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Agendas & Minutes Posted:
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LEHIGH COUNTY AUTHORITY

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BOARD MEETING AGENDA – September 9, 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
   - *August 26, 2024 Board Meeting minutes*
4. Public Comments
5. Action / Discussion Items:

   FINANCE AND ADMINISTRATION
   - *PFAS Litigation (Approval)*
   - *2025 Preliminary Budget (Discussion)*

   WATER
   - *Badger Meter Replacements (Approval)* ***(blue)*** *(digital Board packet, pages 7-9)*

   WASTEWATER
   - *Kline's Island WWTP: Chemically Enhanced Primary Treatment Study (Approval)* ***(yellow)*** *(digital Board packet, pages 10-22)*
6. Monthly Project Updates / Information Items (1st Board meeting per month) (digital Board packet, pages 23-31) **– September report attached**
7. Monthly Financial Review (2nd Board meeting per month)
8. Monthly System Operations Overview (2nd Board meeting per month)

9. Staff Comments
10. Solicitor's Comments
11. Public Comments / Other Comments
12. Board Member Comments
13. Executive Sessions
14. Adjournment

UPCOMING BOARD MEETINGS		
September 23, 2024	October 14, 2024	October 28, 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
August 26, 2024

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:01 p.m. on Monday, August 26, 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, Kevin Baker, Linda Rosenfeld, and Sean Ziller were present for Roll Call and remained for the duration of the meeting.

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

Chairman Nagle announced that the Board received their electronic and hard copies of the Board packet in advance. A copy of the packet is also available online.

REVIEW OF AGENDA

Liesel Gross announced that there are no changes to the agenda; however, there will be an Executive Session after the regular meeting regarding potential litigation and property acquisition.

APPROVAL OF MINUTES

August 12, 2024 Meeting Minutes

On a motion by Linda Rosenfeld, seconded by Amir Famili, the Board approved the minutes from the August 12, 2024 meeting as written (7-0). Jeff Morgan abstained.

PUBLIC COMMENTS

None.

2025-2029 Capital Plan – Preliminary Plan Presentation – Suburban Division & Administrative Projects

Liesel Gross provided an introduction to the Authority's process for developing the Capital Plan (Plan), which is conducted annually. She noted the various Board approvals and public input process, and explained that today's presentation is focused on the Suburban Division draft Plan for the 2025 to 2029 time period. She then reviewed the timeline for future presentations and public input, and noted that Plan approval will be requested in October. This year's five-year plan includes significant cost increases from the prior five-year plan. Major drivers for the increases include $37 million for the Pretreatment Plant Replacement or Upgrade project and $1.6 million for the Buss Acres PFAS Treatment project. Completion of some projects will reduce the impact of the new project costs. She noted there are some major differences from the Allentown Division plan that are not included in the Suburban Division plan such as the Lead Service Line Replacements and the pass-through costs from Allentown, which will show in future rates via cost-sharing agreements. She also explained that the regional Act 537 Plan costs are reflected in the Suburban Division Capital Plan, but noted that most of the larger projects included in the Act 537 Plan in the next five years will occur in the Allentown Division.

Chuck Volk then presented the Administration Capital plan highlights included in the Plan and noted they are largely unchanged from the previous five-year plan. The Munis Implementation project will be completed next year, and the Office Expansion project is being revamped. He then reviewed the Suburban Division Capital Plan water and wastewater project details. His presentation included a review of annual projects, system improvement projects, and new projects. The new projects include: Buss Acres Water Quality Upgrade project, the Applewood Pump Station Upgrade project, the Western Lehigh Interceptor Alignment – Special Act 537 Study project, and the Wynnewood WWTP Expansion project. The Pretreatment Plant projects in the five-year plan include critical upgrades and replacement projects. These projects are contingent upon the participating industries and how the waste will be treated. Borrowing for the Pretreatment Plant projects will not be confirmed until there is clarity on who is paying for it and what the project costs will be.

Ed Klein reviewed the financial analysis included in the Plan, noting water projects total $38 million and the wastewater projects total $64 million. To fund the water projects, approximately $18 million will be funded through current revenues or reserves, and $19.7 million will be funded from new borrowing. Funding for the wastewater projects is approximately $19 million funded through current revenues or reserves, and $44.6 million funded from new borrowing. He presented a cash flow statement that indicates these funding sources.

Liesel Gross concluded the presentation with a recap of the Plan noting that there is an overall increase of $34 million primarily driven by the Pretreatment Plant replacement/upgrade project. However, there are a lot of unknowns regarding that project. The rate impacts are modest but have not yet captured the pass-through of project costs from the Allentown Division. Also, the Act 537 plans will increase the capital plans when finalized in the future. The final review process will take place before approval in October.

Draft Omnibus Resolution: Delegation of Board Duties

Liesel Gross provided background information on the drivers for the draft Omnibus Resolution. She stated that the staff and Board had identified a gap related to clear delegation of duties in prior discussions about Authority governance. She noted the Board had previously approved 52 Resolutions dating back to 1975, which serve to delegate various Authority responsibilities to staff. With title changes and new requirements over the years, more Resolutions have been added to update prior Resolutions, resulting in a complex array of historical documents to review when determining which actions must be brought to the Board for review. These resolutions deal with various responsibilities including signing documents, enrolling in insurance plans, purchasing thresholds, and more. The draft Omnibus Resolution was prepared based on examples provided by other municipal authorities, and this is a first attempt to consolidate these historical documents into a single new Resolution. Kevin Reid, the Authority's Solicitor, provided a review of the statutory basis for the process of delegating duties via Resolution. He also provided a more detailed review of the draft Resolution, outlining the various sections and the responsibilities of the key defined terms of Approvers and Authorized Financial Transaction Persons.

There was some discussion regarding purchasing thresholds. Liesel Gross explained that under the current process, the Board's review is focused on capital projects and professional service authorizations, but the Board may wish to review other purchases such as large operations equipment purchases.

There was additional discussion about items that may be missing from the draft Resolution, including authorization for emergency purchases.

Chairman Nagle suggested establishing a Governance Committee to review the scope of the changes and work through the details. Sean Ziller, Ted Lyons and Linda Rosenfeld volunteered to serve on the committee, and Chairman Nagle made the appointments. Staff will contact the Governance Committee and Solicitor Kevin Reid to set up meetings for further discussion.

Lead Service Line Replacement Project Cycle 1

Jason Peters provided an overview of the project to replace approximately 150 lead service lines and pot-holing investigation of approximately 450 services in the City of Allentown. Also included with the project is a final restoration cost-sharing agreement with the City of Allentown. The agreement contains clearly outlined procedures and responsibilities for each party regarding scheduling, payment, material handling, inspection and notification of completion. Mr. Peters reviewed the bidding process, professional services and the work included in the construction inspection. There was some discussion regarding the bids and the difference in cost proposals. Mr. Peters explained that the low bidder, Pact One LLC, participated in the pre-bid meeting and their bid package appears complete. Pact One has completed other projects for the Authority with satisfactory results.

On a motion by Amir Famili, seconded by Ted Lyons, the Board approved the Capital Project Authorization – Lead Services Replacement Program Cycle 1 Construction Phase in the amount of $4,024,857.00 which includes the Professional Services Authorization for Construction Engineering and Administration Services to Gannett Fleming, Inc. in the amount of $171,520.00 and Construction Inspection Services to Keystone Consulting Engineers in the amount of $75,000.00, the General Construction Contract to Pact One LLC in the amount of $2,376,445.00 and the Final Paving Restoration Contract Cost Sharing Agreement with the City of Allentown in the amount of $701,892.00, with authorization for the Chief Executive Officer to finalize and execute the agreement following review by the Solicitor (8-0).

Lead Service Line Replacement Project Cycle 2

Jason Peters provided an overview of the project to replace approximately 1,000 private lead service lines in the City of Allentown that are currently connected to an existing ductile iron water main with a copper public lateral service line. The revised and amended project scope encompasses specialized assistance in detailed tasks and activities related to data management, door to door customer canvassing, field verification and inspections, and communications support. There was some discussion on the work volume associated with customer canvassing.

On a motion by Linda Rosenfeld, seconded by Sean Ziller, the Board approved the Professional Services Authorization – Design, Bid and Construction Phase Services Amendment to CDM Smith in the amount of $214,055.00 (8-0).

Water Filtration Plant: Fluoride System Upgrades

Amy Rohrbach provided an overview of the project to upgrade the existing chemical feed system at the Water Filtration Plant which is past its useful life and in need of replacements. A conceptual design analysis was completed, which included an evaluation of different fluoride addition approaches and safety factors associated with each option. Two design proposals were provided, and staff recommend accepting the proposal from Verdantas. Ms. Rohrbach explained that Verdantas provided the higher cost proposal, but their proposal presented a better-defined approach with more detail, including automation of the process controls to improve employee safety.

On a motion by Norma Cusick, seconded by Jeff Morgan, the Board approved the Capital Project Authorization for the Design and Bidding Phase in the amount of $96,769.00 which includes the Professional Services Authorization for Design and Bidding Phase to Verdantas in the amount of $86,769.00 (8-0).

MONTHLY FINANCIAL REVIEW

Ed Klein gave an overview of the July 2024 financial statements, highlighting variances between actual expenses and budgeted or forecasted expenses. Mr. Klein reported that net income and cash flows for all funds were favorable for July as compared to forecast.

MONTHLY SYSTEM OPERATIONS OVERVIEW

Andrew Moore reviewed the July 2024 report and reported that there was one previous recordable incident in 2024 that resulted in five days of restricted duty, which was excluded from the prior month's report in error. He reviewed the remainder of the operations report and reviewed the notice of violation (NOV) received in July for the Wynnewood Terrace wastewater treatment plant. The NOV was related to various permit violations since 2021 when the new plant was placed in service. A copy of the NOV and the Authority's response are included in the report. There was some additional discussion about permit compliance.

Norma Cusick asked about the development report and commented about the amount of development going on in the Lehigh Valley and if the Authority has the capacity to address the requests. Liesel Gross and Phil DePoe explained that the development has been accounted for in the Authority's planning effort and there is capacity available.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

None.

EXECUTIVE SESSION

There will be an Executive Session after the regular meeting to discuss potential litigation and property acquisition.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:16 p.m.

Jeffrey J. Morgan
Secretary

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MEMORANDUM

Date: September 9, 2024

To: Lehigh County Authority Board of Directors

From: Amy Kunkel, Capital Works Project Engineer

Subject: Allentown Division – Badger Meter Replacement Project

MOTIONS /APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Badger Meter Replacement Project – **Construction Phase**	$2,439,590.12
2	**Core & Main, LP Professional Service Contract – Procurement and Installation** *(included in Capital Project Authorization)*	$1,743,470.12
3	**United Systems - Procurement of Equipment –** *(included in Capital Project Authorization)*	$641,120

PROJECT OVERVIEW:

There are approximately 4000 Badger water meters ranging in size from 5/8" to 2" that are currently being used to monitor water consumption in the city. These sites were not part of the original City of Allentown meter replacement project in 2012/2013. The sites also have existing but outdated Encoder Receiver Transmitters (ERTs) which have exceeded their battery life and are now failing. The meters are an outdated style that have the ERTs attached to the Badger meters, making it impossible to replace the ERT without also replacing the meter. This project will replace the Badger meters with new Sensus meters and new Itron ERTs. The new meters and transmitters will allow future replacement of one component without having to replace both. Radio read capability is included on all meter exchanges, allowing for mobile read application. This meter replacement project began in 2024 and will conclude in 2025.

PROJECT OBJECTIVE:

The project objective is to replace and upgrade older (greater than 20 years) and non-functioning meter reading equipment within the Allentown Division to increase meter reading accuracy and efficiency. Meters have to be read manually or estimated when the register no longer functions.

FUNDING:
The project will be funded by the LCA Allentown Division.

PROJECT STATUS:
Project scope, design, and specifications were developed in-house. Board approval is requested for the Construction Phase.

THIS APPROVAL – CONSTRUCTION PHASE & CONTRACT AWARD – BADGER METER REPLACEMENT PROJECT:
Core and Main, LP, is the authorized distributor for Sensus, which is the meter manufacturer used exclusively in LCA's Suburban Division and for commercial meters in the Allentown Division. Sensus residential meters have better low flow reading capability than the meters currently being used in the Allentown Division so they will be used for new installations and replacements moving forward. Core and Main has acted as the general contractor on the last four-meter replacement/upgrade projects in the Suburban and Allentown Divisions. They are now listed on COSTARS as an approved service provider for meter equipment installation. It is through the COSTARS program that we have received this proposal. Both the firm and its subcontractor's qualifications and experience statements indicate numerous projects of similar scope and type. The contract documents are in order and the company appears well qualified to perform the work. The proposal submitted is within the budgeted amount for this project.

The meter reading system in the City of Allentown uses Itron Encoder Receiver Transmitters (ERTs). United Systems is the only authorized distributor for Itron ERTs in our area. As such, they are the sole source provider for this equipment.

SCHEDULE:
Based on contract award following the September 9, 2024 Board meeting, we anticipate construction to begin by late October 2024, and substantial completion at the end of 2025.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.: AD-W-24-1 **BUDGET FUND:** Allentown Div\Water\Capital

PROJECT TITLE: Allentown Division
Badger Meter Replacement Project –
Construction Phase -

PROJECT TYPE:

- ☒ Construction
- ☐ Engineering Study
- ☐ Equipment Purchase
- ☐ Amendment

THIS AUTHORIZATION: **$2,439,590.12**
TO DATE (W/ ABOVE) **$2,439,590.12**

DESCRIPTION AND BENEFITS:

This Authorization is for the replacement of approximately 4007 5/8" through 2" water meters, transmitters and miscellaneous incidental equipment. This authorization takes the project through construction phase.

Previous Authorizations	
None	

REQUESTED THIS AUTHORIZATION	
Construction Phase	
Procurement of Meters and Installation – Core & Main, LP	**$1,743,470.12**
Procurement of Radio Endpoints – United Systems	**$641,120**
Staff	**$25,000**
Contingency	**$30,000**
Total This Authorization	**$2,439,590.12**

Future Authorization	
None	

Total Estimated Project	*$2,439,590.12*

REVIEW AND APPROVALS:

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

MEMORANDUM

Date: September 9, 2024

To: LCA Board of Directors
Liesel Gross, CEO

From: Albert Capuzzi, Director of Engineering and Asset Management

Subject: Allentown Division – CEPT Optimization and Performance Demonstration at KIWWTP

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization: Allentown Division – CEPT Optimization and Performance Demonstration (at KIWWTP)	$318,725
1A*	Professional Services Authorization: AECOM – CEPT Optimization and Performance Demonstration	$168,725
1B*	Purchase and installation of equipment: ferric chloride metering pump, polymer blending and dosing system, PVC piping and valves, automatic samplers, winterization, programming & integration	$50,000
1C[1,2]	*Purchase of Chemicals*	*$324,000*

*Included in the Capital Project Authorization

1) Based on high end of range estimate at $54,000 / month x 6 months

2) The purchase of chemicals will be from the Operations budget and is presented here for informational purposes only to understand the full scope of the project costs.

AUTHORIZATION OVERVIEW:

One of the long-term strategies under evaluation for the Kline's Island Sewer System (KISS) is to reduce the scope of treatment at LCA's Pretreatment Plant (PTP) as part of a full-scale upgrade of that facility. This may result in higher amounts of organic loading being transported downstream to the Kline's Island Wastewater Treatment Plant (KIWWTP) for final treatment, but with such increased loads remaining within the KIWWTP permitted capacity of 70,000 pounds per day of BOD. In addition, as projects have been envisioned to increase treatment capacity of the KIWWTP during peak wet-weather events, additional support may be needed to achieve regulatory compliance during those high-flow events.

AECOM has recently completed an updated capacity analysis, finding that to sustain the treatment performance with the increased organic loading of up to 70,000 pounds per day of BOD, the primary treatment capacity at KIWWTP must be enhanced to protect downstream biological treatment processes at the plant. To accommodate the increased loading in both dry-day and wet-weather conditions, and to maintain regulatory compliance at the KIWWTP, chemically enhanced primary treatment (CEPT) has been identified as a potentially effective treatment approach. LCA staff have preliminarily piloted the CEPT testing, by conducting in-house chemical jar tests and limited initial full-scale trials. The jar testing showed encouraging results; however, there have been challenges with translating the performance improvement to full-scale tests.

LCA will benefit from professional consultant services to design, optimize, and implement the full-scale testing based on proven experience with other successful CEPT implementations. The full-scale demonstration testing will consist of two testing periods, each conducted over a three-month period. During Test 1, the preferred chemical dosing scheme will be optimized and tested

at full scale. If there is interest in furthering the study, Test 2 will be conducted to collect additional performance data. The schedule shows that Test 2 could occur during the proposed secondary clarifier work and could be performed with a bypass of load from the PTP to simulate future conditions.

FINANCIAL:
To be funded by the LCA Allentown Division.

THIS APPROVAL:
Lehigh County Authority (LCA) intends to retain the services of AECOM to provide these services. These services include, but are not limited to, the following:

Professional Services*
• Task 1 – Project Management and Meetings; Deliverables- Kickoff Meeting and Minutes, Project Progress Meetings, Monthly Progress Report
• Task 2 – Data Request and Review; Deliverables- Data Request, Summary of Findings
• Task 3 – Influent Characterization; Deliverables- Sampling Plan, Summary of Findings
• Task 4 – Jar Testing; Deliverables- Summary of Results
• Task 5 – Full-Scale Demonstration; Deliverables- Summary of Progress
• Task 6 – Reporting; Deliverables- Summary Report Results
• Task 7 – Advanced Primary Treatment through Intentional Enhanced Bio-Flocculation; Deliverables- Summary Report Results

**Refer to AECOM Proposal dated July 18, 2024 for detailed work breakdown*

CONSULTANT SELECTION PROCESS:
AECOM was asked to provide a proposal for this work based on their history and knowledge related to the KIWWTP and the Act 537 plan development process. AECOM has served LCA in various sewer planning efforts since the early 2010s. During the elevated groundwater levels of 2018-2019 and subsequent Chapter 94 violation, they were re-engaged to provide Act 537 support. See below for a brief review of authorizations related to AECOM's role as Act 537 Program Manager (since August 2019) to date:

- Western Lehigh Interceptor Capacity Planning – Phase 1 Report (March 2020)
- DRBC Regulatory Assessment – LCA Direct Discharge to the Lehigh River (August 2020)
- Revenue Planning Tool Phase 1 Memo (November 2020)
- Act 537 Plan Report: Lehigh River PTP Direct Discharge Force Main (June 2021)
- BioActiflo Treatability Study (KIWWTP and PTP) (July 2021)
- Revenue Planning Tool, Phase 2, and User's Manual (July 2021)
- CEPT Bench Study at PTP (September 2021)
- Act 537 Plan – AECOM Report 2021 (October 2021)
- BioActiflo Additional Study (January 2022)
- Miscellaneous workshops (risk registry, tunneling, cost estimating, innovative PTP technology, GIS analyses of peak contribution by catchment/capita)
- Act 537 Plan – Miscellaneous 2023 and 2024 Technical Memos

SCHEDULE:
With a notice to proceed in early September, it is anticipated all work will be completed by the end of September 2025.

FUTURE AUTHORIZATIONS:
To be determined.

AECOM
625 West Ridge Pike
Conshohocken, PA 19428
aecom.com

July 18, 2024 (Revised)

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

RE: **Engineering Services – CEPT Optimization and Performance Demonstration**

Dear Mr. Capuzzi,

AECOM Technical Services, Inc. (AECOM) appreciates the opportunity to provide this proposal to Lehigh County Authority (the "Authority", or "LCA") for technical services in support of optimizing full-scale chemically enhanced primary treatment (CEPT) at the Kline's Island Wastewater Treatment Plant (KIWWTP). Shifting load down to KIWWTP from the Pretreatment Plant (PTP) is a core strategy in balancing overall treatment within the service area in a cost-effective manner. To this end, advanced primary treatment or CEPT has been identified as an important treatment approach at KIWWTP to accept increased organic load and maintain compliance with effluent limits during both dry and wet weather conditions. This proposal presents the scope of work, project team, schedule, demonstration budgeting considerations, and support services fee for AECOM to support LCA in optimizing and quantifying treatment performance gain realized through implementation of CEPT.

1.0 Understanding

Recent model-based capacity analyses summarized in the memorandum entitled *KIWWTP Performance and Capacity Review* (AECOM, submitted April 5, 2024) found that under spring season conditions, the KIWWTP could handle up to 56,000 lb-BOD/d on a monthly average basis and meet effluent ammonia permit limits. Modeling showed this performance can be sustained at an influent loading of 70,000 lb-BOD/d by boosting primary treatment performance through enhanced primary treatment. An improvement in primary clarifier performance represented by increasing the current 60% to 65% TSS capture range (based on raw influent versus primary effluent) to 70% to 75% is predicted to reduce organic loading to the downstream biofilm processes and protect nitrification performance at 70,000 lb-BOD/d loading.

In recent months, LCA staff have conducted chemical jar tests and some initial full-scale trials. While the jar testing showed favorable results, translation of performance improvement to full-scale demonstration has been challenging. In summary, the following CEPT study efforts have been conducted to date:

- **October 18, 2023 Jar Testing**: USALCO performed a series of jar tests on a sample collected from the KIWWTP aerated grit chamber effluent with different coagulants, including polyaluminum chloride (PACl, DelPAC 2950), aluminum chlorohydrate (DelPAC XG), and a

combination PACl/flocculant polymer solution (Delta-Floc 1123). The chemicals were dosed at an equal active metal concentration during screening, and then dosing was optimized based on settling rate, floc quality, and supernatant clarity. Overall, the jar testing suggested that DelPAC XG and Delta-Floc 1123 performed best.

- **November 28 to December 1, 2023 Full-scale Trial**: A full-scale coagulation trial was performed at the KIWWTP to take advantage of elevated influent solids while the PTP was offline. Chemical was added to the aerated grit chamber effluent, where highly turbulent flow is observed. DelPAC 2000 was dosed on the first day before switching to Delta-Floc 1123 for the remainder of the week. Doses ranged from approximately 6 mg/L to 15 mg/L, but no increase in removal efficiencies was observed compared to a typical day without coagulant addition.
- **December 18, 2023 Jar Testing**: USALCO performed more jar tests, focusing on how alum and ferric compared with PACl. Results showed PACl had slightly greater COD removal compared to alum or ferric.
- **January 10 to January 12, 2024 Full-Scale Trial:** A second full-scale trail of Delta-Floc 1123 was performed in January. Testing was conducted immediately after a large rain event, so flows were elevated throughout the trial. Chemical dosing began at approximately 10 mg/L and was reduced to about 6 mg/L the following day. Results showed the Delta-Floc 1123 did not improve TSS or BOD removal under the test conditions.

Industry practice has shown that several factors play into the actual observed increase in primary clarifier performance at full scale achieved through CEPT. These include (a) the nature of the raw wastewater influent, (b) the amount of metal salt and polymer dosed, (c) the physical and hydrodynamic configuration of the dose and mixing locations, and (d) the surface overflow rate in the zone settling space relative to the settling velocity of the particles. Based on the above understanding, the following scope has been developed to support LCA in optimizing and demonstrating CEPT at full-scale at the KIWWTP and quantifying performance for future facility planning.

2.0 Proposed Scope of Work

The proposed scope of work described below is intended to help LCA develop a full-scale understanding of the enhanced primary performance that is capable at KIWWTP. The proposed scope includes check points to pause and evaluate project success. These check points act as “gates” to assess progress and adjust based on what has been learned. Our proposed scope of work for technical services support to LCA consists of the following:

2.1 Project Management and Meetings:

The elements of this 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 monthly Teams progress meeting calls to review current project status and schedule, discuss progress to date, and identify action items and the path forward.

Deliverables for this task will include:

1. Kickoff meeting and notes.

2. Progress meetings for the duration of the project. Power point slides will be distributed after each respective meeting.
3. Monthly invoicing and project progress report.

2.2 Data Request and Review

The elements of this anticipated work item include:

- Prepare a data request. The data request may include information on previous test work, available wastewater characterization, drawings, and other information needed to support the project.
- Review and analyze data, identifying gaps that may need to be addressed during testing.

Deliverables for this task will include:

4. Data request
5. Summary of findings presented during the progress meetings

2.3 Influent Characterization

The elements of this anticipated work item include:

- Prepare a sampling plan. The sampling plan will include the number and location of samples, and requested analyses.
- Tabulate and analyze data. Results will be used to evaluate potential site-specific CEPT removals and revise the process model.

Deliverables for this task will include:

1. Sampling Plan
2. Summary of findings presented during the progress meetings

2.4 Jar Testing

Jar testing will be performed using ferric chloride and different flocculant polymers. AECOM will provide jar testing equipment and supplies. The elements of this anticipated work item include:

- Perform jar testing. Jar testing will be performed by AECOM at the KIWWTP with support from LCA. Jar testing will be used to identify the optimal chemical dosing scheme by assessing floc formation and quality, and supernatant quality. Settling rate and surface overflow rate (SOR) testing will be performed on the optimized chemical dosing scheme, and analytical samples will be collected to characterize treatment performance. Results will inform full-scale demonstration testing, including chemical types and recommended starting doses. We have assumed jar testing will be performed during one day at the site.

Deliverables for this task will include:

1. Summary of results presented during the progress meetings

2.5 Full-Scale Demonstration

A full-scale demonstration study will be conducted based on the jar testing results. The demonstration study will establish site-specific performance of CEPT at KIWWTP. A successful demonstration will

show increased chemical oxygen demand (COD) removal across the primary clarifiers compared with current performance (baseline). The elements of this anticipated work item include:

- A process assessment with KIWWTP O&M staff to review the operation and capacity of primary clarifier underflow pumping, primary digesters, digester heating, and biogas handling systems and establish operating parameters, monitoring parameters, and operating boundaries for each system during the CEPT demonstration.
- Mobilization and demobilization. This task will include developing a test plan, AECOM support for procurement and installation of chemicals and equipment, and demobilization. The test plan will identify chemical storage requirements, the dosing control strategy, and analytical sampling. AECOM will provide LCA with drawings, schematics and sizing information to guide the assembly of the temporary chemical storage and feed systems (by others) necessary for the demonstration.
- Demonstration Testing. Demonstration testing is envisioned as two testing periods each conducted over a three month period for a total of six months testing. During Test 1, the preferred chemical dosing scheme identified during jar testing will be optimized and tested at full scale. The recommended duration of Test 1 is three months minimum of data collection. If, based on Test 1 results, there is interest in furthering the study, a second test period (Test 2) allows LCA to collect additional performance data to inform the CEPT decision making process. Test 2 could be an extension of Test 1 using the same chemical dosing scheme, or a second combination of chemicals or dosing strategy adjustment that could be tested to compare performance. Our schedule shows that Test 2 could occur during the proposed secondary clarifier work that could be done in conjunction with a by-pass of load from PTP and shoulder season performance to simulate future conditions.

  Chemical storage and dosing will be comprised of two separate systems for coagulant and flocculant polymer. The coagulant (likely ferric chloride) will be dosed at the aerated grit chamber effluent and flocculant will be dosed downstream at the primary clarifier flow splitter. The coagulant system will include bulk storage near to the aerated grit complex, a metering pump, and associated piping and valves. Emulsion polymer will be used for flocculation and will need to be stored inside or in a heated enclosure during cold weather. The polymer system will include a neat polymer storage tote, liquid polymer dosing system with dilution, and associated piping and valves.

  Dosing of both chemicals will be adjusted to respond to changing influent conditions at the plant. Analytical samples will be collected to quantify performance during each test period, including primary clarifier influent, primary clarifier effluent, and primary sludge. AECOM will be onsite for CEPT startup and periodically during the test period - to provide ongoing testing support. Up to 4 site visits are included.
- The following components are required for the full-scale demonstration:
  - Temporary ferric chloride bulk storage – the selected chemical vendor will be requested to furnish a bulk storage container to support the study.
  - Polymer tote storage – the selected chemical vendor will be requested to furnish the bulk storage of polymer to support the study.
  - Ferric chloride metering pump – Selected chemical vendor or LCA to furnish.
  - Polymer blending and dosing system – Selected chemical vendor or LCA to furnish.
  - Small diameter PVC piping and associated valves – LCA to furnish and install

- Equipment installation and winterization, as needed – LCA to furnish and install
- Programming and integration – LCA to furnish.

To support LCA in overall budgeting needs for conducting this demonstration, monthly chemical costs have been estimated and are provided in the table below.

Chemical	Typical Dose	Monthly Consumption 1/	Typical Unit Cost	Estimated Monthly Cost 1/
40% Ferric Chloride	5 - 10 mg/L as Fe	8,600 - 17,000 gal as 40% solution	$1.75 per gal	$15,000 - $30,000
Emulsion Polymer	0.3 - 0.8 mg/L as active polymer	700 – 2,000 gal as neat emulsion polymer	$12 per gal	$8,600 - $53,000
Total Estimated Monthly Chemical Cost				$24,000 - $54,000

1/ Based on an average daily flowrate of 32 MGD

Deliverables for this task will include:

1. Summary of progress and results presented during the monthly meetings

Demonstration testing will include video observation (plus potential dye tracer) of the energy dissipating inlet performance at different clarifier surface overflow rate conditions. The final report, will compare the EDI dimensioning to the most current design dimensions used by the manufacturer based and make recommendations on whether the EDIs on the primary clarifiers should be modified.

2.6 Reporting

The elements of this anticipated work item include:

- Updated process model. Results from the previous tasks will be used to revise and calibrate the process model. A new capacity analysis will be conducted using the revised model and results will be included in the summary report. Modeling work will be performed in coordination with this project but billed under our ACT 537 Services.
- Summary report. The report will document CEPT study results and anticipated performance, summarize the updated capacity analysis, and provide a schematic layout showing how CEPT could be implemented on at the KIWWTP site.

Deliverables for this task will include:

1. Summary Report

2.7 Advanced Primary Treatment through Intentional Enhanced Bio-Flocculation

In collaboration with LCA staff, AECOM will conduct a basic study to evaluate how to manage and if possible optimize the already existing biological slough recirculation element of the KIWWTP to benefit overall plant performance and further improve primary treatment efficiency. The current recirculation flow from the trickling filters through the aerated grit complex may be further developed to increase bio-

flocculation and bio-absorption of particulate, colloidal organic loading in place of CEPT. In principle, this would be similar to emerging advanced primary treatment technologies like Captivator and AAA settler. The initial study will assess advantages, disadvantages, and tradeoffs between different modes of primary clarifier operation. This could include thin versus thick sludge pumping, and improving bio-flocculation for increased BOD removal already observed with the rock media trickling filter recycle flow.

The elements of this work item include:

- Jar test quantification of bio-flocculation/bio-adsorption of COD fractions and comparison to CEPT performance.
- Schematic layout and development of an engineering opinion of probable cost to configure at full scale plus lifecycle cost comparison with CEPT.
- Recommendation on next steps.

Deliverables for this task will include:

2. Results provided in the Summary Report

3.0 Project Team

The proposed staffing approach for completing the above scope of work is as follows:

Team Member	Project Role
Cindy Zawrotuk	Project Manager Cindy has over 25 years of PA-focused experience in planning, engineering, and construction administration in facility improvement projects. On this project, Cindy will be responsible for project administration, ensuring that the scope of work is complete, conducted in a timely manner and meets LCA's quality requirements.
Rachel Hanson	Project Technical Lead Rachel has an extensive academic and applied practical background in water chemistry and wastewater process design with over 15 years of experience including working on complex physical-chemical projects. On this project, Rachel will be the primary technical lead, working closely with LCA staff in conducting the scope of work activities.
Julia Szymanski	Project Engineer Julia has academic experience in emerging contaminant removal by physical-chemical processes, coupled with 3 years of experience of water and wastewater design, field piloting, data collection and processing. On this project, Julia will be the project engineer performing jar testing and assisting with demonstration testing.
Ralph Eschborn	Senior Advisor Ralph has 48 years of experience in wastewater planning, engineering, consulting and operations, and 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 KIWWTP, along with specific project drivers and regulatory understanding.
Kevin Frank	Process Modeling

	Kevin is one of AECOM's most talented process modelers and has conducted all of the previous modeling work for KIWWTP.
Jim McQuarrie	Senior Technical Advisor Jim has 30 years of experience in wastewater process design and WWTP operations. His focus has been in the areas of process innovation and performance-based plant operations. Jim brings hands on practical experience with full-scale operation and optimization of chemically enhanced primary treatment facilities.
Chris Curran	Client Service Manager Chris provides a local presence with a vested interest as a resident of Lehigh County and will be responsive to project needs. Chris led the recent CEPT project for the City of Bethlehem and will provide insight from that evaluation and installation.

The AECOM project team has previously worked on other similar CEPT projects/systems including:

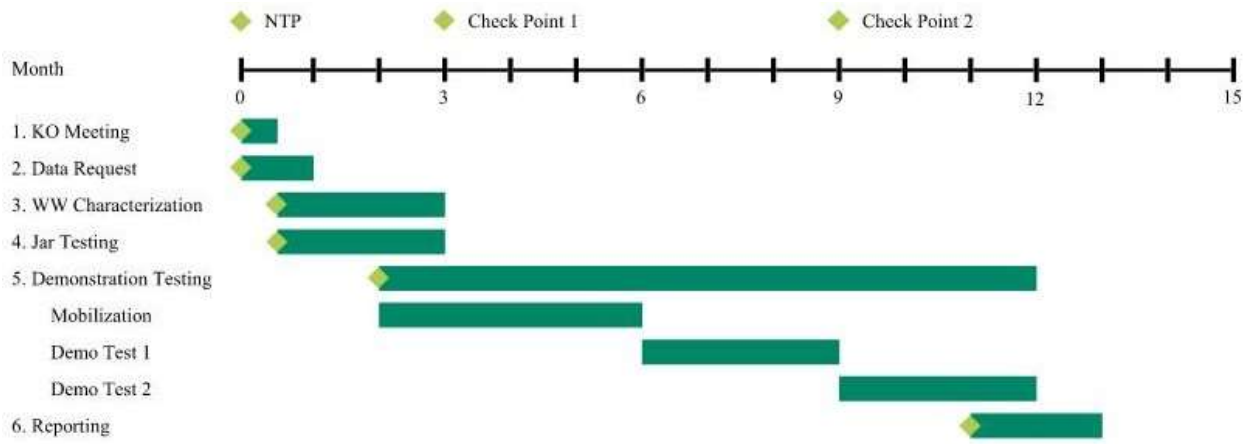
- Santee, CA -East County Advanced Water Purification Joint Powers Authority
- Washington, DC – Blue Plains Treatment Facility Santee, CA
- Harrisburg, PA – Capital Region Advanced Wastewater Treatment Facility
- Bethlehem, PA – Bethlehem Wastewater Treatment Plant
- Denver, CO – Robert W. Hite Treatment Facility

4.0 Proposed Project Schedule

The proposed schedule for conducting this work is shown below. The start and finish dates are based on receiving notice to proceed (NTP) on or around September 2, 2024. Two check point gates are shown in the schedule after completion of the jar testing, and again after completion of demonstration Test 1.

Task	Duration	Start	Finish
Notice to Proceed	-	Sept 2, 2024	-
Data Request	1 week	Sept 2, 2024	Sept 9, 2024
Data Review	2 weeks	Sept 9, 2024	Sept 23, 2024
Development of Sampling Plan	2 weeks	Sept 23, 2024	Oct 7, 2024
Influent wastewater characterization	12 weeks	Oct 7, 2024	January, 2025
Jar Testing	14 weeks	Oct 7, 2024	February, 2025
Full-Scale Field Demonstration	9 months (minimum)	November, 2024	September, 2025
Design/install of CEPT system	16 weeks	November, 2024	February, 2025
Demonstration Test 1[1]	12 weeks (minimum)	March, 2025	May, 2025
Demonstration Test 2	12 weeks (minimum)	June, 2025	August, 2025
Issuance of Report	4 weeks	August, 2025	September, 2025

[1]Demonstration Test 1 coordinated with PTP Secondary Clarifier replacement activities



5.0 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 and Meetings	138	-	$29,9770	$29,970
Task 2 – Data Request and Review	13	-	$2,115	$2,115
Task 3 – Influent Characterization	22	-	$3,550	$3,550
Task 4 – Jar Testing	100	$2,000	$17,420	$19,420
Task 7 – Investigate APT through enhanced bio-flocculation	100	$2,000	$17,420	$19,420
Task 5 – Full-Scale Demonstration	390	$4,000	$68,190	$72,180
Demonstration Test 1	108	$1,000	$19,240	
Demonstration Test 2	108	$1,000	$19,240	
Task 6 – Reporting	125	-	$22,070	$22,070
Total	**838**	**$8,000**	**$134,305**	**$168,725**

AECOM proposes to conduct this project on a Time and Materials basis in accordance with the Master Services Agreement for Professional Services between Lehigh County Authority and AECOM Technical Services, dated April 24, 2023.

6.0 Basis of Cost

The following provides the basis of costs for the proposed scope of work:

1. Local travel will be based on mileage from AECOM's representative Team member's Office to LCA's offices or facilities.
2. LCA will perform sampling and laboratory analyses throughout for all characterization, jar testing, and field studies.
3. AECOM has not included budget to make any physical improvements within the primary clarifiers that may be recommended upon review.
4. LCA will furnish and install the chemical storage, chemical feed pumps and piping, electrical needs, instrumentation and three additional automatic samplers warranted for the study so the results from all four primary clarifiers can be recorded.
5. Budget can transfer between tasks.
7. A Budget of up to $5,000 for process modeling associated with support of this study is under the ACT 537 support services project.
8. Virtual meetings will be used in lieu of in-person meetings whenever feasible.
9. This cost proposal is valid through 60 days.

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,

Christopher Curran, PE

VP, Project Director
Cc: Mr. Philip DePoe, PE

CAPITAL PROJECT AUTHORIZATION

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

PROJECT TITLE: Allentown Division – City of Allentown: CEPT Optimization and Performance Demonstration

PROJECT TYPE:

- ☐ Construction
- ☒ Engineering Study
- ☒ Equipment Purchase
- ☐ **Amendment**

THIS AUTHORIZATION: **$318,725**
TO DATE (W/ ABOVE) **$318,725**

DESCRIPTION AND BENEFITS:

To accommodate a future load shift from LCA's Pre-Treatment Plant (PTP) and continue to maintain regulatory compliance at Kline's Island Wastewater Treatment Plant (KIWWTP), chemically enhanced primary treatment (CEPT) has been identified as an important treatment approach for both dry and wet weather conditions. AECOM has recently completed and submitted updated capacity analyses finding that to sustain the treatment performance with the increased organic loading of 70,000 lb/day anticipated to occur due to the PTP load shift, the primary treatment capacity at KIWWTP must be enhanced. By enhancing the primary treatment ability, the organic loading on the downstream biofilm processes will be reduced and the nitrification performance will be protected. LCA staff have preliminarily piloted the CEPT testing, by conducting in-house chemical jar tests and limited initial full-scale trials. The jar testing showed encouraging results, however, there have been challenges with translating the performance improvement to full-scale tests. As a result of the favorable jar testing but issues with full-scale testing, LCA will benefit from professional consultant services to design, optimize, and implement the full-scale testing based on proven experience.

Prior Authorization: N/A
This Authorization: CEPT Optimization and Performance Demonstration ($318,725)

See attached Board Memo for further project details.

Authorization Status:

Requested This Authorization	
Planning Phase	
Staff	**$50,000**
Purchase of Equipment	**$50,000**
Engineering Consultant	**$168,725**
Contingency	**$50,000**
Total This Authorization	**$318,725**

Prior Authorizations	$0
Subtotal	**$318,725**
Future Authorizations	*N/A*

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 West Ridge Pike
Conshohocken, PA 19428

Date: September 9, 2024
Requested By: Stephen Boone

Approvals
Department Head: _____
Chief Executive Officer: _____

Allentown Division – City of Allentown: 2024 Interceptor Inspections

To accommodate a future load shift from LCA's Pre-Treatment Plant (PTP) and continue to maintain regulatory compliance at KIWWTP, chemically enhanced primary treatment (CEPT) has been identified as an important treatment approach. By enhancing the primary treatment ability, the organic loading on the downstream biofilm processes will be reduced and the nitrification performance will be protected. A full-scale demonstration as proposed is necessary for determining the viability of CEPT at KIWWTP. The scope of the work includes, but is not limited to, the following:

Professional Services[1]
• Task 1 – Project Management and Meetings; Deliverables- Kickoff Meeting and Minutes, Project Progress Meetings, Monthly Progress Report
• Task 2 – Data Request and Review; Deliverables- Data Request, Summary of Findings
• Task 3 – Influent Characterization; Deliverables- Sampling Plan, Summary of Findings
• Task 4 – Jar Testing; Deliverables- Summary of Results
• Task 5 – Full-Scale Demonstration; Deliverables- Summary of Progress
• Task 6 – Reporting; Deliverables- Summary Report Results
• Task 7 – Advanced Primary Treatment through Intentional Enhanced Bio-Flocculation; Deliverables- Summary Report Results

(1) Refer to AECOM Proposal for detailed work breakdown

This Authorization:
Amount: *$168,725*

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

(For Authority Use Only)

Authorization Completion:

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

Lehigh County Authority – Monthly Report to Board of Directors

Upcoming Board Agenda Items & Project Updates – September 2024

Published: September 3, 2024

PART 1 – Upcoming Agenda Items – Action & Discussion Items

FINANCE & ADMINISTRATION

Project Title: 2025 Budget: Preliminary Review
Division / Funding: All Divisions
Board Action Date: 9/9/2024 & 9/23/2024
Status or Action Desired: Discussion
Project Phase: n/a

Project Notes: Staff will present the budget timeline, key assumptions, strategic initiatives, and economic factors that will be included in the 2025 Budget on September 9. At the meeting on September 23, a preliminary budget will be presented for Board review. Additional details will be presented and discussed in October, with Board adoption expected by the end of October 2024. Staff Responsibility: Liesel Gross & Ed Klein

Project Title: PENNVEST Financing Resolutions: Lead Service Line Replacement Cycle 1 Project
Division / Funding: Allentown Division
Board Action Date: 9/23/2024
Status or Action Desired: Approval
Project Phase: n/a

Project Notes: Three Resolutions are required to be reviewed and approved by the Board in order to complete the planned PENNVEST grant and loan financing for the Allentown Division Lead Service Line Cycle 1 project to remove and replace both public and private lead service lines in the City of Allentown. Staff Responsibility: Liesel Gross

Project Title: LCA Building Optimization Study
Division / Funding: Suburban Division
Board Action Date: 9/23/2024
Status or Action Desired: Approval
Project Phase: Planning Phase

Project Notes: LCA's Main Office complex is currently operating beyond its original planned capacity, with several modifications completed over the years to create additional smaller work spaces for employees and consolidate meeting space and storage space. Even without the addition of new positions required to handle increasing project workloads, additional office space is needed. Authorization for design and bid phase of a new two-story building addition to the LCA main office was tabled at the July 8, 2024 LCA Board meeting pending a more complete evaluation of future staffing needs and full investigation of other facility expansion options and requirements. A proposal was requested from a consulting firm to assist with completing this evaluation in a more comprehensive manner, with authorization to be requested at the 9/23/2024 Board meeting. Staff Responsibility: Matt Dorner

Project Title: Monthly Financial Review
Division / Funding: n/a
Board Action Date: 9/23/2024
Status or Action Desired: Information
Project Phase: n/a

Project Notes: The August 2024 monthly financial report will be presented. Staff Responsibility: Ed Klein

SYSTEM OPERATIONS

Project Title: Monthly Operations Report
Division / Funding: n/a
Board Action Date: 9/23/2024
Status or Action Desired: Information
Project Phase: n/a

Project Notes: The August 2024 monthly operations report will be presented. Staff Responsibility: Andrew Moore & Chris Moughan

WATER PROJECTS – ALLENTOWN DIVISION

Project Title: Badger Meter Replacements
Division / Funding: Allentown Division
Board Action Date: 9/9/2024
Status or Action Desired: Approval
Project Phase: Construction Phase

Project Notes: This project involves the replacement of approximately 4,465 Badger meters ranging in size from 5/8" to 2" that were not replaced as part of the City of Allentown meter replacement project in 2012-2013. The Badger meters have an outdated style radio that is incorporated into the meter and cannot be replaced separately. These radios are at the end of their useful life and have started to fail. The project will be spread over a two-year period. Authorization for purchasing the meters and radios and an installation contract through the COSTARS program will be requested at the 9/9/2024 Board meeting. Staff Responsibility: Amy Kunkel

WASTEWATER PROJECTS – SUBURBAN DIVISION

Project Title: Pretreatment Plant - Critical Upgrades
Division / Funding: Suburban Division
Board Action Date: 9/23/2024
Status or Action Desired: Approval
Project Phase: Construction Phase

Project Notes: This project is to prepare detailed design documents for critical upgrades to the Pretreatment Plant. The basis of design was taken from a risk assessment study that determined which assets required replacement/rehabiliation to in order to maintain near-term level of service at the plant. The work will include design of upgrades to the aeration system, high purity oxygen system, final clarifiers and return activated sludge piping, and HVAC upgrades to the solids processing buildings. Professional Services Authorization for final design and bid phase services was authorized at the 5/20/2024 Board meeting. In the interest of expediting construction of the high priority/high risk final clarifier rehabiliation work, a decision was made to pursue equipment procurement and installation through the Costars program, to award at the 9/23/24 LCA Board meeting. Staff Responsibility: Chuck Volk

Project Title: Wynnewood Terrace WWTP Expansion - Developer Cost-Sharing Agreement

Division / Funding: Suburban Division | Board Action Date: 9/23/2024

Status or Action Desired: Approval | Project Phase: Planning Phase

Project Notes: In June 2024, North Whitehall Township granted Condition Use approval for a 114 unit residential subdivision, Rising Sun Development, to be located adjacent to Wynnewood Terrace, which is served by LCA's Wynnewood WWTP. The developer, Access Rising Sun Associates, LLC, approached LCA in late 2022 to request connecting to the Wynnewood WWTP to serve the development. LCA performed a feaibility study in 2023 to identify existing reserve capacity and evaluate conceptual plant improvements required to accomodate the development. The existing WWTP has current capacity to accomodate a portion of the development (50 EDUs), however, a plant capacity re-rate and process improvements are required to accomodate the build-out of the subdivision. The developer has offered to fund design, permitting, and construction of all necessary improvements to the Wynnewood WWTP. An agreement is required to be drawn up and executed to facilitate this process. Pending agreement execution, the plant expansion is anticipated to be completed by the end of 2026. Staff Responsibility: Chuck Volk

WASTEWATER PROJECTS – ALLENTOWN DIVISION

Project Title: Kline's Island WWTP: Chemically Enhanced Primary Treatment Study

Division / Funding: Allentown Division | Board Action Date: 9/9/2024

Status or Action Desired: Approval | Project Phase: Planning Phase

Project Notes: This project is for a primary settling optimization study to investigate Chemically Enhanced Primary Treatment (CEPT) to increase solids settling at the primary settling tanks. The plan is to evaluate various polymers with full-scale testing to best identify the appropriate chemical for the KIWWTP. Planning phase approval is anticipated to be requested at the 9/9/2024 LCA Board meeting. Staff Responsibility: Stephen Boone

Project Title: Kline's Island WWTP - Primary Sludge System Upgrades

Division / Funding: Allentown Division | Board Action Date: 9/23/2024

Status or Action Desired: No Change | Project Phase: Construction Phase

Project Notes: The existing KIWWTP primary sludge system is in need of upgrades to extend longevity and improve maintenance and reliability. D'Huy Engineering performed preliminary engineering services and the City has approved the project as a Major Capital Improvement. A final design and bidding service proposal was received from D'Huy Engineering, Inc. on 2/20/2024. Capital Project Authorization was granted by the Board at the 3/11/2024 meeting for design and bidding phase services with D'Huy Engineering. Bids were advertised 8/13/2024 and a pre-bid meeting was held on 8/22/24 with bids due 9/11/2024. Construction Project Authorization is being requested for the General and Electrical construction contracts as well as the Construction Administration Services to be peformed by CHA (formerly D'Huy Engineering). Staff Responsibility: Amy Rohrbach

WASTEWATER PROJECTS – KISS ACT 537

Project Title: Regional Sewer Capacity & Wet-Weather Planning - Regional Act 537 Plan Preparation
Division / Funding: City of Allentown (AO) Board Action Date: n/a
Status or Action Desired: Updated Project Phase: Planning Phase

Project Notes: All municipalities flowing into the Kline's Island Wastewater Treatment Plan completed an Interim Act 537 Plan ("Interim Plan") in September 2020. This Interim Plan primarily consisted of projecting new connections to the regional sewer system from 2021 through 2025 and outlining steps to be taken during this timeframe to prepare a full Regional (Long-Term) Act 537 Plan ("Regional Plan"). This two-step planning process has been developed to allow all municipalities to work cooperatively toward a regional plan to meet future sewer capacity needs of the region, and to provide proper regulatory oversight and control of new connections to the system while the Interim Plan is in force from 2021 to 2025. To begin the process of compiling the Regional Act 537 Plan (originally due in March 2025), a Professional Service Authorization for ARRO to complete this work was approved at the February 28, 2022 Board meeting. Costs associated with the development of this Regional Act 537 Plan will be paid by the City of Allentown and reimbursed through existing intermunicipal agreements and by City customers through the use of the Administrative Order Fee. Preliminary writing of the Final Act 537 is under way and is expected for Planning Commission deliveries by the end of 2024. This will start the Act 537 municipal review and approval process. Staff Responsibility: Phil DePoe

WASTEWATER PROJECTS – SUBURBAN DIVISION

Project Title: LCA Meter Stations 1 and 2 Upgrades
Division / Funding: Suburban Division Board Action Date: n/a
Status or Action Desired: Updated Project Phase: Design Phase

Project Notes: The LCA sewer system contains five meter stations located strategically throughout the area. Meter Station #1 is located on the downstream side of the Borough of Alburtis (the beginning of the Alburtis-Macungie Trunkline) and Meter Station #2 is located on the upstream side of the Borough of Macungie. Both meter stations cannot currently accurately measure peak flows and therefore are in need of parshall flume replacements. The replacement of these flumes will expand the peak flow capacity. This proposed design work is part of the larger KISS Sewer Billing Meter issue that requires a long term solution (a requirement of the Interim Act 537). Board authorization for the design and bid phase was granted at the January 8, 2024 Meeting. Draft bid documents have been receieved and are under internal review. Staff Responsibility: Phil DePoe

PART 3 – Open Project List – No Updates

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Finance & Administration	LCA Strategic Plan - Progress Reporting	All Divisions	n/a	Liesel Gross
Finance & Administration	Project Management / Construction Management Software Installation & Setup	All Divisions	Planning Phase	Jason Peters
Finance & Administration	Capital Works Planning Room Organizing, Secure Storage and Digitizing - Phase 2	All Divisions	Planning Phase	Matt Dorner
Finance & Administration	LCA Munis ERP System Planning & Re-Implementation	All Divisions	Planning Phase	Chris Moughan & Brooke Neve
Finance & Administration	2025-2029 Capital Plan - Preliminary Plan Presentations	All Divisions	n/a	Chuck Volk & Ed Klein
Finance & Administration	Draft Omnibus Resolution: Delegation of Board Duties	n/a	n/a	Liesel Gross
System Operations	Suburban Water Facilities - SCADA System Upgrade	Suburban Division	Construction Phase	Chris Moughan
System Operations	Watershed Monitoring Program	Suburban Division	Planning Phase	Andrew Moore
Water - Suburban	2024 Meter Replacements	Suburban Division	Construction Phase	Amy Kunkel
Water - Suburban	Central Lehigh and North Whitehall Systems – Water Supply Study	Suburban Division	Planning Phase	Phil DePoe
Water - Suburban	Water Main Replacement Program Cycle 7	Suburban Division	Construction Phase	Jason Peters
Water - Suburban	Fixed Base Meter Reading Stations	Suburban Division	Planning Phase	Amy Kunkel
Water - Suburban	Upper System Pump Station and Main Extension	Suburban Division	Design Phase	Amy Kunkel
Water - Suburban	Suburban Division Lead Service Line Inventory Program & Compliance Planning	Suburban Division	Planning Phase	Matt Dorner
Water - Suburban	Water Main Replacement Program Cycle 7 & 8	Suburban Division	Design Phase	Jason Peters

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Water - Allentown	Lead Service Line Replacement Project Cycle 2	Allentown Division	Design Phase	Albert Capuzzi
Water - Allentown	Lead Service Line Replacement Project Cycle 1	Allentown Division	Construction Phase	Jason Peters
Water - Allentown	Water Filtration Plant: Fluoride System Upgrades	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	Water Filtration Plant: HVAC Upgrades - Phase 1	Allentown Division	Construction Phase	Amy Rohrbach
Water - Allentown	Water Filtration Plant: Emergency Power Design	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	Allentown Division Lead Service Line Inventory Program & Compliance Planning	Allentown Division	Planning Phase	Matt Dorner
Water - Allentown	Water Main Replacement Program Cycles 7 & 8	Allentown Division	Construction	Jason Peters
Water - Allentown	Lehigh River Pump Station Upgrades	Allentown Division	Planning Phase	Amy Rohrbach
Water - Allentown	Water Main Replacement Program Cycles 9 - 11	Allentown Division	Design Phase	Jason Peters
Water - Allentown	Water Filtration Plant: Filter Upgrade Project	Allentown Division	Construction Phase	Amy Rohrbach
Water - Allentown	30" & 36" East Side Transmission Main Repair Project	Allentown Division	Design Phase	Jason Peters
Water - Allentown	Water Filtration Plant: PFAS Compliance Study	Allentown Division	Planning Phase	Albert Capuzzi
Water - Allentown	Large Diameter Valve Rehabilitation & Replacement Program	Allentown Division	Design Phase	Matt Dorner
Water - Allentown	Lead Service Line Replacement Program Planning	Allentown Division	Planning Phase	Andrew Moore
Water - Allentown	Water Filtration Plant: 2022-2023 Indenture Upgrades	Allentown Division	Construction Phase	Chuck Volk
Sewer - Act 537	Sanitary Sewer Collection System: City of Allentown Manhole Inspections	Allentown Division	Planning Phase	Phil DePoe

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Sewer - Act 537	Sanitary Sewer Collection System: City of Allentown Manhole Rehabilitation	Allentown Division	Construction Phase	Matt Dorner
Sewer - Act 537	Sanitary Sewer Collection System: City of Allentown Interceptor Inspections	Allentown Division	Planning Phase	Phil DePoe
Sewer - Act 537	KISS Act 537 Planning - Financial & Institutional Evaluation, Phase 3	City of Allentown (AO)	Planning Phase	Liesel Gross
Sewer - Act 537	Legal Services: Development of New Intermunicipal Agreement(s)	City of Allentown (AO)	Planning Phase	Liesel Gross
Sewer - Act 537	KISS System Modeling - Sewage Billing Meter QA/QC Data Analytics and 2021 Flow Metering Preparation	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	KISS Act 537 Planning - Selection of Solution (SOS) Phase	City of Allentown (AO)	Planning Phase	Phil DePoe
Sewer - Act 537	Industrial Pretreatment Plant Master Plan	Suburban Division	Planning Phase	Liesel Gross & Albert Capuzzi
Sewer - Act 537	Spring Creek Force Main Condition Assessment	Suburban Division	Planning Phase	Amy Kunkel
Sewer - Act 537	Upper Western Lehigh Pump Station & Force Main	Suburban Division	Construction Phase	Amy Kunkel
Sewer - Act 537	Regional Sewer Capacity & Wet-Weather Planning: Engineering & Program Support	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	KISS Relief Interceptor Pre-Design Study	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	Western Lehigh Interceptor Municipalities Test & Seal Lateral Grouting Project	Suburban Division	Construction Phase	Jason Peters
Sewer - Act 537	Western Lehigh Service Area - Engineering & Program Support	Suburban Division	Planning Phase	Phil DePoe
Sewer - Suburban	Lynn Township WWTP Final Clarifier Project	Suburban Division	Construction Phase	Matt Dorner
Sewer - Suburban	Spring Creek Force Main Relocation - PA Turnpike Commission	Suburban Division	Design Phase	Amy Kunkel
Sewer - Suburban	Spring Creek Pump Station Upgrades	Suburban Division	Construction Phase	Amy Kunkel

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Sewer - Suburban	Park Pump Station Phase 2 Upgrade	Suburban Division	Construction Phase	Amy Kunkel
Sewer - Suburban	Heidelberg Heights Sanitary Sewer Consent Order & Agreement	Suburban Division	Construction Phase	Matt Dorner
Sewer - Suburban	Arcadia WWTP Screening System Project	Suburban Division	Design Phase	Matt Dorner
Sewer - Suburban	Western Lehigh Manhole Rehabilitation Project - Phase 4	Suburban Division	Construction Phase	Jason Peters
Sewer - Suburban	North Whitehall Township Act 537 Plan	Suburban Division	Planning Phase	Phil DePoe
Sewer - Suburban	Pretreatment Plant (PTP) Electrical Study	Suburban Division	Planning Phase	Albert Capuzzi
Sewer - Suburban	Lynn Township Corrective Action Plan	Suburban Division	Planning Phase	Jason Peters
Sewer - Suburban	Sand Spring WWTP: Treatment Process Modification	Suburban Division	Design Phase	Chuck Volk
Sewer - Allentown	Sanitary Sewer Collection System: I&I Source Reduction Program (LCA Year 2)	Allentown Division	Planning Phase	Jason Peters
Sewer- Allentown	Kline's Island WWTP - Wet Weather Improvements - Phase 1	Allentown Division	Design Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP - Final Settling Tanks 1-4 Upgrades	Allentown Division	Design Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP: Master Plan	Allentown Division	Planning Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP - Septage Receiving and Vacuum Truck Unloading Modifications	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP: Substation No. 1 and Switchgear Replacement	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP: 2023-2024 Architectural and Structural Upgrades	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP: Solids Process Boiler and HVAC System Upgrade Project	Allentown Division	Construction Phase	Chuck Volk

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Sewer - Allentown	Lehigh Street (Rte. 145) Water and Sewer Main Relocation Project	Allentown Division	Construction Phase	Jason Peters
Sewer - Allentown	Kline's Island WWTP: Secondary Digester Cleaning	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	Sanitary Sewer Collection System: I&I Source Reduction Program (LCA Year 1)	Allentown Division	Construction Phase	Jason Peters