suburban Water Authority (ESWA) and AECOM's analyses will account for ESWA's interconnections in one scenario. In addition, AECOM will use the WaterGEMS model as a base to create a HAMMER model to evaluate the interconnections for hydraulic transients and inform the need for surge suppression systems. In addition, AECOM will use the chemical characteristics of the respective utility's water as input for the Rothberg, Tamburini, & Winsor (RTW) model to assess the impact of one utility's water on the water chemistry of the receiving utility's distribution system.

All hydraulic modeling analyses will be coordinated with Gannett Fleming to verify system pressures at the

interconnections. Results will be reviewed in terms of existing pressure constraints for maximum and minimum pressures within each system. Unless directed otherwise, a minimum pressure of 30 psi will be assumed. Rather than combining hydraulic models, the interconnections will be assessed as boundary conditions with a defined flow or pressure pattern. In cases of gravity supply to the City from the connecting utility, the boundary condition will be a variable demand junction. The flows in this pattern will be based on the results of the modeling of the connecting utility's distribution system connected to the City system with a defined pressure pattern based on the typical pressure range experienced in the City's system. In cases of pumped supply to the City from the connecting utility, the boundary condition will be a variable head reservoir junction. The flow pattern for this junction will be based on the results of the modeling of the connecting utility's distribution system connected to the City system with a pump selected to deliver a defined flow rate and head. Similar scenarios will be developed for supply of water from the City to the connected utility.

Modeling scenarios will simulate a 24-hour extended period of average, minimum and maximum day demand conditions in both systems. Use of the City water distribution system hydraulic model will be for, to establish System pressures and. The following connections will be evaluated.

- Interconnection LCA-3
- Interconnections LCA 1, LCA-2 and LCA-3 all active
- All interconnections to the COB active

Gravity flow assessments will be conducted with and without installation of infrastructure improvements in the City and the connecting utility to estimate available flow rates through the interconnections and whether system pressure constraints would be met. Pumped flow assessments will be conducted assuming infrastructure improvements in the City and the connecting utility have been installed to estimate system pressures in the systems with the interconnections active.

Table 1: Preliminary Basis of Design

Interconnection	Improvements in Bethlehem				Improvements in Connected Utility			
	12" Main	Gate Valves	Hydrants	Fittings	12" Main	Gate Valves	Hydrants	Fittings
LCA-1	3,122 ft	26	1	16	980 ft	11	2	5
LCA-2	2,229 ft	15	1	8	0	1	1	0
LCA-3	0	1	1	0	0	1	1	0

The need for pump controls will be identified through review of the modeling results relative to storage tank levels. For example, pumps could be directed to turn off on high levels in storage tanks and directed to turn on when storage tank levels are low if SCADA infrastructure is available. Otherwise, pumps will be assumed to run continuously based on local pressure during the simulations.

The results of these analyses will be used to confirm the preliminary basis of the design of the infrastructure improvements presented in **Table 1**.

Additional appurtenances (fittings, valves, hydrants, air release valves, stubs for future connections) will be included. Model scenarios will assume that all flows through the interconnections will be metered using flow meters with minimal head losses. No backflow prevention will be included in the scenarios.

Pump station requirements (number of pumps, head and capacity, power requirements) will be quantified by the modeling effort.

In addition, the City system and the connected utilities' systems will be evaluated for the following water quality parameters:

- Source tracing to water age to assess extent of supplied water
- Water age to assess potential need for chlorine boosting at interconnection

Water quality results will be used to set the design parameters for chemical feed facilities located at the interconnections

Each interconnection will be evaluated for hydraulic transients by simulating shut down of pumps to assess the resulting drop in pressure and potential upsurge followed by startup of pumps to assess the rise in pressure. Analyses will assume swing check valves on each pump discharge.

The water quality impact of the blended water will be assessed using the RTW model. The RTW model is a spreadsheet-based tool developed to provide the same information as Caldwell-Lawrence (C-L) diagrams regarding pH and CaCO₃ equilibrium. The model provides a numerical solution based on a specific user's water characteristics and can quickly analyze alternatives. Multiple chemicals can be

evaluated simultaneously. AECOM will obtain water chemistry reports from each utility for use in the RTW model as input. Using the proportions of each system's water during the initial stages of an interconnection activation, the RTW will provide guidance as to the need for additional chemical addition for disinfection and corrosion control. These results will be used to select the design criteria for any chemical feed systems included at the interconnection locations. Selected systems will be portable with power available at the interconnection location. Chemical storage requirements will also be developed.

Task 2: Interconnection Design

The design of the interconnections will generally consist of concrete vaults, including flow meters, pump connections, pressure-reducing facilities, and chemical feed facilities, where required. The work will also include yard piping adjustments and valving to make up the connection between the interconnecting systems. Power will be provided for instruments and control devices.

Some interconnections require upsizing water main to increase smaller pipes to a minimum of 12" diameter. It is assumed that upsizing in the distribution system will be performed by each respective utility within their own water main replacement program and is not included in this scope.

Site surveys will be conducted at each interconnection site for base mapping. Information from other utilities will be obtained via PA One Call. Adjacent utilities and available easements will be evaluated at each interconnection location. Locations on private lots will require granting of an easement or acquisition of sufficient area to incorporate any structures required for the interconnection. AECOM will evaluate space constraints and determine if such easements will be necessary.

Design drawings and specifications will be prepared based on the modelling and location determination. Design deliverables will include a demolition plan, a site plan, interconnection vault structural and mechanical details, site electrical plans, and instrumentation diagrams. Interconnections will be designed for temporary operation and will not include supplying electrical power to the pumps as the COB has indicated temporary pumps will be powered using fuel. The temporary pumps will be designed to have a

starter, controls, and a cellular alarm to alert the COB of pump failure or low/high pressure conditions.

Additional detail provided for specific subtasks are provided below.

Contract Documents

Drawings and technical specifications will be developed under two phases: 50 and 100 (%). At the completion of 50% design, the preliminary drawings, specifications, and opinion of probable construction cost will be submitted to COB for review and comment. AECOM will schedule a meeting with COB to review and address comments on the 50% submission and will prepare meeting minutes. At the completion of the 100% design, the final drawings, specifications, opinion of probable construction cost, and pre-bid construction schedule will be submitted to COB for review and approval.

Drawings will be developed in Autodesk AutoCAD Civil 3D 2022 and use the AECOM standard border file on a 22"x34" sheet size. The following assumptions were made to develop the number of drawings for each interconnection site:

- Per Interconnecting Utility Pair
 - One Cover Sheet
 - Two General Notes Sheets
 - Four Standard Detail Sheets
- Per Interconnection Vault:
 - One Existing Conditions and Demolition Plan (Scale 1/4" = 1'-0")
 - One Site and Yard Piping Plan (Scale 1/4" = 1'-0")
 - One Vault Detail Plan (Scale 1/2" = 1'-0")
 - One Electrical Plan (Scale 1/4" = 1'-0")

Technical specifications will be developed in CSI MasterFormat (16 division) and will be based on the AECOM Master Water Specifications. One complete specification package will be prepared for each interconnecting utility pair. It is assumed that front end specifications will be prepared by COB and AECOM will be responsible only for preparing technical specifications. The following list of sections is assumed:

- Standard Division 1 Specifications
- 02012 - Protecting Existing Underground Utilities
- 02071 - Geotextiles
- 02160 - Excavation Support Systems
- 02220 - Demolition
- 02230 - Site Clearing
- 02240 - Dewatering
- 02315 - Excavation and Fill
- 02317 - Trenching and Backfill
- 02615 - Ductile Iron Pipe

- 02820 - Chain Link Fences and Gates
- 03420 - Precast Reinforced Concrete Vaults
- 11200 - Chemical Feed Equipment
- 16000 - Electrical Materials & Devices

Boundary and Topographic Survey

AECOM will prepare a boundary and topographic survey for each interconnection site. Road right-of-way and property lines will be established by researching county records and any other repository for deeds and plans. It is assumed that each water utility will provide copies of any deeds or easements and any previous survey plans or documents that may have available.

All survey work will be supervised by a Professional Land Surveyor licensed in the State of Pennsylvania. Survey control will be set on the horizontal datum of NAD83 (2011) and the vertical datum of NAVD88 (Geoid 18), which places the survey on the National Spatial Reference System and provides compatibility with external data such as GIS and FEMA Flood Maps.

Topographic mapping of each site will be prepared by processing field data, performing computations, and drafting. This mapping will depict the following physical features as applicable:

- Locations of roadways and paved areas, including paint markings.
- Locations of any evident man-made structures. (i.e., buildings, walls, fences, retaining structures).
- Locations of any evident above-ground utility structures. (i.e., cable and electric boxes, gate valves, utility poles).
- Locations of sanitary and storm drainage features.
- Location of present underground utility markings, resulting from a PA 811 Utility One-Call.
- Location of tree masses and vegetation.

Benchmarks, established during the field survey, will be verified, located, and described on the mapping.

Electrical Design

Each interconnection will share a similar electrical design to power miscellaneous loads consisting of 120 / 240 volt single phase instruments, metering pump(s), SCADA including cellular communication, receptacles, lights, and possibly a small heater for a portable building to house metering pump and chemical day tanks may be included at each site. Water supply pumps will not be powered electrically and therefore are not included in the electrical scope. The electrical design will include:

- Preparation of a service and metering request to submit to the local electric utility for 120 240 volts, single phase, 200 Amps electric service for each site.

- Prepare a single line drawing for each location depicting expected loads.
- Identify I/O points to be monitored by SCADA, including but not limited to flow metering, pressure monitoring, and availability of commercial power. No chemical analysis (chlorine residual, pH, turbidity) will be included. I/O could potentially include monitoring and or control of a metering pump.
- Specify / design a SCADA panel with cellular communication to interface with the City SCADA System.
- Design of electrical service for each site including main service disconnect, utility meter, and panelboard, grounding, and surge arrester. We will design distribution to various loads including receptacle(s), light, instruments, SCADA panel, chemical feed (if needed).
- Size and specify wire and raceways for the loads.
- Electrical specifications in CSI format, delivered in electronic form as MS word documents.
- Opinion of probable cost to construct each system.

Public Water Supply Permit

A Public Water Supply (PWS) Permit Application will be prepared and submitted to the Pennsylvania Department of Environmental Protection (PADEP) as required by 25 Pa. Code § 109.501. The permit package will consist of the PWS application, General Information Form, applicable modules, an Engineer's Report, drawings, specifications, Act 14 and Act 67/68 notifications, and a permit fee. All permitting fees will be paid by COB or LCA. A pre-application meeting will be held with PADEP to determine the requirements. It is assumed that separate permit packages for each PWS is required.

- Bethlehem City PWS ID# 3480046 – Pop. Served: 117,259
- LCA Allentown Division PWD ID #3390024 – Pop. Served: 118,000

E&S Plan

An Erosion and Sediment Control (E&S) Plan will be prepared in accordance with the PADEP Erosion and Sediment Pollution Control Program Manual. A written E&S Plan is required by 25 Pa. Code §102.4(b)(2) when earth disturbance totals 5,000 SF or more or if the earth disturbance activity discharges to High Quality or Exceptional Value (HQ/EV) watercourses as defined by 25 Pa. Code Chapter 93.

The three LCA interconnections are located in Lehigh County. Interconnections LCA-2 and LCA-3 appear to drain to the Monocacy Creek, an HQ watercourse. Total earth disturbance is expected to be less than 1 acre. E&S Plan by Lehigh County Conservation District is not anticipated to be required.

Highway Occupancy Permits

LCA-1, -2, and -3 are not on state roads, therefore, a PennDOT Utility Highway Occupancy Permit is not required to perform the work. Task 3: Meetings & Coordination

AECOM will schedule and facilitate meetings between COB and LCA. The following meetings are anticipated:

- Kick-off meeting with COB and LCA
- Design review meeting with COB and LCA
- Final design review meeting with Bethlehem and LCA
- Internal design team meetings

Task 4: Project Management

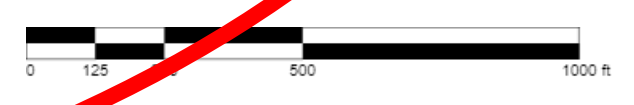
AECOM will perform project management services, including regular communication with the City of Bethlehem, monthly invoicing and status reports, and design team coordination.

LCA-1

Interconnection
Vault

Replacement

Interconnection Pipe: (12 in) Replacement: 3,122 ft
New Valves: 26
New Hydrants: 1
New Fittings: 16

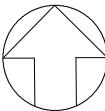


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

SHEET SIZE 11" X 17"	Legend			
		New Fittings		Hydrants-LCA
		New Hydrants		Valves-LCA
		New Valves		
		Interconnection Structure		
		Interconnect Pipes		
			Diameter	Diameter
			04_MAIN	04_MAIN
			06_MAIN	06_MAIN
			08_MAIN	08_MAIN
			12_MAIN	12_MAIN
			24_MAIN	24_MAIN
			HYDRANT	HYDRANT
			VALVE	VALVE

DISCLAIMER

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BETHLEHEM AUTHORITY
EMERGENCY INTERCONNECTION
CONCEPT DESIGN

INTERCONNECTIONS WITH LEHIGH
COUNTY AUTHORITY
BETHLEHEM INFRASTRUCTURE



SCALE 1:2,500

FIGURE NUMBER **D-1**

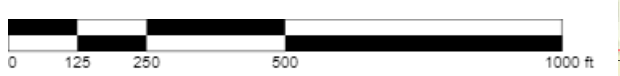
PROJECT NUMBER 60637597

LCA-2

Replacement 12"

Interconnection Vault

Interconnection Pipe: (12 in) Replacement: 2229 ft
New Valves: 15
New Hydrants: 1
New Fittings: 8



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

SHEET SIZE 11" X 17"
REFERENCES

Legend		Allentown Water Mains		Water System Bethlehem j-05x		Bethlehem Water System J-04		Bethlehem Water System K-04		Bethlehem Water System K-05	
	New Fittings		Hydrants-LCA		Valves-LCA		New Valves		Valves-LCA		New Valves
	New Hydrants		Valves-LCA		Valves-LCA		New Valves		Valves-LCA		New Valves
	New Valves		Valves-LCA		Valves-LCA		New Valves		Valves-LCA		New Valves
	Interconnection Structure		Valves-LCA		Valves-LCA		New Valves		Valves-LCA		New Valves
	Interconnect Pipes		Valves-LCA		Valves-LCA		New Valves		Valves-LCA		New Valves
		Diameter		Diameter		Diameter		Diameter		Diameter	
		4"		08_MAIN		06_MAIN		04_MAIN		06_MAIN	
		6"		12_MAIN		12_MAIN		08_MAIN		08_MAIN	
		8"		24_MAIN		24_MAIN		08_MAIN		24_MAIN	
		12"		HYDRANT		24_MAIN		12_MAIN		HYDRANT	
		16"		VALVE		HYDRANT		24_MAIN		VALVE	
						VALVE		HYDRANT			
								VALVE			

Attachment C: Fee Proposal

Proposed Fee

The fee for AECOM services on a time and materials not to exceed basis are presented in the table below.

Interconnecting Systems (Sites)	Fee
COB-LCA Base (LCA-3)	\$103,100
COB-LCA Base + Add Alternate (LCA-1, LCA-2, & LCA-3)	\$151,400

The scope and pricing provided herein are valid for six months from the date of this proposal and contingent on the terms of AECOM's Professional Services Agreement CPO No. 20000689 dated June 29, 2020. The proposed fee will not be exceeded without written approval from the COB. This proposal has been priced under the assumption that work will be performed concurrently with interconnections between the City of Bethlehem and Easton Suburban Water Authority (ESWA-2 and ESWA-5) presented under a separate proposal. Therefore the fee presented here is contingent upon the acceptance of both proposals. The proposed cost per task and total resource hours are presented in the following table:

Task #	Task Description	Total Hours	Total Fee
Task 1B	Hydraulic Modeling - COB-LCA	263	\$ 43,900
Task 2B	Preliminary Investigations - COB-LCA (LCA-3)	72	\$ 10,400
Task 3B	Interconnection Design - COB-LCA (LCA-3)	80	\$ 22,700
Task 4B	Meetings & Coordination - COB-LCA (LCA-3)	54	\$ 8,500
Task 5B	Project Management - COB-LCA (LCA-3)	117	\$ 17,600
Task 2C	Preliminary Investigations - COB-LCA Alternate (LCA-1 & LCA-2)	144	\$ 20,600
Task 3C	Interconnection Design - COB-LCA Alternate (LCA-1 & LCA-2)	85	\$ 27,700
	Total Hours	815	
	Total Fee		\$ 151,400

The following 2023 billing rates include general overhead, profit, and nominal expenses.

Classification	Hourly Rate
Senior Principal Professional	\$170.00 - \$260.00
Principal Professional	\$160.00 - \$210.00
Project Professional / Construction Manager	\$140.00 - \$180.00
Senior Professional	\$100.00 - \$155.00
Staff Professional	\$75.00 - \$135.00
Staff Designer	\$50.00 - \$125.00
GIS	\$75.00 - \$120.00
Project Field Technician	\$65.00 - \$125.00
Administrative Staff	\$60.00 - \$115.00
Survey Crew (2 Person)	\$140.00 - \$185.00
Survey Crew (3 Person)	\$180.00 - \$245.00
Contract Services and Equipment Rentals	1.1 times our cost

Basis of Fee

The fee has been developed using the following assumptions and exclusions. Scope items not included in our base proposal could be negotiated at additional cost should COB be interested.

- Geotechnical investigations are not included in this proposal. It is assumed that vaults and water mains will have adequate subsurface support provided by standard specifications and details.
- Power is not required for temporary pumping. Fuel-powered pumps will be used.
- Water main upsizing in the distribution system is not included in this proposal. Water mains within interconnect vaults and extending through immediate valves will be sized based on future transmission main needs with reducers to temporarily tie into existing piping. It is assumed that distribution system work will be performed by each utility as part of their existing water main replacement programs. Water main work in this proposal is limited to small quantities (< 25 LF) of piping in the vicinity of the interconnections in order to make up the connection to the vaults.
- We assume no hazardous materials are present at the interconnection sites or along the water main replacement alignments. Environmental surveys to identify the presence of hazardous materials are not included as part of this proposal.
- One easement description at each site is assumed.
- All interconnection vaults are assumed to be identical and will share the same detail.
- All interconnection sites are outside the FEMA 100-year floodplain, and are assumed to be outside the influence of any regulated streams or wetlands. This proposal does not include any effort for the preparation of permits for work in waterways, floodways and wetlands.
- All permitting fees will be paid COB or LCA.
- COB and LCA will provide their standard details and specifications as required to include in the contract documents.
- The following relate to the boundary and topographic survey task:
 - AECOM and its surveyors will be provided written site access permission where applicable. The survey crew cannot enter a site that requires special protective equipment beyond level D under this proposal, and health and safety forms must be in place before field work is commenced.
 - The survey will be performed with a maximum vegetation height of 6".
 - AECOM takes no responsibility for any underground structures or buried materials, such as foundations, wells, septic, holding tanks,

utilities, hazardous materials, or any other items of which no evidence can be found on the surface by a reasonable inspection or are not clearly marked by a utility locator service.

- Underground utility investigations, except as noted above, are not part of the scope.
- It is assumed that the water utility companies will clearly field mark and provide sizes of service connections.
- We anticipate clear weather conditions at the time of the field survey. Any storms, including heavy rain, snow, extreme winds, or other unfavorable conditions, may result in delays or cost overruns that could require us to stop work until such conditions improve.
- Construction activities present on the project site at the time of our field survey may impede our work. We assume there will be no such activities on-site at the time of the field survey.

Deliverables

The anticipated project deliverables include:

1. Hydraulic Modeling Technical Memoranda
2. 50% Design Documents (Drawings & Specifications)
3. 100% Design Documents (Drawings & Specifications)
4. Opinions of Probable Construction Cost
5. Pre-bid Construction Schedules

Schedule

From the notice to proceed, AECOM will prepare the construction documents within 9 months. Please see the following timeline for our proposed schedule details.

Milestone	Approximate Time from NTP
Notice to Proceed	n/a
Project Kick-Off Meeting with Bethlehem and LCA	1 month
Hydrant Field Testing (LCA-3)	2 months
Alternate: Hydrant Field Testing (LCA-1 and LCA-2)	2 months
Draft Design Memo to Bethlehem and LCA for Comment	4 months
Design Meeting with Bethlehem and LCA to Review Comments	4 months
Final Design Memo to Bethlehem and LCA	5 months
Final Design meeting with Bethlehem and LCA	6 months
50% Design Deliverables to Bethlehem and LCA for Comment	6 months

Milestone	Approximate Time from NTP
100% Design Deliverables to Bethlehem and LCA	8 months
Construction Permit Submitted to DEP	9 months
Utility Highway Occupancy Permit Submitted to PennDOT	9 months

MEMORANDUM

Date: May 20, 2024

To: LCA Board of Directors
Liesel Gross, C.E.O.
From: Charles Volk, P.E., Chief Capital Works Officer
Subject: Suburban Division: Pretreatment Plant Near-Term Facility Upgrades –
Final Design and Bid Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Design and Bid Phase	\$254,320
2	Professional Services Authorization – Design and Bid Phase Engineering Services – AECOM	\$219,320

PROJECT BACKGROUND:

The Lehigh County Authority (LCA) Pretreatment Plant (PTP) was placed online in 1990. The facility was originally constructed and operated by the County of Lehigh until being transferred to LCA in 2009. The facility treats industrial waste from large users located primarily in Upper Macungie Township before being discharged to the Western Lehigh Interceptor. Flows discharged from the PTP travel to the Kline's Island Wastewater Treatment Plant (KIWWTP) in Allentown for final treatment.

In April 2023, Jacobs (plant operator) completed a Master Plan for the facility to comprehensively assess the plant's near-term and long-term needs. While minor capital upgrades and routine renewal and replacement repairs are performed annually, no major facility upgrades have been undertaken since the construction of the 3 million-gallon flow equalization basin (FEB) in 2010.

As part of the Regional Act 537 Sewage Facilities Plan being developed for the Kline's Island Sewer System, the PTP has been evaluated for upgrades that will be needed to address future industrial growth in the service area. The plant's design capacity is 5.75 million gallons per day in hydraulic capacity, 76,500 pounds per day of Biochemical Oxygen Demand (BOD) loading, and 25,500 pounds per day of Total Suspended Solids (TSS). Due to growth in the industrial customer base over the past three decades, loadings of TSS often exceed the PTP's design capacity, and BOD loadings are nearing (and sometimes exceed) treatment capacity as well. The long-term upgrades to be included in the Act 537 Plan will be developed to ensure the PTP can effectively treat flows and loads generated by current and future industrial users.

Projects driven by the Act 537 Plan are several years from design scoping. In the meantime, some of the PTP's critical assets are at a high risk of failure and require

replacement or rehabilitation in order to maintain plant performance. The KIWWTP receives treated wastewater from the PTP and cannot treat the full-strength loads from all the industries that are tributary to the PTP. Therefore, failure of these critical assets at PTP could have a crippling effect on permit compliance at KIWWTP.

In November 2023 the LCA Board approved a PSA (AECOM) for preliminary design of near-term upgrades at the PTP to address the high-risk critical assets. In late spring 2024, AECOM provided 30% design technical memos that outline the basis of design for essential near-term upgrades in several process areas. The objective of this project is to address near-term needs at this important facility to reduce risk, improve resiliency and provide redundancy.

PROJECT SCOPE:

This preliminary engineering study contained the following recommendations, which form the basis of design for the near-term upgrades:

- 1) **Secondary Clarifier Rehabilitation:** Replacement of mechanical equipment – rotating circular sludge collection mechanism and center pier, sludge collection box, drive platform and deck plates, gear drive and drive shims, spray system, access bridge, FRP weirs, internal piping, associated demolition.
- 2) **High Purity Oxygen Plant Upgrades:** Cold box rehabilitation work, including replacement of rockwool insulation, nitrogen gas purge system upgrade, refurbish or replace process valves, exterior painting. Also included is work associated with the main air compressor system (MAC), including upgrade interlock controls to facilitate parallel compressor operation, switch valve rebuilds, actuator and solenoid restoration, and recalibration and testing of all system instruments.
- 3) **Aeration Deck (Bioreactor) Upgrades:** Train nos. 4 and 6 will be upgraded as part of this project. Of the six trains inspected in late 2023, those trains ranked highest in risk rating for mechanical equipment (gearboxes and mixers). New instrumentation will be incorporated into design scope to optimize oxygen demand and mixer motor speed.
- 4) **Influent and Effluent Flow Metering Improvements:** Installation of influent flow meters on each influent pump force main (4 each ultrasonic transit time meters) for real-time flow monitoring and trending; installation of additional ultrasonic level detector on effluent Parshall flume; SCADA integration of meters

THIS APPROVAL – FINAL DESIGN AND BID PHASE SERVICES:

LCA intends to retain the services of an engineering consulting firm, AECOM, to provide design related engineering services. The following tasks summarize the professional services to be performed:

1. Task 1: Project management, progress meetings and workshops
2. Task 2: Secondary Clarifier rehabilitation and improved flow metering design
3. Task 3: High Purity Oxygen Generation System rehabilitation design
4. Task 4: Bioreactor rehabilitation of tank nos. 4 and 6 design
5. Task 5: Scheduling and maintenance of operations (MOPO) development

6. Task 6: Bid phase services

CONSULTANT SELECTION PROCESS:

AECOM was selected for the preliminary engineering phase of this project, based on the firm's familiarity with the facility (from prior studies) and depth of the project team's experience. Based on the quality and timeliness of the preliminary engineering deliverables, AECOM is recommended for the final design and bid phase work.

FINANCIAL:

Design and bid phase work will be paid from the Suburban Wastewater Division – Pretreatment Plant capital budget.

PROJECT STATUS:

Preliminary engineering was completed in late spring 2024. The work in this task will be evaluated for opportunities to coordinate with projects to be included in the long-term Act 537 Plan.

PRIOR AUTHORIZATIONS: \$282,225 - Preliminary Design

TOTAL AUTHORIZATIONS (INCLUDING THIS AUTHORIZATION): \$536,545

FUTURE AUTHORIZATIONS:

Construction phase – amount TBD

PROJECT SCHEDULE:

Assuming Board approval at the May 20, 2024 meeting, the design work is anticipated to be completed within 6 months.



AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, PA 19428

610.234.5402 tel

May 9, 2024

Mr. Albert J. Capuzzi, P.E., DBIA
Director of Engineering & Asset Management
Lehigh County Authority
1053 Spruce Street
Allentown, PA 18106-0348

RE: **Engineering Design Services – 2024 Pretreatment Plant Critical Asset Upgrade Design**

Dear Mr. Capuzzi,

AECOM Technical Services, Inc. (AECOM) appreciates the opportunity to provide this proposal to Lehigh County Authority (the “Authority”, or “LCA”) for engineering design services for improvements to Critical Assets for the LCA Pretreatment Plant (PTP). AECOM has been assisting LCA in evaluating and prioritizing upgrades to critical assets at the PTP to strategically address immediate needs while considering future Act 537 Planning Needs. AECOM’s work to date includes condition assessment and recommendations, including preparation of a 30% design package for improvements to specific targeted areas at the PTP. LCA has requested a proposal to continue this support and develop a detailed design package or packages as required to support construction of these improvements.

The following proposal describes the scope, schedule and estimated fee for AECOM to provide additional LCA PTP Critical Asset Upgrade support and complete the detailed design package for specific upgrades at the PTP and support the bidding phase.

1.0 Executive Summary

AECOM is one of the largest and most respected full-service engineering, program management, and construction management firms in the world. Our water practice is the culmination of more than 100 years of experience, technical leadership and visionary thinking. Our experts have broad experience in water and wastewater infrastructure and we integrate these talents and resources to provide value-added services for clients regardless of the challenge or the size of the project. With more than 50,000 employees around the world, AECOM provides a blend of global reach, local knowledge, innovation, and technical excellence in delivering solutions that create, enhance, and sustain the world’s built, natural, and social environment.

We believe that AECOM offers significant value to LCA as our team provides:

- **Extensive PTP knowledge that leverages current and prior experience with PTP challenges and needs.** Our team has been working closely with LCA and the Operators of the PTP, Jacobs, to evaluate and prioritize upgrades to critical assets at the PTP. We will leverage all our knowledge and experience from current and prior evaluations, modeling, costing, and current active coordination with industrial dischargers to ‘hit the ground running.’ Our team is prepared

to efficiently and cost effectively prepare bid packages to support LCA's goals for completing the upgrades under a tight schedule.

- **Coordination with Master Planning.** Our team will continue to coordinate with the master planning efforts to integrate critical asset improvements with the overall system master plan.
- **Deep bench of industrial wastewater practitioners.** AECOM has a deep bench of industrial wastewater practitioners with food and specific beverage experience that brings perspective to LCA. Our team includes regional and nationally recognized technical specialists who will provide insight and value based on the depth and breadth of their collective experience.
- **A local team ready to deliver with a vested interest in the success for LCA's needs.** The majority of our project team included in this proposal are local to the area and are already actively involved in the PTP Critical Asset Upgrade evaluation and 30% design project, including the Project Director Chris Curran, Technical Directors Ralph Eschborn and Jim McQuarrie, Project Manager Joella Posey, and Project Engineers Patrick Duggan, Rachel Hanson and Josh Ferguson.

2.0 Project Team

The AECOM team brings qualified and committed leadership, and a deep bench of professionals aligning directly to your scope and contract needs with a proven delivery and best-in-class global experience. We offer our collective design and engineering expertise, which will result in improved outcomes for LCA. For this effort, we have proposed an efficient organization consisting of our best local and national talent. Our local team members will serve as 'boots on the ground' practitioners to coordinate with LCA personnel, support communications, design the Critical Asset Upgrade details, prepare bid packages for the upgrades, and assist LCA in prioritizing and scheduling purchase of equipment and construction activities.

Our bios below provides an overview of AECOM's team for this project, and identifies the individuals on the team and their respective skill set.

Christopher Curran will serve as the Client Principal. Christopher provides a local presence with a vested interest as a resident of Lehigh County and will be responsive to project needs. Christopher has experience working with the LCA team and is well versed in the PTP challenges over the course of the existing 30% project for the critical assets and in evaluating long term solutions at the facility through the ACT 537 project support. He believes in being actively involved in professional roles to spread knowledge, make connections, and increase awareness of the challenges our industry faces today and in the future.

Joella Posey will serve as project manager and primary point of contact. Joella is located in the Conshohocken, PA office within close proximity to LCA's offices, and is the current project manager for the PTP Critical Asset Upgrade project. Joella also has a working relationship with the greater AECOM design team and familiarity with LCA in general. Joella is a strong senior project manager with over 25 years of experience in the industry detailed civil design of municipal and industrial treatment systems, water distribution systems, groundwater treatment systems, concrete storage structures, disinfection

equipment, water/wastewater permitting / regulatory compliance, and pumping, piping, and sampling systems.

Jim McQuarrie will serve as the Technical Lead for the Critical Asset Upgrades. Jim is located in the Philadelphia, PA office within close proximity to LCA's offices and brings deep practical operations experience and an owner's perspective drawn from his tenure working within the public wastewater utility space. He has substantial experience working with LCA and is currently serving as Technical Lead for the PTP Critical Asset Upgrade assessment and 30% design project. Jim has over 25 years in wastewater treatment operations, process engineering, and facility planning and is experienced in facilitating prioritization activities with staff across levels on repair and rehabilitation (R&R) decisions. Jim is also experienced with operations of High Purity Oxygen (HPO) high-rate processes and their inherent challenges. He is also experienced with process intensification and settling enhancement technologies and has authored over 15 peer review publications on application of process intensification and resource recovery.

Ralph Eschborn will serve as a Subject Matter Expert for Wastewater Process and Energy. Ralph has 48 years of experience in wastewater planning, engineering, consulting and operations. He has a proven record for coordinating interdisciplinary teams, identifying opportunities, and developing value-added, cost-effective solutions that meet client objectives. Ralph is well versed in wastewater and biosolids processes and technologies. He has worked on LCA's current and prior Act 537 Planning efforts and has in-depth knowledge of the LCA PTP as well as Kline's Island WWTPs, along with specific project drivers and regulatory understanding. Ralph has provided project management for a consulting firm specializing in providing technical guidance to Pennsylvania municipalities on biosolids and residual waste stabilization, odor control, and beneficial use permitting. He has provided services for selected clients where significant regulatory compliance, process design, or operations management issues were present.

Rachel Hanson will serve as Senior Engineer and project lead in conducting and coordinating the tasks to complete the contract documents. Rachel has over 15 years' experience in wastewater process and process mechanical design. She has worked in similar roles as a design team member on a number of process-focused design projects ranging from \$300k to 265M. She recently worked with LCA on the Sand Spring WWTP process evaluation and was the design lead for the contract documents package for the Sand Spring WWTP demonstration project that recently entered the construction phase.

Patrick Duggan and **Josh Ferguson** will continue their support of the team in developing the detailed documents for construction and carry their efforts with the 30% design now through final design.

3.0 – Overview of Critical Asset Upgrades and Improvements Scope

The following is an overview of the work included in this proposal. This scope of work will develop contract documents suitable for bidding. This scope of work does not include bid phase support nor construction phase services support at this time.

AECOM will advance the 30% design package currently in production to a final design and contract document package for the following:

1. Secondary Clarifier Rehabilitation
2. High Purity Oxygen (HPO) Generation System Cold Box Refurbishment
3. Bioreactor Aerator Repairs for Tank 4 and 6
4. Integration of New Flow Measurement Improvements for Influent and Effluent

AECOM will also provide design services for the preparation of a master schedule for potential sequencing of Work and develop potential strategies for MOPO in concert with Jacobs and LCA for consideration by the General Contractor.

4.0 Scope of Work

The following sections outline AECOM's anticipated scope elements, assumptions, schedule, and proposed budget for the PTP Critical Asset Upgrade project:

Task 1: Project Management, Progress Meetings, and Workshops

The elements of this anticipated Work Item include:

- Prepare for and attend a Project Kick-Off meeting to discuss the project scope, goals, overall schedule and lines of communication.
- Conduct bi-weekly Teams progress meeting calls to review current project status and schedule, discuss progress to date, and identify action items and the path forward.
- Provide LCA with monthly progress reports.
- Design Review Workshop at 60% Completion to Review Documents, Schedule, Opinion of Probable Construction Cost and solicit feedback.

Deliverables for this task will include:

1. Kickoff meeting and notes.
2. Bi-weekly progress meetings for the duration of the project. Brief meeting summary notes (bulletized summaries) will be distributed after each respective meeting.
3. Monthly invoicing and project progress report.
4. Slides from workshops with LCA and Jacobs.
5. Update Basis of Design Report from 30%

Task 2: Secondary Clarifier Rehabilitation and Improved Flow Metering

Beginning with the 30% design, AECOM will advance the secondary clarifier rehabilitation to 100% for incorporation into a GC Construction Bid Package. In general, the rehabilitation will include the items, aside from the clarifier mechanism replacements and associated elements such as RAS piping modifications themselves, as defined in AECOM Technical Memo in May 2024.

AECOM understands the challenges that LCA has faced at the PTP relative to accurate readings of plant effluent through the parshall flume. Presently, there is no influent flow meter as well. AECOM has developed a 30% design around a ultrasonic transit time influent flow meter for each pump's discharge force main as described in the AECOM Technical Memo (May 2024). Influent flow meter can also provide feedback for interlocking valves and the speed of the influent pump to optimize the use of the flow equalization basin based on influent flow conditions. The effluent flume vault needs an additional level sensor that indicates when the discharge side of the flume is surcharged and effluent flow accuracy is no longer valid. A signal will indicate to the SCADA the periods when effluent flow either needs to be calculated differently based on the discharge depth or ignored.

The improvements to the secondary clarifier rehabilitation and both influent and effluent flow will be executed by the overall General Contractor (GC) bidding documents.

Task 2 includes the following:

- Incorporate comments from 30% design package from LCA.
- Progress design drawings (see drawing list) from 30% to 100%
- Develop drawings and rehabilitation specification for the work
- Distribute 60% contract documents to LCA and Jacobs for review and incorporate comments into design
- Issue final set of contract documents suitable for incorporation with LCA front end documents for bidding

Task 3: High Purity Oxygen (HPO) Generation System Cold Box Refurbishment

Beginning with the 30% design, AECOM will advance the HPO rehabilitation to 100% for incorporation into a GC Construction Bid Package based on AECOM HPO Technical Memorandum (May 6, 2024) and Solution Werk's Scope dated 01/18/2024. These scope items will be executed outside of the GC project documents but require coordination by the sole sourced vendor and the GC.

Since it now looks like the HPO system will potentially only be operated for another 4-5 years, and instrumentation replacement with a PLC-based system will not be pursued, the rehabilitation will include proactively procuring spare controllers to mitigate potential downtime caused by instrument failure. Having these spares will reduce the potential for extended outages due to instrument failure and the associated cost of extended operation on LOX. Based on past failure history it is likely that it will be more cost-effective to risk instrument failure-based outages than replacing all single loop controllers outright, and this risk will be lessened with not-installed spares procured. In addition, the rockwool insulation in the cold box is saturated with moisture buildup due to the failure of the N2 purge system. This moisture in the rockwool has created a hard frozen shell around the cold box internals which can cause serious damage by restraining components from freely expanding and contracting with temperature fluctuations, which can cause mechanical failure over time and as such will be replaced as part of the critical asset renewal project.

AECOM will also incorporate new instrumentation with the air decks upgrade in order to optimize oxygen delivery and aerator speed and therefore reduce power consumption. LCA and/or Jacobs will provide the desired instrument manufacturer make and model numbers for inclusion. We have assumed

that the instruments will be installed from the top and not require the tanks being drained or offline for extended periods of time by the Contractor.

Task 3 includes the following:

- Incorporate comments from 30% design package from LCA.
- Progress design drawings (see drawing list) from 30% to 100%
- Develop drawings and rehabilitation specification for the work
- Distribute 60% contract documents to LCA and Jacobs for review and incorporate comments into design
- Issue final set of contract documents suitable for incorporation with LCA front end documents for bidding

Task 4: Bioreactor Rehabilitation and Repairs for Tanks 4 and 6

Coordinate the completed reactor impeller condition assessment with the gear box prioritization assessment (completed by Jacobs) to develop a rehabilitation and repair plan for Trains 4 and 6. The aerator gear box improvements will be managed by Jacobs directly through their current operations and maintenance program.

The proposed improvements will be executed by the overall General Contractor (GC) bidding documents.

Task 4 includes the following:

- Develop and refine rehabilitation plan and procedures in coordination with Jacobs
- Coordinate with Jacobs and LCA on installation timing and construction schedule, including joint development of a Maintenance of Plant Operations (MOPO) to support the work
- Conduct a brief alternatives analysis on impeller repair/replacement options
- Prepare final drawing set, equipment specifications, and supporting master specifications for the work
- Distribute 60% contract documents to LCA and Jacobs for review and incorporate comments into design
- Issue final set of contract documents suitable for incorporation with LCA front end documents for bidding

Task 5: Scheduling and MOPO

AECOM will Evaluate and develop strategies with LCA and Jacobs for MOPO to enable successful Plant performance during extended periods with process elements offline for rehabilitation or replacement. This effort will focus on developing construction sequencing and operational strategies to maintain plant performance throughout construction which will require various process shut-downs to conduct the necessary work.

Master Schedule

AECOM will work with LCA and Jacobs to develop a Master Schedule for completion of a coordinated completion of construction activities by the end of 2025 that takes into account (a) LCA budget, (b) equipment turnaround time, (c) plant operational constraints, (d) asset criticality. Support LCA with packaging approach for releasing work packages as driven by operational, budget and equipment turnaround constraints.

Deliverables for this task will include:

1. Conduct MOPO workshop with LCA and Jacobs
2. Coordinate with Jacobs and LCA on rehabilitation needs and construction schedule, including joint development of a MOPO to support the work
3. Specifications

Task 6: Bidding Support

AECOM will support LCA with the bidding phase support associated with these improvements. We anticipate that there will be two sets of bidding documents to comply with the PA Separations Act for a General Contractor and Electrical Contractor.

Task 6 includes the following:

- Uploading of documents to electronic bidding service (PennBid) and administration of electronic bidding platform
- Respond to bidder RFIs
- Attend pre-bid meeting that will be conducted concurrently for both GC and EC Contracts – to be held in person at the PTP with site tour to follow. LCA will prepare pre-bid agenda and sign-in sheet.
- Issue addenda as necessary during bid phase. Assume one addendum to be issued near the end of bid phase required to memorialize all RFI responses for each Contract.
- Review bids for each contract, download electronic bid tabulation sheet for each contract, provide recommendations to LCA.
- Review uploaded supporting documents from apparent low bidders to check for completeness and accuracy.

5.0 Schedule

AECOM understands that LCA has set a goal to complete construction of the Critical Asset Upgrades by the end of 2025. AECOM will work with LCA to structure the design package(s) to allow for the release of long-lead time equipment packages for bidding before the completion of the final design package. The following is a summary of key project milestones:

- Prepare Design Package within 4-6 months of project authorization.

AECOM will work with LCA to develop a more detailed schedule for completion after receipt of authorization to proceed.

6.0 Project Fee

A proposed budget to complete the anticipated scope of services is indicated below:

Item	Estimated Hours	ODCs	Labor Budget	Estimated Budget
Task 1 –Project Management, Meetings	187	\$300	\$34,950	\$35,250
Task 2 – Secondary Clarifier Rehabilitation and Flow Metering Improvements	260	\$350	\$45,670	\$45,920
Task 3 – HPO Improvements	220	\$160	\$39,380	\$39,540
Task 4 – Bioreactor Rehabilitation	146	\$100	\$23,700	\$23,800
Task 5 – Schedule Development and MOPO Strategies	282	\$250	\$54,800	\$55,050
Task 6 – Bidding Support	134	\$250	\$19,500	\$19,750
Total	1,229	\$1,060	\$218,010	\$219,320

AECOM proposes to conduct this project on a Time and Materials basis with a not-to-exceed value of \$219,320 in accordance with the Master Services Agreement for Professional Services between Lehigh County Authority and AECOM Technical Services, dated April 24, 2023.

7.0 Assumptions

The proposal has been based on the following assumptions:

1. Local travel will be based on mileage from AECOM's representative Team member's Office to LCA's offices or facilities.
2. Budget can transfer between tasks.
3. Funding and permitting support are not included.
4. Engineering services during construction are not included.
5. We have assumed that no environmental material hazards (building materials, lead, asbestos, PCBs, etc.) will be impacted as part of the Work.
6. Our proposed schedule is based on the current understanding of LCA's goals for the critical asset components described herein. We have also assumed coordination with LCA and Jacobs will be provided in a timely matter to conduct our proposed workshops for MOPO needs to support the Work.
7. WAS pump, digester boiler, HVAC improvements, sludge conveyors or other components not specified herein are not included in this authorization.

8. Detailed field survey has not been included based on the proposed scope.
9. Virtual meetings will be used in lieu of in-person meetings whenever feasible.

Once again, we appreciate the opportunity to provide this proposal to you and look forward to assisting the Authority with this important project. Please reply that we are authorized to proceed in accordance with this proposal for our records. If you have any questions or need additional information, please contact me at 302-379-0267 or chris.curran@aecom.com.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Chris Curran', followed by a horizontal line.

Christopher Curran, PE
VP, Project Director

cc: Charles E. Volk, PD

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	SD-S-22	BUDGET FUND:	Suburban Div\Wastewater\Capital
PROJECT TITLE:	Suburban Division – Pretreatment Plant Near Term Facility Upgrades – Final Design and Bid Phase	PROJECT TYPE:	<input type="checkbox"/> Construction <input checked="" type="checkbox"/> Engineering Design <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment No. 1
THIS AUTHORIZATION:	\$254,320		
TO DATE (W/ ABOVE)	\$536,545		

DESCRIPTION AND BENEFITS:

As part of the Regional Act 537 Sewage Facilities Plan being developed for the Kline’s Island Sewer System, the LCA Pretreatment Plant (PTP) has been evaluated for upgrades that will be needed to address future industrial growth in the service area. Projects driven by the Act 537 Plan are several years from design scoping. In the meantime, some of the PTP’s critical assets are at a high risk of failure and require replacement or rehabilitation in order to maintain plant performance. In November 2023 the LCA Board approved a PSA (AECOM) for preliminary design of near-term upgrades at the PTP. In late spring 2024, AECOM completed the 30% design technical memos that outline the basis of design for critical near-term upgrades in several process areas. The objective of this project is to address near-term needs at this critical facility to reduce risk, improve resiliency and provide redundancy.

Please see attached Board Memo for further project details.

Authorization Status:

Requested This Authorization	
Design and Bid Phase	
Staff	\$25,000
Engineering Consultant - AECOM	\$219,320
Contingencies	\$10,000
Total This Authorization	\$254,320

Future Authorizations	
Construction Phase	TBD

Total Estimated Project	TBD
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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: AECOM.
625 W. Ridge Pike
Conshohocken, PA 19428

Date: May 20, 2024
Requested By: Charles Volk

Approvals

Department Head:

Chief Executive

Officer:

Suburban Division: Pretreatment Plant Critical Asset Upgrade Project – Design and Bid Phase

AECOM Inc. will perform the design and bid phase related services outlined below for the above project located at the Pretreatment Plant:

This Authorization

Professional Services Authorization: **\$219,320**

Professional Services
1. Project management, progress meetings and workshops
2. Secondary clarifier rehabilitation and improved flow metering design
3. High purity oxygen generation system rehabilitation design
4. Bioreactor rehabilitation tank nos. 4 and 6 design
5. Scheduling and maintenance of operations (MOPO) development
6. Provide bid phase services

Please reference the cover Memo for additional information.

Not to be exceeded without further authorization: **\$219,320**

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

1053 Spruce Road * P.O. Box 3348 * Allentown, PA 18106-0348
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MEMORANDUM

Date: May 20, 2024

To: LCA Board of Directors
Liesel Gross, C.E.O.

From: Jason Peters, Capital Works Linear Asset Project Manager

Subject: Allentown Division: I&I Source Reduction Improvements – LCA
Program, Year 2 (2025)

MOTIONS /APPROVALS REQUESTED:

No.	Item	Amount
1	<u>Capital Project Authorization:</u> Design & Bid Phase Engineering Services	\$461,771
2	<u>Professional Services Authorization:</u>	
**	• Design and Bid Services - <i>Kleinfelder</i>	\$436,771

(**) *Included in the Capital Project Authorization*

BACKGROUND:

In 2023, LCA and the City of Allentown collaborated to prepare a 10 Year inflow & infiltration (I&I) source reduction plan, and the first year of construction was authorized in 2024. The plan, along with the I&I reduction plans developed by the other municipalities in the Kline's Island Sewer System (KISS), is required for the regional Act 537 Plan currently under development. The total construction cost for the City's 10-year program is estimated to be approximately \$50 million. The goal of the work is the cost-effective reduction of I&I, to reduce both dry-day and wet-weather flows in the KISS. Under the terms of the Lease Agreement with the City, LCA is responsible for the City's I&I Source Reduction Program. The program is to be developed on a collaborative basis, with the City having final determination of the scope of projects to be completed.

PROJECT OVERVIEW:

This authorization is for design and bid phase engineering services for SRP Year 2. The Year 2 project will be designed in 2024 and constructed in 2025. Year 2 work will include heavy cleaning, joint testing, joint grout sealing, and cured in-place-pipe lining (CIPP) in specific sewer basins in the City's sewer system that have been identified as having high rates of rainfall derived I&I.

In this Year 2 project, the next highest priority sewer basin following the Year 1 construction project in the City’s sewage collection system will be addressed. This basin is designated as St. Elmo within the City’s SRP program documents. This sewer basin was ranked high in priority based on results of the 2021 Flow Characterization Study and the 2022 RDII analysis. High priority sewer basins are those which have a high rate of rainfall derived I&I, contributing significant baseline or peak flows to the system during wet-weather events.

FINANCIAL:

Under the terms of the Lease Agreement, as amended in 2020, LCA will provide funding for this I&I Source Reduction Program from its Allentown Division revenues or reserves. After the first \$650,000 is spent each year, additional project costs beyond that amount will be recaptured through LCA sewer rates through a Capital Cost Recovery Charge.

PROJECT STATUS:

Pending Board approval of the I&I Source Reduction Improvement Year 2 Project – Design & Bid Phase Engineering Services.

THIS APPROVAL: DESIGN AND BID PHASE:

To ensure continuity and efficiencies, LCA recommends retaining the services of Kleinfelder to provide design and bid related services for the Year 2 project. The following table summarizes the professional service to be performed:

Professional Services	
1.	Review existing documentation, CCTV data, RDII reports, and estimated cost data.
2.	Provide Sub-basin revaluation and technical memorandum on rehabilitation recommendations.
3.	Conduct CCTV site investigation based upon Sub-basin revaluations.
4.	Draft concept design and submission to the City of Allentown for approval.
5.	Finalize rehabilitation methods for each segment included in the project scope.
6.	Develop Engineer’s cost estimate.
7.	Prepare construction bid & contract documents.
8.	Provide bidding services.

CONSULTANT PROJECT BACKGROUND:

Among other projects, Kleinfelder has worked collaboratively with the LCA and the City of Allentown to address wet weather issues for the I&I Source Reduction Year 1 Project which is actively under construction. Kleinfelder worked previously with the City to address the 2007 and 2009 U.S. Environmental Protection Agency Administrative Orders to eliminate sanitary sewer overflows (SSOs). Kleinfelder supported the City’s efforts to develop the I&I Source Reduction Plan that was included in the Regional Flow Management Strategy submitted in 2018, and they continue to provide support on overall Act 537 Plan development. Kleinfelder has provided design and engineering services for the City’s I&I program since 2019, and both LCA and City staff have found their work to be professional, accurate and timely.

PROJECT SCHEDULE:

Assuming LCA Board approval of the Design and Bid Phase Services at the May 20, 2024 meeting, LCA anticipates a completion date for design by October 1, 2024 and construction completion by late 2025.

FUTURE AUTHORIZATIONS:

LCA will separately seek LCA Board authorization for Source Identification, Reduction and Performance Monitoring Professional Services.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	AD-S-24-2	BUDGET FUND:	Allentown Div\Water\Capital
PROJECT TITLE:	Allentown Division: I&I Source Reduction Improvements – LCA Program, Year 2 (2025)		PROJECT TYPE:
THIS AUTHORIZATION	\$ 461,771	<input checked="" type="checkbox"/> Construction	<input type="checkbox"/> Engineering Study
		<input type="checkbox"/> Equipment Purchase	<input type="checkbox"/> Amendment No.

DESCRIPTION AND BENEFITS:

Allentown Division: I&I Source Reduction Improvements Program, Year 2 (2025) – Design & Bid Phase Engineering Services:

The City of Allentown developed a 10-year Inflow and Infiltration (I&I) Source Reduction Program that identified specific improvements to be implemented each year, starting in 2024. This authorization is for design and bid phase engineering services for the Year 2 project that will include heavy cleaning, joint testing, joint grout sealing, and cured-in-place-pipe lining (CIPP) in specific sewer basins in the City system that have been identified as having high rates of rainfall derived I&I.

Please reference the cover Memo for additional information.

REQUESTED THIS AUTHORIZATION	
Design & Bid Phase year 2	
Staff	\$10,000
Professional Services	
Design and Bid Phase Engineering	\$436,771
Contingency	\$15,000
Total This Authorization	\$461,771

REVIEW AND APPROVALS:

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



Lehigh County Authority

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

PROFESSIONAL SERVICES AUTHORIZATION

Professional: KLEINFELDER
150 College Road West, Suite 100
Princeton, NJ 08540

Date: May 20, 2024

Requested By: Jason Peters

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division: I&I Source Reduction Improvements – Design & Bid Phase Year 2

The City's I&I Source Reduction Program has identified specific improvements to be implemented each year of their ten-year plan. The goal of the work is the cost-effective reduction of both inflow and infiltration. Under the terms of the amended lease agreement with the City, Lehigh County Authority (LCA) is operating and managing the City's infiltration and inflow (I&I) source reduction program (SRP) for the sanitary sewage collection system. This authorization is for the design and bid phase engineering services for Year 2. The Year 2 project under this program will be designed in 2024 and constructed in 2025. Year 2 work will include heavy cleaning, joint testing, joint grout sealing, and cured-in-place-pipe lining (CIPP) in specific sewer basins within the City's collection system. These have been identified as having high rates of rainfall derived I&I. this proposal includes the following services:

Professional Services
1. Review existing documentation, CCTV data, RDII reports, and estimated cost data.
2. Provide Sub-basin revaluation and technical memorandum on rehabilitation recommendations.
3. Conduct CCTV site investigation based upon Sub-basin revaluations.
4. Draft concept design and submission to the City of Allentown for approval.
5. Finalize rehabilitation methods for each segment included in the project scope.
6. Develop Engineer's cost estimate.
7. Prepare construction bid & contract documents.
8. Provide bidding services.

Cost Estimate (not to be exceeded without further authorization): \$436,771

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
FINANCIAL STATEMENTS
APRIL 2024**

**LEHIGH COUNTY AUTHORITY
YTD SUMMARY SCORESHEET
APRIL 2024**

	Sub W	Sub WW	City
YTD Net income >0			
YTD Net income >= FC			
YTD Cash Flow >0			
YTD Cash Flow >= FC			
YTD DSCR >= FC			
YTD DSCR >= 1.20			
YTD Operating Ratio >= 1.00			
YTD Operating Ratio >= Budget Target			
YTD Days Cash on Hand >= 180.0			
YTD Operating Revenues >= FC			
YTD Operating Expenses <= FC			
FY FC Net Income >= Budget			
FY FC Cash Flows >=Budget			
FY FC DSCR >= Budget			
TOTAL GREEN	<u><u>14</u></u>	<u><u>11</u></u>	<u><u>13</u></u>

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUMMARY
For the Period Ended April 30, 2024

	Consolidated Financial Statements														
	Month					Year To Date					FULL YEAR				
	Actual	Q2 FC	Prior Year	FC Var	PY Var	Actual	Q2 FC	Prior Year	FC Var	PY Var	Q2 FC	Budget	Prior Year	Bud Var	PY Var
Income Statement															
Suburban Water	302,523	189,079	420,614	113,445	(118,091)	846,466	733,021	932,687	113,445	(86,221)	2,348,377	2,019,922	8,266,955	328,455	(5,918,577)
Suburban Wastewater	39,495	(32,721)	554,552	72,216	(515,057)	(70,006)	(142,223)	469,255	72,216	(539,261)	(1,461,583)	(1,632,719)	(334,302)	171,136	(1,127,281)
City Division	1,486,118	1,475,162	1,548,204	10,956	(62,087)	5,381,836	5,370,880	4,352,337	10,956	1,029,499	15,782,983	14,844,627	7,787,339	938,356	7,995,645
Total LCA	1,828,136	1,631,519	2,523,370	196,617	(695,234)	6,158,296	5,961,678	5,754,279	196,617	404,017	16,669,778	15,231,830	15,719,991	1,437,948	949,787
Cash Flow Statement															
Suburban Water	(599,718)	(729,939)	(57,123)	130,221	(542,595)	129,570	(651)	4,713,156	130,221	(4,583,586)	1,778,377	1,446,849	3,429,573	331,529	(1,651,196)
Suburban Wastewater	(144,314)	(191,520)	(431,690)	47,206	287,376	(1,414,865)	(1,462,070)	3,482,018	47,206	(4,896,882)	349,361	347,045	4,298,204	2,316	(3,948,843)
City Division	2,760,038	687,076	269,280	2,072,962	2,490,758	9,512,845	7,439,883	7,192,688	2,072,962	2,320,157	3,878,863	2,940,507	13,827,652	938,356	(9,948,789)
Total LCA	2,016,006	(234,382)	(219,533)	2,250,388	2,235,539	8,227,550	5,977,162	15,387,861	2,250,388	(7,160,311)	6,006,602	4,734,400	21,555,429	1,272,202	(15,548,827)
Debt Service Coverage Ratio															
Suburban Water	2.91	2.28	2.81	0.63	0.11	2.22	2.06	2.12	0.16	0.10	2.10	1.96	3.97	0.14	(1.87)
Suburban Wastewater	6.29	5.30	18.03	0.99	(11.74)	5.72	5.47	10.78	0.25	(5.06)	4.80	4.67	9.02	0.14	(4.21)
City Division	2.45	2.38	2.90	0.07	(0.44)	2.35	2.33	2.50	0.02	(0.15)	2.20	2.13	2.38	0.06	(0.19)

LEHIGH COUNTY AUTHORITY
CONSOLIDATED FINANCIAL STATEMENTS
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES	Consolidated Financial Statements															
	Month				Year To Date				Q2 FULL YEAR FORECAST				Full Year Budget			
	Sub W	Sub WW	City	LCA	Sub W	Sub WW	City	LCA	Sub W	Sub WW	City	LCA	Sub W	Sub WW	City	LCA
Operating Revenues:																
User Charges	1,545,139	1,725,635	4,555,048	7,825,821	5,418,098	6,457,963	17,708,880	29,584,941	17,524,394	19,201,227	56,018,070	92,743,692	17,485,300	19,128,454	55,555,506	92,169,260
Connection & System Charges	112,651	15,950	200,066	328,667	338,748	416,152	782,285	1,537,185	1,034,156	1,652,882	3,529,115	6,216,153	950,850	1,695,900	3,609,600	6,256,350
Other Miscellaneous Revenues	2,790	-	62,300	65,090	15,875	105	86,455	102,435	176,276	2,618	86,448	265,342	177,724	2,900	89,800	270,424
Total Operating Revenues	1,660,580	1,741,585	4,817,413	8,219,578	5,772,721	6,874,220	18,577,620	31,224,561	18,734,826	20,856,727	59,633,634	99,225,187	18,613,874	20,827,254	59,254,906	98,696,034
Operating Expenses:																
Personnel	333,842	138,653	838,948	1,311,443	1,364,600	574,779	3,716,146	5,655,526	4,271,437	1,740,118	13,927,623	19,939,178	4,269,081	1,766,601	13,986,737	20,022,419
Shared Services - General & Administrative	65,263	27,141	264,482	356,885	243,573	102,568	737,256	1,083,397	1,066,844	428,822	2,446,827	3,942,493	1,136,102	456,840	2,545,190	4,138,132
Utilities	42,188	24,538	140,340	207,066	174,725	105,117	646,676	926,518	531,376	320,045	2,018,931	2,870,352	537,998	313,870	2,063,922	2,915,790
Materials and Supplies	47,138	28,681	268,193	344,011	201,966	99,407	944,238	1,245,610	1,086,624	472,867	3,280,826	4,840,316	1,197,810	518,722	3,251,300	4,967,832
Miscellaneous Services	379,134	589,980	127,591	1,096,706	1,419,600	2,255,282	430,589	4,105,472	4,706,969	7,492,424	2,332,686	14,532,079	4,806,151	7,631,090	2,397,011	14,834,252
Treatment and Transportation	-	350,001	-	350,001	-	1,641,554	-	1,641,554	-	4,689,486	11,400	4,700,886	-	11,400	-	4,540,940
Depreciation and Amortization	297,790	575,538	515,561	1,388,889	1,191,160	2,302,151	2,062,244	5,555,555	3,650,624	7,031,500	6,260,297	16,942,421	3,517,000	7,031,500	6,169,850	16,718,350
Major Maintenance Expenses	-	-	2,141	2,141	-	-	14,510	14,510	-	-	4,000,000	4,000,000	-	-	4,000,000	4,000,000
Other Miscellaneous	-	-	-	-	-	-	-	-	93,100	22,100	-	115,200	93,100	22,100	-	115,200
Total Operating Expenses	1,165,355	1,734,531	2,157,255	5,057,141	4,595,624	7,080,858	8,551,659	20,228,141	15,406,973	22,197,362	34,278,590	71,882,925	15,557,242	22,270,263	34,425,410	72,252,915
Net Operating Profit	495,226	7,054	2,660,158	3,162,437	1,177,097	(206,638)	10,025,961	10,996,420	3,327,853	(1,340,635)	25,355,045	27,342,262	3,056,632	(1,443,009)	24,829,496	26,443,119
Non-Operating Income (Expense)									11,756,350	15,165,862	24,018,292	50,940,504	12,040,242	15,238,763	24,255,560	51,534,565
Interest Income	38,032	48,694	258,852	345,578	163,432	182,122	1,089,962	1,435,516	198,236	202,188	1,397,689	1,798,113	130,452	130,271	984,881	1,245,604
Interest (Expense)	(230,690)	(12,091)	(1,433,828)	(1,676,608)	(497,780)	(49,225)	(5,735,338)	(6,282,343)	(1,174,641)	(178,764)	(19,703,642)	(21,057,047)	(1,167,162)	(185,934)	(19,703,642)	(21,056,738)
Other Miscellaneous	(45)	(4,162)	936	(3,271)	3,718	3,735	1,250	8,703	(3,070)	(144,372)	8,733,892	8,586,450	-	(134,047)	8,733,892	8,599,845
Net Non-Operating Income (Expense)	(192,702)	32,442	(1,174,041)	(1,334,301)	(330,631)	136,632	(4,644,125)	(4,838,124)	(979,475)	(120,948)	(9,572,061)	(10,672,484)	(1,036,710)	(189,710)	(9,984,869)	(11,211,289)
Net Income (Loss)	302,523	39,495	1,486,118	1,828,136	846,466	(70,006)	5,381,836	6,158,296	2,348,377	(1,461,583)	15,782,983	16,669,778	2,019,922	(1,632,719)	14,844,627	15,231,830
CASH FLOW STATEMENT																
Cash Flows From Operating Activities																
Operating Revenues	1,660,580	1,741,585	4,817,413	8,219,578	5,772,721	6,874,220	18,577,620	31,224,561	18,734,826	20,856,727	59,633,634	99,225,187	18,613,874	20,827,254	59,254,906	98,696,034
Operating Expenses (ex D&A)	(867,564)	(1,158,993)	(1,639,553)	(3,666,111)	(3,404,464)	(4,778,707)	(6,474,905)	(14,658,076)	(11,756,350)	(15,165,862)	(24,018,292)	(50,940,504)	(12,040,242)	(15,238,763)	(24,255,560)	(51,534,565)
Non-Cash Working Capital Changes	(819,764)	(160,940)	(60,708)	(1,041,412)	(137,792)	(2,377,590)	(860,338)	(3,375,720)	(138,029)	(361,650)	(226,446)	(726,125)	1	(200,000)	(135,999)	(335,999)
Net Cash Provided by (Used in) Operating Activities	(26,749)	421,652	3,117,152	3,512,055	2,230,465	(282,077)	11,242,377	13,190,765	6,840,447	5,329,215	35,388,895	47,558,558	6,573,633	5,388,491	34,863,347	46,825,470
Cash Flows From Financing Activities																
Capital Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proceeds New Borrowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Payments	(142,547)	(11,615)	-	(154,162)	(145,211)	(47,323)	(3,337)	(195,871)	5,230,000	7,175,000	8,555,508	20,960,508	5,230,000	7,175,000	8,555,508	20,960,508
Principal Payments	(6,371)	(49,028)	-	(55,393)	(25,435)	(195,325)	(707,777)	(928,536)	(1,167,162)	(185,934)	(13,315,397)	(14,668,493)	(1,167,162)	(185,934)	(13,315,397)	(14,668,493)
Net Cash Provided by (Used in) Financing Activities	(148,918)	(60,638)	-	(209,556)	(170,646)	(242,648)	(711,113)	(1,124,407)	(2,254,324)	(1,010,486)	(2,945,000)	(6,209,810)	(2,254,324)	(1,010,486)	(2,945,000)	(6,209,810)
Cash Flows from Capital and Related Activities									1,808,514	5,978,580	(7,704,889)	82,205	1,808,514	5,978,580	(7,704,889)	82,205
Non-Operating Income (Expenses)	(45)	(4,162)	936	(3,271)	3,718	3,735	1,250	8,703	(3,070)	(144,372)	7,425,668	7,278,226	-	(134,047)	7,425,668	7,291,621
Capital Expenditures, net	(462,039)	(549,861)	(616,901)	(1,628,800)	(2,097,398)	(1,319,996)	(2,109,632)	(5,527,027)	(7,065,750)	(11,516,250)	(32,628,500)	(51,210,500)	(7,065,750)	(11,516,250)	(32,628,500)	(51,210,500)
Net Cash Provided By (Used In) Capital and Related Activities	(462,084)	(554,022)	(615,965)	(1,632,071)	(2,093,680)	(1,316,262)	(2,108,382)	(5,518,324)	(7,068,820)	(11,660,622)	(25,202,832)	(43,932,274)	(7,065,750)	(11,650,297)	(25,202,832)	(43,918,879)
Cash Flows From Investing Activities																
Investments Converting To Cash	-	200,000	-	200,000	-	693,000	-	693,000	-	749,000	-	749,000	-	500,000	-	500,000
Purchased Investments	-	(200,000)	-	(200,000)	-	(449,000)	-	(449,000)	-	(249,000)	-	(249,000)	-	-	-	-
Interest Income	38,032	48,694	258,852	345,578	163,432	182,122	1,089,962	1,435,516	198,236	202,188	1,397,689	1,798,113	130,452	130,271	984,881	1,245,604
Net Cash Provided By (Used In) Investing Activities	38,032	48,694	258,852	345,578	163,432	426,122	1,089,962	1,679,516	198,236	702,188	1,397,689	2,298,113	130,452	630,271	984,881	1,745,604
FUND NET CASH FLOWS	(599,718)	(144,314)	2,760,038	2,016,006	129,570	(1,414,865)	9,512,845	8,227,550	1,778,377	349,361	3,878,863	6,006,602	1,446,849	347,045	2,940,507	4,734,400
DEBT SERVICE RATIO																
Debt Service Ratio (Indenture Based)																
Total Operating Revenues	1,545,139	1,725,635	4,555,048	7,825,821	5,418,098	6,457,963	17,708,880	29,584,941	17,524,394	19,201,227	56,018,070	92,743,692	17,485,300	19,128,454	55,555,506	92,169,260
Total Operating Expenses (Cash Based)	(867,564)	(1,158,993)	(1,641,694)	(3,668,252)	(3,404,464)	(4,778,707)	(6,489,415)	(14,672,586)	(11,756,350)	(15,165,862)	(24,018,292)	(50,940,504)	(12,040,242)	(15,238,763)	(24,255,560)	(51,534,565)
Interest Income	38,032	48,694	258,852	345,578	163,432	182,122	1,089,962	1,435,516	198,236	202,188	1,397,689	1,798,113	130,452	130,271	984,881	1,245,604
Annual Lease Payment (City)	-	-	(109,019)	(109,019)	-	-	(436,075)	(436,075)	-	-	(1,308,224)	(1,308,224)	-	-	(1,308,224)	(1,308,224)
Total Non-Operating Revenues (Expenses)	115,396	11,788	263,301	390,486	358,341	419,992	869,990	1,648,323	1,207,362	1,511,128	3,615,564	6,334,054	1,128,574	1,564,753	3,699,400	6,392,727
Cash Available For Debt Service	831,003	627,124	3,326,488	4,784,615	2,535,407	2,281,369	12,743,343	17,560,119	7,173,642	5,748,681	35,704,807	48,627,130	6,704,084	5,584,715	34,676,003	46,964,802
Interest Paid	97,264	15,495	1,109,616	1,222,374	389,054	61,978	4,438,466	4,889,498	1,167,162	185,934	13,315,397	14,668,493	1,167,162	185,934	13,315,397	14,668,493
Debt Retirement (Principal Payments)	187,860	84,207	245,417	517,484	751,441	336,829	981,667	2,069,937	2,254,324	1,010,486	2,945,000	6,209,810	2,254,324	1,010,486	2,945,000	6,209,810
Total Debt Service	285,124	99,702	1,355,033	1,739,859	1,140,495	398,807	5,420,132	6,959,434	3,421,486	1,196,420	16,260,397	20,878,303	3,421,486	1,196,420	16,260,397	20,878,303
Debt Service Ratio	2.91	6.29	2.45	2.75	2.22	5.72	2.35	2.52	2.10	4.80	2.20	2.33	1.96	4.67	2.13	2.25

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WATER
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES

Operating Revenues:

User Charges	1,545,139	1,538,516	1,496,349	6,623	48,789
Connection & System Charges	112,651	49,724	47,467	62,927	65,184
Other Miscellaneous Revenues	2,790	64,555	26,716	(61,765)	(23,926)

Total Operating Revenues

Operating Expenses:

Personnel	333,842	350,311	313,362	16,470	(20,480)
Shared Services - General & Administrative	65,263	118,017	75,326	52,754	10,064
Utilities	42,188	48,091	43,800	5,903	1,612
Materials and Supplies	47,138	74,910	46,303	27,772	(835)
Miscellaneous Services	379,134	423,048	351,436	43,914	(27,698)
Treatment and Transportation	-	-	-	-	-
Depreciation and Amortization	297,790	233,420	258,527	(64,371)	(39,263)
Major Maintenance Expenses	-	-	-	-	-
Other Miscellaneous	-	-	-	-	-

Total Operating Expenses

Net Operating Profit

Non-Operating Income (Expense)

Interest Income	38,032	10,222	28,911	27,810	9,121
Interest (Expense)	(230,690)	(227,728)	(95,473)	(2,961)	(135,216)
Other Miscellaneous	(45)	1,587	5,398	(1,632)	(5,443)

Net Non-Operating Income (Expense)

Net Income (Loss)

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues	1,660,580	1,652,794	1,570,533	7,786	90,047
Operating Expenses (ex D&A)	(867,564)	(1,014,378)	(830,227)	146,813	(37,338)
Non-Cash Working Capital Changes	(819,764)	(820,000)	(471,151)	236	(348,613)

Net Cash Provided by (Used in) Operating Activities

Cash Flows From Financing Activities

Capital Contributions	-	-	-	-	-
Proceeds New Borrowing	-	-	-	-	-
Interest Payments	(142,547)	(142,870)	(967)	322	(141,580)
Principal Payments	(6,371)	(7,036)	(6,275)	665	(95)

Net Cash Provided by (Used in) Financing Activities

Cash Flows from Capital and Related Activities

Non-Operating Income (Expenses)	(45)	1,587	5,398	(1,632)	(5,443)
Capital Expenditures, net	(462,039)	(410,259)	(353,344)	(51,780)	(108,695)

Net Cash Provided By (Used In) Capital and Related Activities

Cash Flows From Investing Activities

Investments Converting To Cash	-	-	-	-	-
Purchased Investments	-	-	-	-	-
Interest Income	38,032	10,222	28,911	27,810	9,121

Net Cash Provided By (Used In) Investing Activities

FUND NET CASH FLOWS

DEBT SERVICE RATIO

Debt Service Ratio (Indenture Based)

User Charges	1,545,139	1,538,516	1,496,349	6,623	48,789
Operating Expenses (Cash Based)	(867,564)	(1,014,378)	(830,227)	146,813	(37,338)
Interest Income	38,032	10,222	28,911	27,810	9,121
Annual Lease Payment (City)	-	-	-	-	-
Non-Operating Revenues (Expenses)	115,396	115,866	79,581	(469)	35,815

Cash Available For Debt Service

Interest Paid	97,264	97,264	108,179	-	(10,916)
Debt Retirement (Principal Payments)	187,860	187,860	167,545	-	20,315

Total Debt Service

Debt Service Ratio

2.91	2.28	2.81	0.63	0.11
------	------	------	------	------

Suburban - Water

Year To Date

Month

Actual

Q2 FC

Prior Year

FC Var

PY Var

Actual

Q2 FC

Prior Year

FC Var

PY Var

Actual

Q2 FC

Prior Year

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LEHIGH COUNTY AUTHORITY
VARIANCE ANALYSIS - YTD
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES

Operating Revenues:

User Charges
Connection & System Charges
Other Miscellaneous Revenues

Total Operating Revenues

Operating Expenses:

Personnel
Shared Services - General & Administrative
Utilities
Materials and Supplies
Miscellaneous Services
Treatment and Transportation
Depreciation and Amortization
Major Maintenance Expenses
Other Miscellaneous

Total Operating Expenses

Net Operating Profit

Non-Operating Income (Expense)

Interest Income
Interest (Expense)
Other Miscellaneous

Net Non-Operating Income (Expense)

Net Income (Loss)

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues
Operating Expenses (ex D&A)
Non-Cash Working Capital Changes

Net Cash Provided by (Used in) Operating Activities

Cash Flows From Financing Activities

Capital Contributions
Proceeds New Borrowing
Interest Payments
Principal Payments

Net Cash Provided by (Used in) Financing Activities

Cash Flows from Capital and Related Activities

Non-Operating Income (Expenses)
Capital Expenditures, net

Net Cash Provided By (Used In) Capital and Related Activities

Cash Flows From Investing Activities

Investments Converting To Cash
Purchased Investments
Interest Income

Net Cash Provided By (Used In) Investing Activities

FUND NET CASH FLOWS

Suburban - Water			
Actual	Q2 FC	FC Var	Comments
5,418,098	5,411,475	6,623	
338,748	275,821	62,927	
15,875	77,640	(61,765)	
5,772,721	5,764,935	7,786	Higher user charges and system charges almost offset by lower miscellaneous revenues
1,364,600	1,381,070	16,470	
243,573	296,327	52,754	
174,725	180,627	5,903	
201,966	229,738	27,772	
1,419,600	1,463,515	43,914	
-	-	-	
1,191,160	1,126,790	(64,371)	
-	-	-	
-	-	-	
4,595,624	4,678,067	82,443	Lower discretionary spending
1,177,097	1,086,868	90,228	Higher operating revenues and lower operating expenses
163,432	135,622	27,810	
(497,780)	(494,819)	(2,961)	
3,718	5,350	(1,632)	
(330,631)	(353,847)	23,217	Higher interest income
846,466	733,021	113,445	Higher income from operations along with higher interest income

5,772,721	5,764,935	7,786	
(3,404,464)	(3,551,277)	146,813	
(137,792)	(138,028)	236	
2,230,465	2,075,630	154,835	Higher cash from operating activities
-	-	-	
-	-	-	
(145,211)	(145,533)	322	
(25,435)	(26,100)	665	
(170,646)	(171,634)	988	
3,718	5,350	(1,632)	
(2,097,398)	(2,045,619)	(51,780)	
(2,093,680)	(2,040,269)	(53,412)	Higher capex
-	-	-	
-	-	-	
163,432	135,622	27,810	
163,432	135,622	27,810	Higher interest income
129,570	(651)	130,221	higher cash from operations and higher interest income offset a little by higher capex

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WASTEWATER
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES

Operating Revenues:

User Charges	1,725,635	1,724,835	2,099,400	799	(373,766)
Connection & System Charges	15,950	11,107	8,309	4,843	7,640
Other Miscellaneous Revenues	-	74	15	(74)	(15)

Total Operating Revenues

Operating Expenses:

Personnel	138,653	131,341	132,713	(7,313)	(5,941)
Shared Services - General & Administrative	27,141	43,506	32,131	16,366	4,991
Utilities	24,538	21,780	16,534	(2,758)	(8,004)
Materials and Supplies	28,681	58,202	44,713	29,521	16,032
Miscellaneous Services	589,980	648,483	604,397	58,503	14,417
Treatment and Transportation	350,001	293,002	252,516	(56,998)	(97,484)
Depreciation and Amortization	575,538	544,917	519,616	(30,621)	(55,921)
Major Maintenance Expenses	-	-	7	-	7
Other Miscellaneous	-	-	-	-	-

Total Operating Expenses

Net Operating Profit

Non-Operating Income (Expense)

Interest Income	48,694	11,828	41,254	36,866	7,440
Interest (Expense)	(12,091)	(15,758)	(13,208)	3,667	1,117
Other Miscellaneous	(4,162)	(23,577)	21,408	19,416	(25,569)

Net Non-Operating Income (Expense)

Net Income (Loss)

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues	1,741,585	1,736,017	2,107,725	5,568	(366,140)
Operating Expenses (ex D&A)	(1,158,993)	(1,196,314)	(1,083,004)	37,321	(75,989)
Non-Cash Working Capital Changes	(160,940)	(161,000)	(1,280,138)	60	1,119,198

Net Cash Provided by (Used in) Operating Activities

Cash Flows From Financing Activities

Capital Contributions	-	-	-	-	-
Proceeds New Borrowing	-	-	-	-	-
Interest Payments	(11,615)	(15,693)	(12,454)	4,078	838
Principal Payments	(49,023)	(83,776)	(47,783)	34,754	(1,240)

Net Cash Provided by (Used in) Financing Activities

Cash Flows from Capital and Related Activities

Non-Operating Income (Expenses)	(4,162)	(23,577)	21,408	19,416	(25,569)
Capital Expenditures, net	(549,861)	(459,004)	(178,699)	(90,856)	(371,161)

Net Cash Provided By (Used In) Capital and Related Activities

Cash Flows From Investing Activities

Investments Converting To Cash	200,000	-	245,000	200,000	(45,000)
Purchased Investments	(200,000)	-	(245,000)	(200,000)	45,000
Interest Income	48,694	11,828	41,254	36,866	7,440

Net Cash Provided By (Used In) Investing Activities

FUND NET CASH FLOWS

DEBT SERVICE RATIO

Debt Service Ratio (Indenture Based)

User Charges	1,725,635	1,724,835	2,099,400	799	(373,766)
Operating Expenses (Cash Based)	(1,158,993)	(1,196,314)	(1,083,011)	37,321	(75,983)
Interest Income	48,694	11,828	41,254	36,866	7,440
Annual Lease Payment (City)	-	-	-	-	-
Non-Operating Revenues (Expenses)	11,788	(12,396)	29,732	24,184	(17,944)

Cash Available For Debt Service

Interest Paid	15,495	15,495	12,296	-	3,198
Debt Retirement (Principal Payments)	84,207	84,207	48,028	-	36,179

Total Debt Service

Debt Service Ratio

Month					
Actual	Q2 FC	Prior Year	FC Var	PY Var	
1,725,635	1,724,835	2,099,400	799	(373,766)	
15,950	11,107	8,309	4,843	7,640	
-	74	15	(74)	(15)	
1,741,585	1,736,017	2,107,725	5,568	(366,140)	
138,653	131,341	132,713	(7,313)	(5,941)	
27,141	43,506	32,131	16,366	4,991	
24,538	21,780	16,534	(2,758)	(8,004)	
28,681	58,202	44,713	29,521	16,032	
589,980	648,483	604,397	58,503	14,417	
350,001	293,002	252,516	(56,998)	(97,484)	
575,538	544,917	519,616	(30,621)	(55,921)	
-	-	7	-	7	
-	-	-	-	-	
1,734,531	1,741,231	1,602,627	6,700	(131,904)	
7,054	(5,214)	505,098	12,268	(498,044)	
48,694	11,828	41,254	36,866	7,440	
(12,091)	(15,758)	(13,208)	3,667	1,117	
(4,162)	(23,577)	21,408	19,416	(25,569)	
32,442	(27,507)	49,454	59,948	(17,012)	
39,495	(32,721)	554,552	72,216	(515,057)	

1,741,585	1,736,017	2,107,725	5,568	(366,140)	
(1,158,993)	(1,196,314)	(1,083,004)	37,321	(75,989)	
(160,940)	(161,000)	(1,280,138)	60	1,119,198	
421,652	378,703	(255,417)	42,949	677,069	
-	-	-	-	-	
-	-	-	-	-	
(11,615)	(15,693)	(12,454)	4,078	838	
(49,023)	(83,776)	(47,783)	34,754	(1,240)	
(60,638)	(99,469)	(60,236)	38,831	(401)	
(4,162)	(23,577)	21,408	19,416	(25,569)	
(549,861)	(459,004)	(178,699)	(90,856)	(371,161)	
(554,022)	(482,582)	(157,292)	(71,441)	(396,731)	
200,000	-	245,000	200,000	(45,000)	
(200,000)	-	(245,000)	(200,000)	45,000	
48,694	11,828	41,254	36,866	7,440	
48,694	11,828	41,254	36,866	7,440	
(144,314)	(191,520)	(431,690)	47,206	287,376	

1,725,635	1,724,835	2,099,400	799	(373,766)	
(1,158,993)	(1,196,314)	(1,083,011)	37,321	(75,983)	
48,694	11,828	41,254	36,866	7,440	
-	-	-	-	-	
11,788	(12,396)	29,732	24,184	(17,944)	
627,124	527,954	1,087,376	99,170	(460,253)	
15,495	15,495	12,296	-	3,198	
84,207	84,207	48,028	-	36,179	
99,702	99,702	60,325	-	39,377	
6.29	5.30	18.03	0.99	(11.74)	

Suburban - Wastewater					
Year To Date					
Actual	Q2 FC	Prior Year	FC Var	PY Var	
6,457,963	6,457,163	5,841,440	799	616,523	
416,152	411,309	769,474	4,843	(353,322)	
105	179	220	(74)	(115)	
6,874,220	6,868,652	6,611,133	5,568	263,087	
574,779	567,467	556,337	(7,313)	(18,442)	
102,568	118,934	107,364	16,366	4,796	
105,117	102,359	76,563	(2,758)	(28,554)	
99,407	128,928	133,803	29,521	34,396	
2,255,282	2,313,785	2,287,975	58,503	32,693	
1,641,554	1,584,556	1,002,516	(56,998)	(639,038)	
2,302,151	2,271,530	2,079,033	(30,621)	(223,117)	
-	-	2,585	-	2,585	
-	-	-	-	-	
7,080,858	7,087,558	6,246,177	6,700	(834,681)	
(206,638)	(218,906)	364,957	12,268	(571,595)	
182,122	145,256	121,301	36,866	60,821	
(49,225)	(52,892)	(53,555)	3,667	4,330	
3,735	(15,681)	36,551	19,416	(32,817)	
136,632	76,684	104,298	59,948	32,334	
(70,006)	(142,223)	469,255	72,216	(539,261)	

6,874,220	6,868,652	6,611,133	5,568	263,087	
(4,778,707)	(4,816,028)	(4,164,558)	37,321	(614,149)	
(2,377,590)	(2,377,650)	(500,141)	60	(1,877,448)	
(282,077)	(325,026)	1,946,433	42,949	(2,228,511)	
-	-	-	-	-	
-	-	-	-	-	
(47,323)	(51,401)	(50,455)	4,078	3,132	
(195,325)	(230,078)	(190,550)	34,754	(4,775)	
(242,648)	(281,479)	(241,004)	38,831	(1,643)	
3,735	(15,681)	36,551	19,416	(32,817)	
(1,319,996)	(1,229,140)	(405,438)	(90,856)	(914,558)	
(1,316,262)	(1,244,821)	(368,887)	(71,441)	(947,375)	
693,000	493,000	4,146,174	200,000	(3,453,174)	
(449,000)	(249,000)	(2,122,000)	(200,000)	1,673,000	
182,122	145,256	121,301	36,866	60,821	
426,122	389,256	2,145,475	36,866	(1,719,353)	
(1,414,865)	(1,462,070)	3,482,018	47,206	(4,896,882)	

6,457,963	6,457,163	5,841,440	799	616,523	
(4,778,707)	(4,816,028)	(4,167,143)	37,321	(611,564)	
182,122	145,256	121,301	36,866	60,821	
-	-	-	-	-	
419,992	395,808	806,245	24,184	(386,253)	
2,281,369	2,182,199	2,601,843	99,170	(320,473)	
61,978	61,978	49,185	-	12,793	
336,829	336,829	192,114	-	144,715	
398,807	398,807	241,299	-	157,508	
5.72	5.47	10.78	0.25	(5.06)	

Full Year					
Q2 FC	Budget	Prior Year	Bud Var	PY Var	
19,201,227	19,128,454	18,488,050	72,773	713,177	
1,652,882	1,695,900	1,371,193	(43,018)	281,689	
2,618	2,900	585	(282)	2,033	
20,856,727	20,827,254	19,859,828	29,473	996,899	
1,740,118	1,766,601	1,811,893	26,483	71,775	
428,822	456,840	337,395	28,018	(91,427)	
320,045	313,870	238,267	(6,175)	(81,779)	
472,867	518,722	391,409	45,855	(81,457)	
7,492,424	7,631,090	7,678,739	138,666	186,315	
4,689,486	4,529,540	3,903,664	(159,946)	(785,822)	
7,031,500	7,031,500	6,705,023	-	(326,477)	
-	-	-	-	-	
22,100	22,100	133,968	-	111,868	
22,197,362	22,270,263	21,200,358	72,901	(997,004)	
(1,340,635)	(1,443,009)	(1,340,530)	102,374	(105)	
202,188	130,271	454,362	71,917	(252,174)	
(178,764)	(185,934)	(155,847)	7,170	(22,917)	
(144,372)	(134,047)	707,714	(10,325)	(852,086)	
(120,948)	(189,710)	1,006,228	68,762	(1,127,176)	
(1,461,583)	(1,632,719)	(334,302)	171,136	(1,127,281)	

20,856,727	20,827,254	19,859,828	29,473	996,899	
(15,165,862)	(15,238,763)	(14,492,724)	72,901	(673,138)	
(361,650)	(200,000)	1,527,602	(161,650)	(1,889,252)	
5,329,215	5,388,491	6,894,706	(59,276)	(1,565,491)	
-	-	-	-	-	
7,175,000	7,175,000	-	-	7,175,000	
(185,934)	(185,934)	(147,555)	-	(38,379)	
(1,010,486)	(1,010,486)	(576,341)	-	(434,145)	
5,978,580	5,978,580	(723,896)	-	6,702,476	
(144,372)	(134,047)	121,966	(10,325)	(266,338)	
(11,516,250)	(11,516,250)	(4,486,108)	-	(7,030,142)	
(11,660,622)	(11,650,297)	(4,364,142)	(10,325)	(7,296,480)	
749,000	500,000	6,129,174	249,000	(5,380,174)	
(249,000)	-	(4,092,000)	(249,000)	3,843,000	
202,188	130,271	454,362	71,917	(252,174)	
702,188	630,271	2,491,536	71,917	(1,789,348)	
349,361	347,045	4,298,204	2,316	(3,948,843)	

LEHIGH COUNTY AUTHORITY
VARIANCE ANALYSIS - YTD
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES

Operating Revenues:

User Charges
Connection & System Charges
Other Miscellaneous Revenues

Total Operating Revenues

Operating Expenses:

Personnel
Shared Services - General & Administrative
Utilities
Materials and Supplies
Miscellaneous Services
Treatment and Transportation
Depreciation and Amortization
Major Maintenance Expenses
Other Miscellaneous

Total Operating Expenses

Net Operating Profit

Non-Operating Income (Expense)

Interest Income
Interest (Expense)
Other Miscellaneous

Net Non-Operating Income (Expense)

Net Income (Loss)

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues
Operating Expenses (ex D&A)
Non-Cash Working Capital Changes

Net Cash Provided by (Used in) Operating Activities

Cash Flows From Financing Activities

Capital Contributions
Proceeds New Borrowing
Interest Payments
Principal Payments

Net Cash Provided by (Used in) Financing Activities

Cash Flows from Capital and Related Activities

Non-Operating Income (Expenses)
Capital Expenditures, net

Net Cash Provided By (Used In) Capital and Related Activities

Cash Flows From Investing Activities

Investments Converting To Cash
Purchased Investments
Interest Income

Net Cash Provided By (Used In) Investing Activities

FUND NET CASH FLOWS

Suburban - Wastewater			
Actual	Q2 FC	FC Var	Comments
6,457,963	6,457,163	799	
416,152	411,309	4,843	
105	179	(74)	
6,874,220	6,868,652	5,568	Slightly higher user charges and system charges
574,779	567,467	(7,313)	
102,568	118,934	16,366	
105,117	102,359	(2,758)	
99,407	128,928	29,521	
2,255,282	2,313,785	58,503	
1,641,554	1,584,556	(56,998)	
2,302,151	2,271,530	(30,621)	
-	-	-	
-	-	-	
7,080,858	7,087,558	6,700	Higher treatment and transportation costs more than offset by lower discretionary spending
(206,638)	(218,906)	12,268	Higher operating revenues and lower operating expenses
182,122	145,256	36,866	
(49,225)	(52,892)	3,667	
3,735	(15,681)	19,416	
136,632	76,684	59,948	Higher interest income
(70,006)	(142,223)	72,216	Higher income from operating activities and higher interest income
6,874,220	6,868,652	5,568	
(4,778,707)	(4,816,028)	37,321	
(2,377,590)	(2,377,650)	60	
(282,077)	(325,026)	42,949	Higher net operating income
-	-	-	
-	-	-	
(47,323)	(51,401)	4,078	
(195,325)	(230,078)	34,754	
(242,648)	(281,479)	38,831	Lower debt service
3,735	(15,681)	19,416	
(1,319,996)	(1,229,140)	(90,856)	
(1,316,262)	(1,244,821)	(71,441)	Higher capex
693,000	493,000	200,000	
(449,000)	(249,000)	(200,000)	
182,122	145,256	36,866	
426,122	389,256	36,866	Higher interest income
(1,414,865)	(1,462,070)	47,206	Higher cash from operations, lower debt service and higher interest income with a partial offset from higher capex

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - CITY DIVISION
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES	City Division														
	Month					Year To Date					Full Year				
	Actual	Q2 FC	Prior Year	FC Var	PY Var	Actual	Q2 FC	Prior Year	FC Var	PY Var	Q2 FC	Budget	Prior Year	Bud Var	PY Var
Operating Revenues:															
User Charges	4,555,048	4,915,300	4,606,234	(360,252)	(51,186)	17,708,880	18,069,133	16,538,945	(360,252)	1,169,935	56,018,070	55,555,506	52,162,410	462,564	3,855,660
Connection & System Charges	200,066	157,315	172,708	42,751	27,357	782,285	739,534	1,028,352	42,751	(246,067)	3,529,115	3,609,600	5,487,746	(80,485)	(1,958,630)
Other Miscellaneous Revenues	62,300	13,365	27,175	48,935	35,125	86,455	37,520	48,959	48,935	37,497	86,448	89,800	182,595	(3,352)	(96,146)
Total Operating Revenues	4,817,413	5,085,979	4,806,117	(268,566)	11,296	18,577,620	18,846,187	17,616,256	(268,566)	961,364	59,633,634	59,254,906	57,832,751	378,728	1,800,884
Operating Expenses:															
Personnel	838,948	1,068,236	879,092	229,288	40,144	3,716,146	3,945,434	3,596,256	229,288	(119,890)	13,927,623	13,986,737	11,576,407	59,114	(2,351,216)
Shared Services - General & Administrative	264,482	257,570	260,493	(6,912)	(57,989)	737,256	730,344	691,773	(6,912)	(45,483)	2,446,827	2,545,190	2,040,469	98,363	(406,358)
Utilities	140,340	64,130	58,990	(76,210)	(81,350)	646,676	570,466	765,199	(76,210)	118,523	2,018,931	2,063,922	1,898,483	44,991	(120,447)
Materials and Supplies	268,193	285,279	275,574	17,086	7,382	944,238	961,324	927,099	17,086	(17,139)	3,280,826	3,251,300	3,218,805	(29,526)	(62,021)
Miscellaneous Services	127,591	145,668	131,506	18,076	3,915	430,589	448,666	437,844	18,076	7,255	2,332,686	2,397,011	2,247,835	64,325	(84,852)
Treatment and Transportation	-	-	-	-	-	-	-	-	-	-	11,400	11,400	11,307	-	(93)
Depreciation and Amortization	515,561	472,363	517,210	(43,198)	1,649	2,062,244	2,019,046	2,063,403	(43,198)	1,159	6,260,297	6,169,850	6,755,624	(90,447)	495,326
Major Maintenance Expenses	2,141	-	34,242	(2,141)	32,102	14,510	12,369	65,238	(2,141)	50,729	4,000,000	4,000,000	-	-	(4,000,000)
Other Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	5,782,103	-	5,782,103
Total Operating Expenses	2,157,255	2,293,245	2,103,107	135,990	(54,148)	8,551,659	8,687,649	8,546,812	135,990	(4,847)	34,278,590	34,425,410	33,531,033	146,820	(747,557)
Net Operating Profit	2,660,158	2,792,734	2,703,010	(132,576)	(42,852)	10,025,961	10,158,537	9,069,444	(132,576)	956,517	25,355,045	24,829,496	24,301,718	525,549	1,053,327
Non-Operating Income (Expense)															
Interest Income	258,852	72,359	254,682	186,493	4,170	1,089,962	903,470	919,840	186,493	170,122	1,397,689	984,881	3,466,498	412,808	(2,068,810)
Interest (Expense)	(1,433,828)	(1,389,931)	(1,409,488)	(43,897)	(24,340)	(5,735,338)	(5,691,441)	(5,636,947)	(43,897)	(98,390)	(19,703,642)	(19,703,642)	(19,980,878)	-	277,236
Other Miscellaneous	936	-	-	936	936	1,250	314	-	936	1,250	8,733,892	8,733,892	-	-	8,733,892
Net Non-Operating Income (Expense)	(1,174,041)	(1,317,573)	(1,154,806)	143,532	(19,235)	(4,644,125)	(4,787,657)	(4,717,107)	143,532	72,982	(9,572,061)	(9,984,869)	(16,514,379)	412,808	6,942,318
Net Income (Loss)	1,486,118	1,475,162	1,548,204	10,956	(62,087)	5,381,836	5,370,880	4,352,337	10,956	1,029,499	15,782,983	14,844,627	7,787,339	938,356	7,995,645

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues	4,817,413	5,085,979	4,806,117	(268,566)	11,296	18,577,620	18,846,187	17,616,256	(268,566)	961,364	59,633,634	59,254,906	57,832,751	378,728	1,800,884
Operating Expenses (ex D&A)	(1,639,553)	(1,820,882)	(1,551,654)	181,328	(87,899)	(6,474,905)	(6,656,233)	(6,418,171)	181,328	(56,734)	(24,018,292)	(24,255,560)	(20,993,306)	237,268	(3,024,987)
Non-Cash Working Capital Changes	(60,708)	-	(2,054,600)	(60,708)	1,993,892	(860,338)	(799,630)	(2,437,066)	(60,708)	1,576,728	(226,446)	(135,999)	(2,201,272)	(90,447)	1,974,826
Net Cash Provided by (Used in) Operating Activities	3,117,152	3,265,098	1,199,863	(147,946)	1,917,289	11,242,377	11,390,323	8,761,020	(147,946)	2,481,358	35,388,895	34,863,347	34,638,173	525,549	750,723
Cash Flows From Financing Activities															
Capital Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proceeds New Borrowing	-	-	-	-	-	-	-	-	-	-	8,555,508	8,555,508	1,371,118	-	7,184,390
Interest Payments	-	-	-	-	-	(3,337)	(3,337)	-	-	(3,337)	(13,315,397)	(13,315,397)	(11,695,732)	-	(1,619,665)
Principal Payments	-	(697,395)	-	697,395	-	(707,777)	(1,405,171)	-	697,395	(707,777)	(2,945,000)	(2,945,000)	(2,222,407)	-	(722,593)
Net Cash Provided by (Used in) Financing Activities	-	(697,395)	-	697,395	-	(711,113)	(1,408,508)	-	697,395	(711,113)	(7,704,889)	(7,704,889)	(12,547,021)	-	4,842,132
Cash Flows From Capital and Related Activities															
Non-Operating Income (Expenses)	936	(654,112)	(680,590)	655,048	681,526	1,250	(653,798)	(680,590)	655,048	681,840	7,425,668	7,425,668	(1,361,180)	-	8,786,848
Capital Expenditures, net	(616,901)	(1,298,873)	(504,675)	681,973	(112,226)	(2,109,632)	(2,791,604)	(1,807,582)	681,973	(302,050)	(32,628,500)	(32,628,500)	(10,368,819)	(0)	(22,259,681)
Net Cash Provided By (Used In) Capital and Related Activities	(615,965)	(1,952,985)	(1,185,265)	1,337,020	569,300	(2,108,382)	(3,445,402)	(2,488,172)	1,337,020	379,790	(25,202,832)	(25,202,832)	(11,729,999)	(0)	(13,472,833)
Cash Flows From Investing Activities															
Investments Converting To Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purchased Investments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Income	258,852	72,359	254,682	186,493	4,170	1,089,962	903,470	919,840	186,493	170,122	1,397,689	984,881	3,466,498	412,808	(2,068,810)
Net Cash Provided By (Used In) Investing Activities	258,852	72,359	254,682	186,493	4,170	1,089,962	903,470	919,840	186,493	170,122	1,397,689	984,881	3,466,498	412,808	(2,068,810)
FUND NET CASH FLOWS	2,760,038	687,076	269,280	2,072,962	2,490,758	9,512,845	7,439,883	7,192,688	2,072,962	2,320,157	3,878,863	2,940,507	13,827,652	938,356	(9,948,789)

DEBT SERVICE RATIO

Debt Service Ratio (Indenture Based)

User Charges	4,555,048	4,915,300	4,606,234	(360,252)	(51,186)	17,708,880	18,069,133	16,538,945	(360,252)	1,169,935	56,018,070	55,555,506	52,162,410	462,564	3,855,660
Operating Expenses (Cash Based)	(1,641,694)	(1,820,882)	(1,585,896)	179,188	(55,798)	(6,489,415)	(6,668,603)	(6,483,409)	179,188	(6,006)	(24,018,292)	(25,555,560)	(26,775,409)	237,268	2,757,117
Interest Income	258,852	72,359	254,682	186,493	4,170	1,089,962	903,470	919,840	186,493	170,122	1,397,689	984,881	3,466,498	412,808	(2,068,810)
Annual Lease Payment (City)	(109,019)	(109,019)	(113,432)	-	4,413	(436,075)	(436,075)	(453,727)	-	17,652	(1,308,224)	(1,308,224)	(1,361,180)	-	52,956
Non-Operating Revenues (Expenses)	263,301	170,679	199,883	92,622	63,418	869,990	777,368	1,077,311	92,622	(207,321)	3,615,564	3,699,400	5,670,340	(83,836)	(2,054,777)
Cash Available For Debt Service	3,326,488	3,228,438	3,361,471	98,050	(34,983)	12,743,343	12,645,293	11,598,960	98,050	1,144,383	35,704,807	34,676,003	33,162,660	1,028,804	2,542,147
Interest Paid	1,109,616	1,109,616	974,644	-	134,972	4,438,466	4,438,466	3,898,577	-	539,888	13,315,397	13,315,397	11,695,732	-	1,619,665
Debt Retirement (Principal Payments)	245,417	245,417	185,201	-	60,216	981,667	981,667	740,802	-	240,864	2,945,000	2,945,000	2,222,407	-	722,593
Total Debt Service	1,355,033	1,355,033	1,159,845	-	195,188	5,420,132	5,420,132	4,639,380	-	780,753	16,260,397	16,260,397	13,918,139	-	2,342,258
Debt Service Ratio	2.45	2.38	2.90	0.07	(0.44)	2.35	2.33	2.50	0.02	(0.15)	2.20	2.13	2.38	0.06	(0.19)

LEHIGH COUNTY AUTHORITY
VARIANCE ANALYSIS - YTD
For the Period Ended April 30, 2024

STATEMENTS OF ACTIVITIES

Operating Revenues:

User Charges
Connection & System Charges
Other Miscellaneous Revenues

Total Operating Revenues

Operating Expenses:

Personnel
Shared Services - General & Administrative
Utilities
Materials and Supplies
Miscellaneous Services
Treatment and Transportation
Depreciation and Amortization
Major Maintenance Expenses
Other Miscellaneous

Total Operating Expenses

Net Operating Profit

Non-Operating Income (Expense)

Interest Income
Interest (Expense)
Other Miscellaneous

Net Non-Operating Income (Expense)

Net Income (Loss)

CASH FLOW STATEMENT

Cash Flows From Operating Activities

Operating Revenues
Operating Expenses (ex D&A)
Non-Cash Working Capital Changes

Net Cash Provided by (Used in) Operating Activities

Cash Flows From Financing Activities

Capital Contributions
Proceeds New Borrowing
Interest Payments
Principal Payments

Net Cash Provided by (Used in) Financing Activities

Cash Flows from Capital and Related Activities

Non-Operating Income (Expenses)
Capital Expenditures, net

Net Cash Provided By (Used In) Capital and Related Activities

Cash Flows From Investing Activities

Investments Converting To Cash
Purchased Investments
Interest Income

Net Cash Provided By (Used In) Investing Activities

FUND NET CASH FLOWS

City Division			
Actual	Q2 FC	FC Var	Comments
17,708,880	18,069,133	(360,252)	Lower residential/commercial/industrial volumes
782,285	739,534	42,751	
86,455	37,520	48,935	
18,577,620	18,846,187	(268,566)	Lower user charges
3,716,146	3,945,434	229,288	
737,256	730,344	(6,912)	
646,676	570,466	(76,210)	
944,238	961,324	17,086	
430,589	448,666	18,076	
-	-	-	
2,062,244	2,019,046	(43,198)	
14,510	12,369	(2,141)	
-	-	-	
8,551,659	8,687,649	135,990	Lower personnel costs
10,025,961	10,158,537	(132,576)	Lower operating revenues partially offset by lower operating expenses
1,089,962	903,470	186,493	
(5,735,338)	(5,691,441)	(43,897)	
1,250	314	936	
(4,644,125)	(4,787,657)	143,532	Higher interest income
5,381,836	5,370,880	10,956	Lower income from operating activities more than offset by higher interest income
18,577,620	18,846,187	(268,566)	
(6,474,905)	(6,656,233)	181,328	
(860,338)	(799,630)	(60,708)	
11,242,377	11,390,323	(147,946)	Lower cash from operating activities
-	-	-	
-	-	-	
(3,337)	(3,337)	-	
(707,777)	(1,405,171)	697,395	Lower debt service - timing of payment
(711,113)	(1,408,508)	697,395	
1,250	(653,798)	655,048	
(2,109,632)	(2,791,604)	681,973	
(2,108,382)	(3,445,402)	1,337,020	Lower capex
-	-	-	
-	-	-	
1,089,962	903,470	186,493	
1,089,962	903,470	186,493	Higher interest income
9,512,845	7,439,883	2,072,962	Lower debt service, lower capex, and higher interest income partially offset by lower cash from operations

LEHIGH COUNTY AUTHORITY
CASH & INVESTMENT SUMMARY
For the Period Ended April 30, 2024

	Suburban Water				Suburban Wastewater				City Division				Total			
	4/30/2024 Actual	2024 Forecast	2024 Budget	2023 Actual	4/30/2024 Actual	2024 Forecast	2024 Budget	2023 Actual	4/30/2024 Actual	2024 Forecast	2024 Budget	2023 Actual	4/30/2024 Actual	2024 Forecast	2024 Budget	2023 Actual
Cash																
Operating																
Unrestricted	926,733	10,105,905	13,136,985	8,385,525	(237,130)	10,990,647	3,976,076	3,779,293	16,172,494	11,552,601	15,263,906	13,483,582	16,211,248	32,363,242	32,376,967	25,648,400
Restricted	-	-	-	-	-	3,437	317	2,708	21,022,040	33,090,103	25,438,613	33,121,646	21,022,040	33,093,540	25,438,930	33,124,354
Total Operating	926,733	10,105,905	13,136,985	8,385,525	(237,130)	10,994,084	3,976,393	3,782,000	37,194,535	44,642,704	40,702,519	46,605,229	37,233,288	65,456,782	57,815,897	58,772,754
Capital																
Unrestricted	7,361,860	321,054	319,718	321,054	9,463,311	-	5,955,385	6,862,722	17,707,445	8,707,445	3,022,601	3,022,601	34,532,616	9,028,500	9,297,704	10,206,378
Restricted	-	-	-	-	342,345	338,677	338,360	338,677	7,531,579	7,531,579	7,500,035	7,500,035	7,873,924	7,870,256	7,838,396	7,838,712
Total Capital	7,361,860	321,054	319,718	321,054	9,805,656	338,677	6,293,745	7,201,399	25,239,024	16,239,024	10,522,636	10,522,636	42,406,540	16,898,755	17,136,099	18,045,090
Other Restricted																
Debt Reserves	2,169,521	1,718,213	1,656,568	1,660,215	-	-	-	-	34,217,132	30,004,516	28,335,482	30,004,516	36,386,653	31,722,729	29,992,050	31,664,731
Escrow - Developer Deposits	504,636	466,386	218,888	466,386	56,687	56,678	252,969	56,678	26,641	32,106	32,090	32,106	587,964	555,169	503,947	555,169
Total Other Restricted	2,674,157	2,184,598	1,875,456	2,126,600	56,687	56,678	252,969	56,678	34,243,773	30,036,622	28,367,571	30,036,622	36,974,617	32,277,898	30,495,996	32,219,900
Total Cash	10,962,749	12,611,557	15,332,159	10,833,179	9,625,213	11,389,438	10,523,107	11,040,077	96,677,332	90,918,350	79,592,726	87,164,487	116,614,445	114,633,436	105,447,992	109,037,744
Investments																
Operating																
Unrestricted	1,956,024	2,022,946	1,945,069	2,022,946	7,221,201	7,214,467	6,584,624	6,965,467	-	-	-	-	9,177,225	9,237,412	8,529,693	8,988,412
Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating	1,956,024	2,022,946	1,945,069	2,022,946	7,221,201	7,214,467	6,584,624	6,965,467	-	-	-	-	9,177,225	9,237,412	8,529,693	8,988,412
Capital																
Unrestricted	1,085,568	1,000,184	1,000,000	1,000,184	-	-	-	-	-	-	-	-	1,085,568	1,000,184	1,000,000	1,000,184
Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital	1,085,568	1,000,184	1,000,000	1,000,184	-	-	-	-	-	-	-	-	1,085,568	1,000,184	1,000,000	1,000,184
Other Restricted																
Debt Reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Escrow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Investments	3,041,592	3,023,129	2,945,069	3,023,129	7,221,201	7,214,467	6,584,624	6,965,467	-	-	-	-	10,262,793	10,237,596	9,529,693	9,988,596
Total Cash and Investments	14,004,341	15,634,686	18,277,228	13,856,308	16,846,414	18,603,905	17,107,731	18,005,544	96,677,332	90,918,350	79,592,726	87,164,487	126,877,238	124,871,031	114,977,685	119,026,340
Summary																
Cash																
Unrestricted	8,288,593	10,426,959	13,456,703	8,706,579	9,226,181	10,990,647	9,931,461	10,642,015	33,879,940	20,260,047	18,286,506	16,506,183	50,743,864	41,391,742	41,674,670	35,568,867
Restricted	2,674,157	2,184,598	1,875,456	2,126,600	399,032	398,792	591,646	398,062	62,797,392	70,658,304	61,306,220	70,658,304	65,870,581	73,241,694	63,773,322	73,182,966
Total Cash	10,962,749	12,611,557	15,332,159	10,833,179	9,625,213	11,389,438	10,523,107	11,040,077	96,677,332	90,918,350	79,592,726	87,164,487	116,614,445	114,633,436	105,447,992	108,751,833
Investments																
Unrestricted	3,041,592	3,023,129	2,945,069	3,023,129	7,221,201	7,214,467	6,584,624	6,965,467	-	-	-	-	10,262,793	10,237,596	9,529,693	9,988,596
Restricted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Investments	3,041,592	3,023,129	2,945,069	3,023,129	7,221,201	7,214,467	6,584,624	6,965,467	-	-	-	-	10,262,793	10,237,596	9,529,693	9,988,596
Total Cash and Investments	14,004,341	15,634,686	18,277,228	13,856,308	16,846,414	18,603,905	17,107,731	18,005,544	96,677,332	90,918,350	79,592,726	87,164,487	126,877,238	124,871,031	114,977,685	118,740,429

CERTIFICATES OF DEPOSIT

April 2024

Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	BMW Bank of North America	Salt Lake City, UT	200,000.00	4/12/24	4/13/26	4.750

DEVELOPMENT ACTIVITY

Water system construction is occurring in the following developments:

4002 Chestnut Street water main extension, Umilford
7649 Penn Drive, Warehouse expansion, water, UMT
8323/8449 Congdon Hill Drive, 2 industrial lots with warehouses, LMT
Chick-Fil-A Building redesign existing water line staying
Estates at Maple Ridge, Water main extension-UMiLT
Glenlivet Drive West Main extension and subdivision UMT
Fields at Indian Creek, Phases 4 & 5, 86 residential units (sfd), water and sewer, UMiLT & Emmaus
Kohler Tract, 123 residential lots (sfa), water and sewer, UMiLT
Laurel Fields Phase 5 25 townhouses (sfd) UMT
Lehigh Hills, Lot 5 Phase 2, 240 residential units (sfd.), UMT
Lehigh Hills Townhouses, 24 townhouse units (sfa), UMT
Madison Village at Penn's View, 66 manufactured homes, 1 lot, water and sewer, LynnT
Mosser Road 10 Townhouses, UMT
Mountain View Estates, 27 residential units (sfd), LMT
Parkland Crossings Main Extension 144 Town homes UMT
Raising Canes 1 commercial lot LMT water
Sauerkraut Lane Extension, Roadway & water line extension, LMT
Spring Creek Properties, Lot 12, 1 lot, warehouse, LMT
Towneplace Suites by Marriott, 91-room hotel, UMT
Trexler Point (Towns at Schaefer Run) 128 Townhouses UMT
Trexler Center Unit 5-Wawa water, -LMT
Wrenfield Townhouses 98 Townhomes UMT
7991 Quarry Road 1 lot, Warehouse, LMT

Water system plans are being reviewed for the following developments:

1321 Rising Sun Road, 110 Single family homes, Sewer NWT
2024 Elbow lane single home, LMT
2619 Grove Street Sewer Main Extension, Washington Township
3400 Brookside Road, Indian Creek- 26 Single family homes-Main extension, LMT
3952 Independence Drive, NW
4054 Chestnut Street Single connection, Umilford
6045 Reppert Lane 24 Town Homes, UMT
Valley at Indian Creek 3510 Macungie Road 22 Single family homes-LMT
5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT
Advanced Health Care of Allentown, 1 commercial lot, LMT
Air Products & Chemicals-Cetronia Road, 1 commercial lot, UMT
ATAS International, 1 industrial lot, UMT
Bandit Truck Stop Sewer Main Extension, WT
Carriage East Residential Development, 11 residential units, (sfd), UMT
Fallbrooke Residential Subdivision, 90 sf residential units, UMT
Fields at Emmaus 78 Town Homes, UMT
Grant Street Townes, 18 Townhouse, WT
Grant Way Building Expansion, UMT
Heidelberg Heights 10 Townhouses water ext on lot septic, HH
Hidden Meadows - Phase 3, 20 townhouse units, UMT
Krocks Road Mixed use development
Lehigh Valley Town Center, Mixed use development, UMT
Mertztown Residential Subdivision, 264 sf units & 136 townhouse units, LMT
Ridings at Parkland Phase 2, 44 Single Homes. NWT
Schoeneck Road, Lot 1, 1 lot, warehouse, LMT
Spring Creek Estates 2022 LMT 2 lots, 2 6 unit Apt, 8 single family homes, water
Spring Creek Lot 12 1 Commercial Lot, LMT
The Annex at Fields at Indian Creek, 22 sf residential units, Emmaus Borough
Towns At Schaefer Run, 128 townhouse unit (sfa), UMT
Trexlertown Retail Center-UMT gas station, carwash
Twin Ponds 8739 Hamilton Blvd 22 Apts and 1 Daycare UMT
Upper Macungie Community Center UMT commercial lot, water and Main Extension
Woodmont Valley 2, 129 apartment units (former Allen Organ Co.) LMT-New
V Parkland 9230 Long Lane, 16 Single family homes, UMT.

Sewage Facilities Planning Modules Reviewed in Prior Month:

Swans Apartment Project	826 W Turner St	Allentown	GPD 7,547
Emerson Village	3626 Rural Rd	CWSA	25,370

Lehigh County Authority
System Operations Review - April 2024
Presented: May 20, 2024

		<u>Apr-24</u>	<u>2024</u> <u>Totals***</u>	<u>2023 Totals</u>	<u>2022 Totals</u>
Recordable Safety Incidents*	Total LCA	0	0	33	7
Non-Recordable Safety Incidents	Total LCA	6	13		
Incident Types **	Injuries	4	5		
	Property Damage	2	8		
	Near Miss	0	0		

***Numbers adjusted to match current tracking methodology

* Recordable Safety Incidents are those that result in death, days away from work, restricted duty, medical treatment beyond first aid.

** Safety incidents may be categorized in more than one incident type.

<u>Year To Date Safety Incidents</u>		<u>Root Cause Analysis Completed</u>	<u>Corrective Actions Identified</u>	<u>Corrective Actions Completed</u>
		3	4	3
<u>Current Month Incidents</u>				
<u>Description</u>	<u>Date</u>	<u>Type</u>	<u>Root Cause(s)</u>	<u>Corrective Action(s)</u>
<u>Incident # 72</u> - Swerved to avoid road debris, side swiped another vehicle	4/1/2024	Vehicle Incident	N/A	N/A
<u>Incident # 73</u> - pinched finger while closing valve	4/4/2024	Injury	Working without proper PPE	Reinforced proper PPE usage during morning safety talk
<u>Incident # 74</u> - stepped off ramp while emptying dumpster and twisted ankle	4/5/2024	Injury	New process	Added a dumpster to remove safety concerns
<u>Incident # 75</u> - ripped thumbnail while working ripsaw heads	4/11/2024	Injury	Working without proper PPE	Reinforced proper PPE usage during morning safety talk
<u>Incident # 76</u> - passenger side mirror cracked by swing gate	4/22/2024	Vehicle Incident	Gate was not secured	
<u>Incident # 77</u> - Smashed finger against fire hydrant	4/30/2024	Injury	In progress	

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Critical Activities	System	Description	Apr-24	2024 Totals	2023 Totals	Permit
			Daily Avg (MGD)	Daily Avg (MGD)	Daily Avg (MGD)	Daily Max (MGD)
Water Production	Allentown	Total	22.39	21.80	22.52	39.0
		Schantz Spring	7.60	6.97	6.93	9.0
		Crystal Spring	3.88	3.87	3.89	4.0
		Little Lehigh Creek	10.56	10.40	11.66	30.0
		Lehigh River	0.34	0.56	0.04	28.0
	Central Lehigh	Total	11.31	10.67	11.27	19.04 MGD Avg
		Feed from Allentown	6.48	6.22	7.28	7.0 MGD Avg 10.5 MGD Max
		Well Production (CLD)	4.83	4.43	3.98	8.54 MGD Avg
		Sum of all (12) other Suburban Water Systems	0.15	0.15	0.13	1.71 Sum of all wells
Wastewater Treatment		Kline's Island	40.54	38.89	32.24	40.0
		Pretreatment Plant	6.11	5.40	4.78	5.75 (design capacity)
		Sum of all (5) other Suburban WW Systems	0.25	0.25	0.19	0.36
			Apr-24	2024 Totals	2023 Totals	2022 Totals
Precipitation Totals (inches)			5.56	19.35	46.38	46.47
Compliance Reports Submitted to Allentown			32	119	280	277
Notices of Violation (NOVs)		(Allentown + Suburban)	0	1	3	4
Sanitary Sewer Overflows (SSOs)/Bypasses		(Allentown + Suburban)	3	15	24	18
Main Breaks Repaired		Allentown	1	13	8	34
		Suburban	0	3	12	15
Customer Service Phone Inquiries		(Allentown + Suburban)	1628	5828	11,221	10,539
Water Shutoffs for Non-Payment		(Allentown + Suburban)	155	644	1,995	1,975
Injury Accidents		(Allentown + Suburban)	4	5	19	7
Emergency Declarations		Allentown	0	0	2	(3) @ \$386,225.43
		Suburban	0	1	0	(4) @ \$933,077.1
Significant Repairs/Upgrades:						
N/A						
Description of Non-Compliance Events:						
In April, the Lehigh Valley experienced approximately 5.56 inches of rainfall. On April 3rd, a significant rainstorm triggered the Heidelberg Heights WWTP to implement a bypass from April 3rd to April 8th, resulting in the discharge of approximately 542,101 gallons. Similarly, the Lynn Township WWTP initiated a bypass from April 3rd to April 5th due to the rain event, discharging approximately 315,000 gallons. Additionally, heavy rainfall on April 3rd led to a Sanitary Sewer Overflow on Martin Luther King Jr. Drive, specifically at manhole U_4_3, with an estimated discharge rate of around 150 gallons per minute.						
Other:						
N/A						

	Lehigh County Authority System Operations Review - April 2024 Presented: May 20, 2024				
					Page 3
<u>Critical Activities</u>	<u>System</u>	<u>Description</u>	<u>Apr-24</u>	<u>2024 Totals</u>	<u>2023 Totals</u>
Wastewater Compliance	Allentown	Bypass	0	2	4
		Bypass Volume	0	1,587,414	1,589,466
		Permit Exceedances	0	0	0
		Sanitary Sewer Overflows	1	4	6
		COA Issued NOVs	0	0	1
		Regulatory Agency issued NOVs	0	0	0
	Arcadia	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	0	0	3
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	1	0
	Heidelberg Heights	Bypass	1	4	8
		Bypass Volume	542,101	2,125,696	1,872,796
		Permit Exceedances	2	8	14
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	0
	Lynn	Bypass	1	2	1
		Bypass Volume	315,000	1,010,000	350,000
		Permit Exceedances	0	2	1
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	0
	Sand Spring	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	2	11	39
		Sanitary Sewer Overflows	0	0	1
		NOVs	0	0	0
	Wynnewood	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	0	4	5
		Sanitary Sewer Overflows	0	3	3
		NOVs	0	0	0
Water Compliance	Allentown	Boil Water Advisories	0	0	2
	Central Lehigh	Boil Water Advisories	0	0	1
	Suburban Water Systems	Boil Water Advisories	0	1	3