



## LEHIGH COUNTY AUTHORITY

**LCA Main Office:**  
1053 Spruce Road  
Wescosville, PA 18106  
610-398-2503

**Agendas & Minutes Posted:**  
[www.lehighcountyauthority.org](http://www.lehighcountyauthority.org)

Published: February 3, 2020

### BOARD MEETING AGENDA – February 10, 2020

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](http://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

3. Approval of Minutes

- *January 27, 2020 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

#### **FINANCE AND ADMINISTRATION**

- *Preliminary 2021-2025 Allentown Division Capital Plan (Discussion) – to be distributed at the meeting*

#### **WATER**

- *Allentown Division – Water Filtration Plant: Raw Water Pump Room Painting Construction Phase (Approval) (purple)*

#### **WASTEWATER**

- *Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning (Approval) (tan)*

6. Monthly Project Updates / Information Items (1<sup>st</sup> Board meeting per month) – **February report attached**

7. Monthly Financial Review (2<sup>nd</sup> Board meeting per month)

8. Monthly System Operations Overview (2<sup>nd</sup> Board meeting per month)

9. Staff Comments

10. Solicitor's Comments

11. Public Comments / Other Comments

12. Executive Sessions

13. Adjournment

#### **UPCOMING BOARD MEETINGS**

*Meetings begin at Noon at LCA's Main Office, unless noted otherwise below.*

February 24, 2020

March 9, 2020

March 23, 2020

#### **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**

### **January 27, 2020**

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The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:01 p.m. on Monday, January 27, 2020, Vice Chairman Scott Bieber presiding. Other Members present at the commencement of the meeting were: Jeff Morgan, Richard Bohner, Norma Cusick, and Amir Famili. Brian Nagle and Ted Lyons were on the conference phone for the duration of the meeting. Authority Staff present were Liesel Gross, Chuck Volk, Ed Klein, John Parsons, Andrew Moore, Susan Sampson, Chris Moughan, Todd Marion, Phil DePoe, and Lisa Miller. Solicitor Michael Gaul was also present.

Vice Chairman Bieber announced that today's Board meeting is being videotaped and streaming live and recordings will be posted to the Authority's website.

#### **REVIEW OF AGENDA**

Liesel Gross stated there would be an Executive Session at the end of the regular meeting to discuss matters of potential litigation and personnel.

Vice Chairman Bieber announced that Brian Nagle and Ted Lyons were on the conference phone.

#### **APPROVAL OF MINUTES**

##### **January 13, 2020 Regular Meeting Minutes**

On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the minutes of the January 13, 2020 Board meeting as published (7-0).

#### **PUBLIC COMMENTS**

None.

#### **ACTION AND DISCUSSION ITEMS**

##### **Resolution No. 1-2020-2 – Approval of Updated Pension Documents**

Liesel Gross explained that Resolution No. 1-2020-2 is required by the Pennsylvania Municipal Retirement System (PMRS) to amend the Authority's non-uniform pension plan to comply with new Internal Revenue Service regulations. The new documents do not include any changes to the plan structure, benefits to employees, or contribution requirements, but the plan document amendments need to be approved by the Board.

Attorney Gaul noted that the Authority's proposed Resolution has been reviewed and approved by PMRS legal counsel.

Richard Bohner noted a spelling error in the documents.

On a motion by Norma Cusick, seconded by Jeff Morgan, the Board approved Resolution No. 1-2020-2 (7-0).

##### **LCA Strategic Plan – 2019 Action Plan Update & 2020 Planning Effort**

Liesel Gross presented a PowerPoint presentation regarding the Authority's Strategic Goals and gave an overview of the background as to how the goals were established. The purpose of the three-year action plan is to provide for a longer-term focus on the overarching strategic goals. The plan supports development of operational budgetary priorities, and provides structure for reporting key achievements moving forward.

Ms. Gross reviewed the key performance indicators (KPIs) related to (i) preventative maintenance versus corrective maintenance, (ii) regulatory and environmental violations, and (iii) employee and leadership development. Ms. Gross noted the financial dashboard is presented monthly with the financial report to the Board. There was some Board discussion.

Kevin Baker arrived at 12:15 p.m.

Ms. Gross reviewed progress on the three-year action plan, and specifically the status of the 2019 action plan. She explained that roughly 50 percent of the 2019 action items were completed. Some of the goals had to be adjusted for various reasons since the plan was first developed in 2017. Ed Klein discussed the goals regarding Financial Viability, noting that in order to complete most of them, more comprehensive planning and process improvement work is required. Norma Cusick asked if the addition of more staff would help to complete the goals in 2020. Mr. Klein said time availability is the most significant factor. Ted Lyons asked how much time was spent on addressing financial and legal challenges within the City Division in 2019, rather than focused on the 2019 goals. Mr. Klein replied that approximately one quarter of his time in 2019 was devoted to addressing City Division challenges.

Ms. Gross review the next steps, which are to keep working on the 2020 Action Plan, and then develop the Authority's next Strategic Plan. This project will include steps to gather feedback from key stakeholders, conduct a customer survey, and complete internal assessments, which have almost been completed. All of this feedback will be put into the development of an updated strategic plan that will include targets for the existing KPIs and establishment of new KPIs, along with implementation plans to ensure resources are properly allocated to achieve desired results. Ms. Gross asked for Board member input on the desired level of Board involvement in the process. Brian Nagle said that he would like to see a committee structure with some Board members present during discussions and meetings, so that the Board is part of the process. Ted Lyons asked for Liesel's opinion on the preferred level of Board participation. Ms. Gross stated that Board member involvement would be helpful in developing the goals and overall vision for the organization, and reviewing community input received throughout the process. Board members that asked to be involved were Brian Nagle, Norma Cusick, and Amir Famili. Ms. Gross said she will be working on a more detailed work plan, and will inform the Board of the next steps.

### **Preliminary 2021-2025 Administration and Suburban Division Capital Plans**

Vice Chairman Bieber announced that the Board received their copies of the Preliminary 2021-2025 Administration and Suburban Division plans at today's meeting. Liesel Gross introduced the plans by reviewing the planning and public input process and schedule, which the staff expects to complete in March 2020. The planning process was revised in 2019 to provide additional time for financial analysis and discussion. The plans include a breakdown of funding sources based on providing coverage for ongoing maintenance and annual rehabilitation projects through operations revenues or reserves. Revenue forecasts and an estimate of rate increase requirements to fund the plan are also developed and presented as well.

Chuck Volk gave a presentation of the draft 2021-2025 Administration and Suburban Division Capital Plans. Mr. Volk reviewed the Administrative Plan projects, noting that most of the projects are ongoing. Some discussion followed regarding those projects.

Mr. Volk then reviewed the Suburban Division water projects, which includes a mix of annual rehabilitation projects and individual facility upgrade projects over the next five years. Ed Klein gave a financial analysis of the Suburban Division water projects for the time period of 2021-2025, explaining how the projects will be funded over the next five years. He stated that operating revenues will need to increase by 6.5 percent annually to cover project costs along with the estimated additional debt service. The Plan includes approximately \$5 million in additional borrowing to cover the remaining projects. Kevin Baker asked how the Authority has performed in terms of project completion versus the capital plan. Both Ed Klein and Chuck Volk explained that performance has been improving over time, but sometimes unforeseen events that can happen during a project that may delay completion of the project beyond the budgeted year. Amir Famili asked whether an anticipated borrowing should be reduced due to uncertainty regarding the project completion date. Mr. Klein explained that the staff is reasonably confident that the projects will be completed, but that project timing is the primary concern. Liesel Gross added that this issue can be reviewed in more detail at the time of a bond issue, to ensure the right projects are included in the loan.

Chuck Volk reviewed the Suburban Division draft Plan's wastewater projects for the time period of 2021-2025. There was some discussion regarding the Lynn Township projects. Mr. Volk also gave an overview of the annual Suburban Division wastewater projects.

Ed Klein reviewed the Suburban Division Wastewater financial analysis, explaining how the projects are to be funded, and the plan for borrowing. Mr. Klein explained that borrowing is necessary for some of these projects because the projects are part of the common rate collector group, and do not have adequate revenue coming in, or any reserves. Liesel Gross commented that while the proposed Capital Plan shows modest annual revenue increases of 2.5 percent per year or less to fund the plan, the increases may fall primarily on the customers in the Authority's common rate collector systems due to the mix of projects required. Because the customer base is small, the rate impact could be significant and requires further study.

Liesel Gross noted that the Board has just received their information packet for the draft 2021-2025 Administration and Suburban Division Capital Plans at today's meeting, and asked that they review it and contact her with any questions or concerns.

#### **Suburban Division – Closure of WLI High Flow Emergency Declaration**

John Parsons provided a presentation of the project, including a summary of the work completed. Corrective actions taken include joint leak repairs, manhole leak repairs, debris removal and manhole chimney and cover repairs. Over 16 miles of sanitary sewer was CCTV'd and evaluated. Approximately 5 cubic yards of material was removed under Trexlertown Road, making it the largest blockage during the entire project. Mr. Parsons reported that Lower Macungie Township was very cooperative during the project and the project is now closed. Liesel Gross gave recognition to John Parsons and his team for keeping the project moving. John Parsons gave credit and recognition to the Operations Department workers for their work and dedication to this project.

#### **MONTHLY FINANCIAL REVIEW**

Ed Klein reported that 2019 financials just closed. The December 2019 report will be ready for the Board meeting in February.

### **MONTHLY SYSTEM OPERATIONS OVERVIEW**

John Parsons reviewed the Monthly System Operations Overview report for December 2019, highlighting the significant repairs and upgrades that occurred during that month.

### **STAFF COMMENTS**

None.

### **SOLICITOR'S COMMENTS**

None.

### **PUBLIC COMMENTS / OTHER COMMENTS**

None.

Vice Chairman Bieber called a recess at 2:07 p.m. The meeting reconvened at 2:17 p.m.

### **EXECUTIVE SESSION**

An Executive Session was held at 2:17 p.m. to discuss matters of potential litigation and personnel.

The Executive Session ended at 3:00 p.m.

### **ADJOURNMENT**

There being no further business, the Vice Chairman adjourned the meeting at 3:00 p.m.

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Richard H. Bohner  
Secretary

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## MEMORANDUM

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**Date:** February 10, 2020

**To:** Lehigh County Authority Board of Directors  
**From:** Charles Volk, Chief Capital Works Officer  
**Subject:** Allentown Division – WTP: Raw Water Pump Area Painting Project - Construction Phase

**MOTIONS / APPROVALS REQUESTED:**

No.	Item	Amount
1	Capital Project Authorization – Construction Phase	\$158,580
2 <sup>(1)</sup>	Professional Services Authorization – D’Huy Engineering, Inc.	\$15,700
3 <sup>(1)</sup>	General Contract Award – AFN USA, Inc.	\$131,380

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

**PROJECT OVERVIEW:**

The existing piping, pipe supports, and other steel components in the raw water pump room at the Water Treatment Plant display areas of extensive corrosion and coating failure. The scope of this project consists of surface preparation and painting of existing pipe, fittings, pipe supports, beams, and other miscellaneous metals in the raw water pump area at the Water Filtration Plant. Also included is the repair and replacement of corroded pipe supports, installation of grout pads beneath the pipe supports, replacement of corroded bolts, nuts and restraining rods, and power-washing walls in the raw water pump area.

**FINANCIAL:**

This Project will be funded by the LCA Allentown Division.

**PROJECT STATUS:**

The project was advertised for bid in December 2019. A pre-bid meeting was held on January 6, 2020, and bids were received on January 16, 2020.

**THIS APPROVAL – CONSTRUCTION PHASE:**

The contract time for construction phase is 65 days to substantial completion.

The design engineer will be responsible for periodic oversight of the construction, conducting job conferences, reviewing submittals, responding to RFIs, reviewing payment applications, preparation of change orders, and substantial and final completion inspections. Construction oversight will be supplemented by in-house LCA staff.

**BIDDING SUMMARY:**

The project consists of a single General Construction (GC) Contract. The bid results are summarized below:

<b>Bidder</b>	<b>Bid Results</b>
<b>AFN USA, LLC</b>	<b>\$131,380</b>
J.P. Smith Contractors, Inc.	\$135,200
G.C. Zarnas & Co., Inc.	\$174,404
Derstine Company, LLC	\$255,900
I.K. Stoltzfus Service Corp.	\$263,795
D.M. Coatings, Inc.	\$263,930

AFN USA, Inc. (AFN) is based in Hellertown, PA and has significant similar project experience with water and wastewater facility mechanical and structures coatings and concrete repairs, including several painting projects at LCA facilities. Our design engineer, D'Huy, has project experience with the firm and indicated positive feedback. The documents submitted with the bid are satisfactory.

Based upon the review of the bids, we recommend award of the General Construction contract to AFN USA, Inc., subject to the receipt of the necessary Performance Bonds, Insurance and other required documentation. D'Huy and LCA staff have reviewed the project references provided with the bid and AFN appears well qualified to complete this project. The engineer's estimate for the project is \$150,000.

**PROFESSIONAL SERVICES:**

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

1. Attend the pre-construction meeting and two progress meetings
2. Review, approve, and distributed executed shop drawings
3. Review and respond to contractor RFIs
4. Process payment applications
5. Process any necessary change orders
6. Provide part-time construction inspection services
7. Perform substantial completion inspection and issue punch list to contractor
8. Administer final project close-out

**PROJECT SCHEDULE:**

Based on construction phase authorization on 2/10/20, the project should be completed by the end of April this year.

**FUTURE AUTHORIZATIONS:**

No future authorizations are anticipated for this project.

# CAPITAL PROJECT AUTHORIZATION

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

**PROJECT TITLE:** Allentown Division –WTP Raw Water Pump Area Painting Project **PROJECT TYPE:**

☒ Construction  
☐ Engineering Study  
☐ Equipment Purchase

**THIS AUTHORIZATION** \$ 158,580  
**TO DATE (W/ABOVE)** \$ 181,080

## DESCRIPTION AND BENEFITS:

The scope of this project consists of a restoration of the metal components coating system in the raw water pump area at the WTP, and includes surface preparation and painting of existing pipe, fittings, pipe supports, beams, and other miscellaneous metals in the raw water pump area at the Water Filtration Plant. Also included is the repair and replacement of corroded pipe supports, installation of grout pads beneath the pipe supports, replacement of corroded bolts, nuts and restraining rods, and power-washing walls in the raw water pump area. The project is an asset management improvement that will extend the service life of the steel components in the raw water pump room.

Previous Authorizations	
Design Phase	\$22,500

REQUESTED THIS AUTHORIZATION	
Construction Phase	
Staff	\$5,000
Professional Services	
Construction Engineering /Inspection	\$15,700
General Construction Contract – AFN USA, Inc.	\$131,380
Contingency	\$6,500
Total This Authorization	\$158,580

Total Estimated Project	\$
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## REVIEW AND APPROVALS:

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





**Lehigh County Authority**

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## PROFESSIONAL SERVICES AUTHORIZATION

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

**Date:** February 10, 2020

**Requested By:** Charles Volk, P.E.

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

### Allentown – WTP Raw Water Pump Area Painting Construction Phase

D'Huy Engineering, Inc. will perform construction administration and engineering support the Raw Water Pump Area Painting Project. Professional services will include the following:

Professional Services <sup>(1)</sup>
1. Pre-construction meeting coordination, attendance and follow-up
2. Prepare for and attend two job conferences
3. Review and approve contractor submittals
4. Respond to Requests for Information (RFI) from contractor
5. Process payment applications
6. Process change orders as required
7. Provide part-time construction observation
8. Substantial completion inspection & punchlist preparation
9. Contract closeout administration

(1) Reference the cover Memo for additional information.

**Cost Estimate (not to be exceeded without further authorization): \$15,700**

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

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(For Authority Use Only)

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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## MEMORANDUM

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**Date:** February 3, 2020

**To:** LCA Board of Directors  
Liesel Gross, CEO

**From:** Phil DePoe, Interim Senior Planning Engineer

**Subject:** Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning

**MOTIONS / APPROVALS REQUESTED:**

No.	Item	Amount
A	Professional Services Authorization – ARRO – Interim Act 537 Plan Preparation	\$46,485
B	Professional Services Authorization – Arcadis – Western Lehigh Service Area – Engineering & Program Support	\$71,000
C	Professional Services Authorization – Flow Assessment Services – Flow Metering Contract	Unit Prices*
D	Professional Services Authorization – Arcadis – Western Lehigh 2020 Flow Data QA/QC and RDII Analysis	\$154,000

\*Year 1 estimated cost is \$223,950

### **Introduction & Background**

In 2008, the Pa. Department of Environmental Protection (DEP) required Lehigh County Authority (LCA) and the Western Lehigh sewer signatories to generate a corrective action plan for the areas identified as having significant infiltration and inflow (I&I) conditions. The municipalities formed the Western Lehigh Sewerage Partnership (WLSP) and developed the Sewer Capacity Assurance & Rehabilitation Program (SCARP) to provide a formalized and planned method of evaluating the LCA and signatory sewer systems, prioritizing and conducting sewer rehabilitation by all WLSP communities – LCA, Upper Macungie, Lower Macungie, Weisenberg, Lowhill and Upper Milford townships, and Macungie and Alburtis boroughs.

To support this work, flow metering was conducted in 2008 and a hydraulic model was developed in 2009. At the same time, in 2009, the U.S. Environmental Protection Agency issued an Administrative Order for all municipalities served by the Kline's Island Wastewater Treatment Plant to eliminate sanitary sewer overflows and bypasses at the plant during wet-weather events.

From 2009 through 2018, the WLSP group completed significant projects to address sources of I&I in the Western Lehigh service area. In 2014, the WLSP hydraulic model was recalibrated using data gathered for adjoining sewer systems in the City of Allentown and surrounding communities. At that time, all communities began considering developing a regional Act 537 Plan (Sewage Facilities Plan) to address long-term sewer capacity requirements for the region. This work was halted in 2016 after receiving direction from DEP that the region should focus first on addressing the system's wet-weather challenges prior to submitting an Act 537 Plan to address future capacity requirements. From 2016 through 2017, a comprehensive plan was developed focusing on I&I source removal, conveyance system upgrades, and expansion of the KIWWTP's capacity to handle peak flows during wet-weather events. Early estimates of the cost to complete these upgrades was in the range of \$300 million.

In late 2017, the USEPA provided direction to the region that this capital-intensive program was not warranted to meet the requirements of the Administrative Order, and the region should refocus its efforts on flow characterization and I&I source removal. Therefore, in 2018, LCA and all the municipalities in the Kline's Island Sewer System submitted a Regional Flow Management Strategy to the USEPA and to DEP which included commitment to conduct flow monitoring and additional flow characterization work in the years ahead, along with each municipality's individual I&I source removal plans for the next five to seven years. In March 2019, the USEPA withdrew the Administrative Order and transferred oversight of the plan back to DEP.

In the intervening time period while the region sought to meet USEPA's shift in scope for addressing wet-weather challenges, the Lehigh Valley experienced an unprecedented prolonged period of excessive rainfall totaling 67 inches in 2018 and 61 inches in 2019. In particular, during the 12-month period of August 2018 through July 2019, the region received 80 inches of precipitation. Normal precipitation for our area is about 45 inches per year. As a result of this weather pattern and the ongoing leakage in the region's sewer system, sewer flows increased significantly during this time period and exceeded the KIWWTP's permitted capacity limit of 40 million gallons per day on several occasions.

Important Note: While the KIWWTP exceeded its hydraulic capacity limit of 40 MGD on a monthly basis several times in 2018 and 2019, the discharge of treated effluent from the plant met every effluent quality permit requirement during this time period so that environmental quality was not impacted by the higher flows.

Beginning in August 2019, LCA, the City of Allentown and the 13 other municipalities served by the Kline's Island Sewer System (KISS) began discussing the situation with DEP representatives. These discussions have been focused on evaluating and documenting the KIWWTP's capacity to address continued higher flows if wet-weather patterns continue, illustrating the region's commitment to cooperative management of the KISS, and to develop a plan to address the long-term capacity requirements of the system to meet the economic and environmental needs of the region. Through these discussions, a three-phase approach has been developed as follows:

### **Phase 1 – 2020 Corrective Action & Connection Management Plan**

In 2020, new connections to the KISS will be managed under the terms of regional corrective action plan managed by LCA and under the requirement that an "Interim" Act 537 Plan be developed and submitted to DEP by September 2020. The primary thrust of the corrective action plan is the development of the Interim Act 537 Plan, quarterly progress reporting to DEP, and new developments requiring sewer service approved in accordance with a formal allocation request to DEP.

### **Phase 2 – Interim Act 537 Plan, Corrective Action & Connection Management Plan**

From 2021 to 2025, the KISS municipalities will work cooperatively to develop a Regional Long-Term Act 537 Plan. This plan will evaluate all municipalities' dry-weather and wet-weather flows projected for the next 20 to 30 years, including peak flows and anticipated changes in regional weather patterns, and develop the facilities plan and other actions required to address those needs. DEP's requirements for the Act 537 Sewage Facilities Plan include an evaluation of flows that can be removed by I&I programs in addition to construction of new facilities such as upsized parallel interceptors, pump stations, storage tanks and treatment plant expansion/upgrades. It is expected that this work will include extensive flow monitoring and an update to the KISS hydraulic model to support the revised analysis of options previously evaluated, such as expansion of the KIWWTP, upgrade of LCA's pretreatment plant to provide full treatment, and construction of parallel interceptors and a new regional pump station to address peak flows, in addition to I&I removal estimates. The plan that is ultimately developed by 2025 will include a

financial and organizational / legal analysis to determine appropriate cost-sharing and intermunicipal agreement structures.

While this critical planning work is being completed, all KISS municipalities will complete I&I source removal programs within their municipal sewer collection systems. LCA also expects to move forward on design and construction of facilities to address the hydraulic bottleneck in the system located in the Trexlertown area to improve service to customers in this area. This project was kicked off in 2019 with a feasibility study being conducted by HDR Engineering and hydraulic modeling by Arcadis.

New sewer connections during the time period of 2021 to 2025 will be contingent on DEP's approval of the region's Interim 537 Plan (to be submitted by September 2020 as described in Phase 1 above) and the region's satisfactory progress on this work as reported in quarterly reports to DEP.

### **Phase 3 – Regional Act 537 Plan Implementation**

Following the comprehensive planning to be conducted by 2025 as described in Phase 2 above, the region will begin implementing the plan upon approval by DEP. Approval of new connections to the sewer system after 2025 will be based on details of the plan and plan approval by DEP.

## **Moving Forward**

As part of this multi-phase plan, all KISS municipalities will fall under the same oversight and requirements of DEP for new connections. As a result, the prior structure of the WLSP's SCARP program is no longer required. All municipalities, including those served by the Western Lehigh service area, will have new connections managed by DEP using the same set of rules and requirements. With that said, the WLSP municipalities will continue to work together to achieve common goals of assuring sewer capacity is available for the future and completing system rehabilitation projects on a programmatic and coordinated manner when possible.

LCA staff have outlined four critical authorizations that will allow the KISS and the WLSP to move forward on the work described above. The professional services authorizations described in subsections A-D below will be reviewed with the LCA Board of Directors at the February 10, 2020 Board meeting, and represent the next steps in the process toward addressing these important regional sewer capacity and wet-weather challenges.

## **A. Allentown Division – Interim Act 537 Plan Preparation**

### **AUTHORIZATION OVERVIEW**

Following several months of discussion with the Pennsylvania Department of Environmental Protection (PA-DEP), all municipalities flowing into the Kline's Island Wastewater Treatment Plan have agreed to complete an Interim Act 537 Plan ("Interim Plan") by September 2020. This Interim Plan will primarily consist of projecting new connections to the regional sewer system from 2021 through 2025 and outlining steps to be taken during this time frame 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 Interim Plan, a consulting engineer has been preliminarily retained.

### **FINANCIAL**

Costs associated with the development of the Interim 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.

### **CURRENT STATUS**

The consulting engineer has initiated preliminary Plan preparation, with an expected draft completion date of March 15, 2020. Per DEP, final Interim 537 Plan submission is due in September of 2020.

Full engineering proposal authorization is needed via this Board approval request.

### **THIS APPROVAL – AMENDMENT NO. 1**

ARRO will develop an Interim Act 537 Plan for the Kline’s Island Sewer System (KISS). The Interim 537 Plan submission will include the 2021-2025 flow projections from the Kline’s Island Sewer System municipalities, various narratives requested by DEP, and the wet weather treatment analysis prepared by Kleinfelder. The Plan ultimately outlines the corrective actions and steps the City of Allentown, Lehigh County Authority and all tributary municipalities will take during the next five years toward the development of a Regional Long-Term Act 537 Plan.

<b>Professional Services</b>
<ul style="list-style-type: none"><li>• Attend one (1) meeting with PA DEP and the Authority</li></ul>
<ul style="list-style-type: none"><li>• Develop a communication plan</li></ul>
<ul style="list-style-type: none"><li>• Prepare and present a presentation at one (1) meeting of all KISS municipalities</li></ul>
<ul style="list-style-type: none"><li>• Prepare Task Activity Report</li></ul>
<ul style="list-style-type: none"><li>• Prepare Interim Act 537 Plan in accordance with DEP direction</li></ul>
<ul style="list-style-type: none"><li>• Attend one (1) KISS municipal meeting to review flow projections; attend 10 (ten) other meetings as needed</li></ul>
<ul style="list-style-type: none"><li>• Address and incorporate comments and submit final Plan to PA DEP</li></ul>

### **CONSULTANT SELECTION PROCESS**

In early November 2019, proposals were initially requested from both ARRO and AECOM. These two firms previously partnered together in 2013-2016 as part of LCA’s initial Act 537 Plan preparation. Based on a KISS subcommittee vote on November 19, 2019, ARRO’s proposal was selected and preliminary authorization was granted.

Upon meeting with DEP on November 26, 2019, the final scope of the Interim 537 Plan was finalized and ARRO’s original proposal was amended accordingly in January 2020 based on feedback received from DEP.

### **SCHEDULE**

Draft Interim 537 Plan will be completed by March 15, 2020. Municipal review and adoption is expected to occur from March 16, 2020 through August 30, 2020. Final Interim 537 Plan is to be submitted to DEP by September 14, 2020.

### **FUTURE AUTHORIZATIONS**

None anticipated.

## **B. Suburban Division – Western Lehigh Service Area - Engineering & Program Support**

### **AUTHORIZATION OVERVIEW**

While the Interim Plan described in item A (see above) is being completed, the municipalities in the Western Lehigh Service Area will continue to work on inflow and infiltration source removal as part of the ongoing program previously known as the Sewer Capacity Assurance and Rehabilitation Program (SCARP). Ongoing engineering support is required to facilitate continued progress and coordination among the Western Lehigh municipalities. In addition, LCA and its Western Lehigh municipalities will be participating in the Interim Plan and Regional Plan development and will require engineering support to compile data on current and future sewer flows and assess conveyance system requirements. This is an extension of ongoing engineering and program support that Arcadis has provided for many years.

### **FINANCIAL**

These ongoing support services are funded via the LCA Suburban Division.

### **CURRENT STATUS**

Pending Board approval for 2020 support services.

### **THIS APPROVAL – EXTENSION OF ONGOING SUPPORT**

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide the ongoing sewer program support services. For 2020, these services may include:

<b>Professional Services</b>
<ul style="list-style-type: none"><li>• Meetings with PADEP and other stakeholders</li></ul>
<ul style="list-style-type: none"><li>• Preparation of responses to regulators regarding the sewer capacity and connection management</li></ul>
<ul style="list-style-type: none"><li>• Meetings with City of Allentown and other signatories</li></ul>
<ul style="list-style-type: none"><li>• Status meeting with LCA</li></ul>
<ul style="list-style-type: none"><li>• Technical evaluations and data reviews</li></ul>
<ul style="list-style-type: none"><li>• Small modeling, flow assessment, or other conveyance related work</li></ul>

### **CONSULTANT SELECTION PROCESS**

Arcadis has been LCA's engineering consultant for annual ongoing sewer program support services.

### **SCHEDULE**

On-call services as needed.

### **FUTURE AUTHORIZATIONS**

Ongoing support services to continue in 2021 and beyond.

## **C. Suburban Division – Flow Metering Contract (2020-2022)**

### **AUTHORIZATION OVERVIEW**

LCA previously contracted with a flow metering company for various sewer flow metering projects from 2009 to 2019. The contract ended in 2019 with the completion of flow metering work in October 2019. Future flow metering work is anticipated over the next several years for

both the Western Lehigh service area as well as the entire regional Kline's Island Sewer System. In 2020, the Western Lehigh group will conduct flow metering to gather additional data on inflow and infiltration and the impact of prior rehabilitation work. It is anticipated that more extensive flow metering will be required in 2021 and 2022 to develop a long-term Act 537 plan for the regional system. To ensure cost-effective and professional data management services are available for this work as well as other flow metering projects that will arise over the next several years, LCA invited three leading flow metering companies to submit a proposal for a three-year assignment.

#### **FINANCIAL**

The LCA Suburban Division will fund Year 1. The details of the Year 2 and 3 cost sharing process is to be determined.

#### **CURRENT STATUS**

Pending Board approval of Year 1.

#### **THIS APPROVAL – YEAR 1**

LCA is recommending the selection of this flow monitoring contractor for the proposed three-year contract.

#### **PROFESSIONAL SERVICES (FLOW MONITORING SERVICES) SELECTION PROCESS**

Lehigh County Authority (LCA) intends to retain the services of a contractor to provide the flow monitoring services. The following table summarizes the professional services to be performed under this approval:

<b>Professional Services</b>
<ul style="list-style-type: none"><li>• Flow meter installation and telemetry installation</li></ul>
<ul style="list-style-type: none"><li>• Flow meter monthly maintenance</li></ul>
<ul style="list-style-type: none"><li>• Flow meter and related equipment rental</li></ul>
<ul style="list-style-type: none"><li>• Data reduction and presentation</li></ul>
<ul style="list-style-type: none"><li>• Rain gauge installation and data collection</li></ul>
<ul style="list-style-type: none"><li>• Flow meter installation and telemetry installation</li></ul>

On November 25, 2019, LCA invited three leading flow monitoring service providers to provide pricing for the three-year period for various ranges of quantities of meters. To evaluate each bid consistently, three Test Scenarios were developed to calculate the total project cost that would be incurred using the vendors' proposed unit pricing. The table below is a compilation of these vendors' proposed unit prices and estimated total cost for each Test Scenario.

	<u>Test Scenario 1</u>	<u>Test Scenario 2</u>	<u>Test Scenario 3</u>
Number of Meters	3	20	33
Number of Rain Gauges	1	3	5
Number of Months	9	9	9
Number of Hours	0	0	0
<b>TFE Bid Form</b>	0-6 Meters	7-30 Meters	> 30 Meters
Flow Meter	\$ 550	\$ 525	\$ 495
Rain Gauge	\$ 200	\$ 175	\$ 145
Meter Maintenance	\$ 1,045	\$ 900	\$ 795
Rain Gauge Maintenance	\$ 300	\$ 275	\$ 245
Hourly Rate	\$ 200	\$ 200	\$ 200
<b>Estimated Cost per Test Scenario:</b>	<b>\$ 32,765</b>	<b>\$ 180,450</b>	<b>\$ 264,200</b>
<b>ADS Bid Form</b>	0-6 Meters	7-30 Meters	> 30 Meters
Flow Meter	\$ 1,086	\$ 1,051	\$ 1,048
Rain Gauge	\$ 543	\$ 526	\$ 524
Meter Maintenance	\$ 1,452	\$ 1,184	\$ 1,127
Rain Gauge Maintenance	\$ 726	\$ 592	\$ 564
Hourly Rate	\$ 282	\$ 282	\$ 282
<b>Estimated Cost per Test Scenario:</b>	<b>\$ 49,539</b>	<b>\$ 251,702</b>	<b>\$ 397,303</b>
<b>Flow Assessment Bid Form</b>	0-6 Meters	7-30 Meters	> 30 Meters
Flow Meter	\$ 1,250	\$ 1,250	\$ 1,250
Rain Gauge	\$ -	\$ -	\$ -
Meter Maintenance	\$ 600	\$ 600	\$ 600
Rain Gauge Maintenance	\$ 100	\$ 100	\$ 100
Hourly Rate	\$ 250	\$ 250	\$ 250
<b>Estimated Cost per Test Scenario:</b>	<b>\$ 20,850</b>	<b>\$ 135,700</b>	<b>\$ 223,950</b>

### **SCHEDULE – YEAR 1**

Upon approval by the Board for Year 1 services, the contractor will install approximately 33 meters within the Western Lehigh Sewer Partners' collection systems. Anticipated install date is the week of February 17<sup>th</sup>. The meters will be removed in the middle of October, for a total of eight full months of data collection. Final data and report will be given to LCA by April 2021.

### **FUTURE AUTHORIZATIONS**

No future authorizations will be requested while this contract is in place. However, additional flow metering will be required in 2021 and potentially in 2022 under the terms of this contract to complete tasks related to the Regional (Long-Term) Act 537 Plan described in item A in this memo.



## **D. Suburban Division – Western Lehigh 2020 Flow Data QA/QC and RDII Analysis**

### **AUTHORIZATION OVERVIEW**

In 2020, the Western Lehigh municipalities will conduct flow metering for a period of eight months to gather additional data on inflow and infiltration and the impact of prior rehabilitation work using the services of a flow metering company as described in item C (see above). To properly analyze and utilize the data collected from this monitoring, quality data control review steps are necessary to ensure accuracy and validity. In addition, an analysis of rainfall derived inflow and infiltration (RDII) must be conducted to quantify results of prior rehabilitation work and to evaluate the potential for removal of additional RDII via continued system rehabilitation. The rehabilitation effectiveness analysis will be performed using the control basin methodology and comparing data from 2017 flow monitoring to the 2020 proposed flow monitoring data to be collected this year.

### **FINANCIAL**

The LCA Suburban Division will fund these 2020 services.

### **CURRENT STATUS**

Pending Board approval of these services.

### **THIS APPROVAL – 2020 QA/QC AND RDII ANALYSIS**

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide the review and validation of flow data and subsequent analysis of the data for Rainfall Derived Inflow and Infiltration (RDII) effects. These services will include the following:

<b>Professional Services</b>
<ul style="list-style-type: none"><li>• Data quality assurance reviews</li></ul>
<ul style="list-style-type: none"><li>• Rainfall derived I&amp;I analysis</li></ul>
<ul style="list-style-type: none"><li>• Rehabilitation effectiveness</li></ul>
<ul style="list-style-type: none"><li>• Deliver results to LCA staff and stakeholders</li></ul>
<ul style="list-style-type: none"><li>• Meet with LCA staff and stakeholders</li></ul>
<ul style="list-style-type: none"><li>• Data quality assurance reviews</li></ul>

### **CONSULTANT SELECTION PROCESS**

Arcadis has been LCA's engineering consultant for annual ongoing sewer program support services. Prior data validation, hydraulic modeling and related work has been completed by Arcadis since at least 2008.

### **SCHEDULE**

Arcadis will conduct data quality assurance reviews on the first (March), second (May), third (July), and last submittals of flow data. The RDII and any other recommendations will be completed within 5 months of the end of the flow monitoring period.

### **FUTURE AUTHORIZATIONS**

Subsequent QA/QC and RDII Analysis authorizations will be requested as necessary.



**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  
AMENDMENT NO. 1**

**Professional:** ARRO  
108 West Airport Road  
Lititz, PA 17543

**Date:** February 10, 2020

**Requested By:** Phil DePoe

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

**Allentown Division: Kline's Island Sewer System Interim 537 Plan – Planning Phase**

ARRO will develop an Interim Act 537 Plan for the Kline's Island Sewer System. The Interim 537 Plan submission will include the 2021-2025 flow projections from the Kline's Island Sewer System municipalities, various narratives requested by DEP, and the wastewater treatment plant hydraulic capacity analysis prepared by Kleinfelder (authorized separately by LCA in October 2019). The Plan ultimately outlines the corrective actions and steps the City of Allentown, Lehigh County Authority and all tributary municipalities will take during the next five years toward the development of a Regional Long-Term Act 537 Plan.

<b>Professional Services <sup>(1)</sup></b>
1. Attend one (1) meeting with PA DEP and the Authority
2. Develop a communication plan
3. Prepare and present a presentation at one (1) meeting of all KISS municipalities
4. Prepare Task Activity Report
5. Prepare Interim Act 537 Plan in accordance with DEP direction
6. Attend one (1) KISS municipal meeting to review flow projections; attend 10 (ten) other meetings as needed
7. Address and incorporate comments and submit final Plan to PA DEP

(1) Please reference the cover Memo for additional information.

**Prior Approval:** \$34,900

**This Approval:** \$46,485

**New Amended Amount (not to be exceeded without further authorization):** \$81,385

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

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(For Authority Use Only)

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_



December 20, 2019

Lehigh County Authority  
1053 Spruce Street  
P.O. Box 3348  
Allentown, PA 18106

ATTN: Philip M. DePoe, PE  
Interim Senior Planning Engineer

RE: Amendment No. 1 to Agreement  
Kline's Island Interim Act 537 Plan  
1119-PW03

Corporate Headquarters

108 West Airport Road

Lititz, PA 17543

T 717.569.7021

F 717.560.0577

[www.thearrogroup.com](http://www.thearrogroup.com)

Dear Mr. DePoe:

This letter is in response to the request for an amendment to our Agreement dated December 3, 2019 to provide professional services associated with the preparation of an Interim Act 537 Plan for the Kline's Island WWTP. The amendment is necessary to address the additional services required by the Pennsylvania Department of Environmental Protection (PADEP) that were not included in our original scope-of-services. Additionally, the project schedule was significantly extended from a March 2020 deadline to a September 2020 deadline.

Based on the additional scope required by PADEP, we have revised the scope-of-services, schedule and proposed fee as follows:

### **SCOPE OF SERVICES**

1. Attend one (1) meeting with PADEP and the Authority to discuss the requirements of the Plan.
2. Revise scope of services, if modified, based on meeting with PADEP and submit to Authority for approval.
3. Develop a communication plan for dealing with the Kline's Island Sewer System (KISS) municipalities.
4. Prepare and present a presentation at one (1) meeting of all KISS municipalities. Meeting is intended to educate KISS municipalities on the issues, the steps to move forward, and the requirements for their individual 5-year flow projections.
5. Prepare Task Activity Report, project narrative and map. Submit to PADEP.
6. Prepare an Act 537 Plan in accordance with the Act 537 Plan Content and Environmental Assessment Checklist (Checklist) as discussed with Scott Novatnak during a meeting on November 26, 2019. Only those items required by Mr. Novatnak will be included in the Plan. Specifically, the Plan will include the following items from the Checklist:

#### **I Previous Wastewater Planning**

A1 - Identify previous wastewater planning

## **II Physical & Demographic Analysis**

A & B - Identify planning areas. Provide a map delineating ownership of collection systems. It is assumed LCA has access to the GIS files necessary for this.

## **III Existing Sewage Facilities in the Planning Area**

A1 to A5 – Identify the various community sewerage systems on a map. Discuss current issues and plans for resolutions. Discuss operation and maintenance requirements. It is assumed LCA has access to the GIS mapping to locate major sewerage facilities. The discussion on the issues, resolutions and O&M will come from the SCARP and the RFMS.

## **IV Future Growth and Land Development**

A1 & A2 – Identify and briefly summarize all land use plans and zoning maps as well as zoning regulations.

B1 to B5 – Delineate and describe through map, text and analysis areas with existing and proposed development land use designations, future growth areas, zoning and or SDLD regulations and any sewage planning necessary for projected growth.

## **V Identify Alternatives to Provide New or Improved Wastewater Disposal Facilities**

A1 to A3 – This section will reference the current planning documents (SCARP, RFMS and the Kleinfelder Report) to discuss the approach for the next five (5) years.

H – Discuss the no-action alternative.

## **VI Evaluation of Alternatives**

A1 to A11 – Discuss consistency with the various state and local planning documents. Scott Novatnak indicated items 6-11 would not apply. Mr. Novatnak also indicated that submissions for PNDI and PHMC would not be required.

B – Brief statement required to address the fact there are no inconsistencies.

C – Reference the Kleinfelder Report.

F – Brief statement that the project will proceed immediately.

G – Note that existing administrative structure is adequate to implement the Plan.

## **VII Institutional Evaluation**

A – Requires only a simple statement that no changes in the Authorities or municipalities are needed.

B2 – Describe functions of the existing Authorities and municipalities.

C2 – Discuss status of any new ordinances or changes to inter-municipal agreements (none anticipated).

D – No changes to the institutions necessary to implement the Plan.

### **VIII Implementation Schedule and Justification for Selected Technical & Institutional Alternative**

A1 to A5, A7 – Discuss justification for the selected alternative based on the criteria listed in this section.

C – Prepare a schedule that describes how the selected plan will be implemented.

7. Attend one (1) meeting with KISS municipalities to review flow projections.
8. Meet with Authority, City and consultants to establish strategies and schedules to implement the Plan (assumes five (5) meetings).
9. Review Inter-Municipal Agreements with Authority, City and consultants.
10. Attend miscellaneous meetings (assume five (5)) as needed.
11. Coordinate and review with representatives of PADEP.
12. Submit Draft Report to Owner.
13. Receive and address comments.

### **SCHEDULE**

The schedule has been revised to reflect the requirements of PADEP:

Submit 5-Year Projections	January 15, 2020
Develop Corrective Action Plan	February 15, 2020
◦ Signatory review & update of SRPs if needed	
◦ Long-Term Act 537 Planning Schedule	
Complete Draft Plan	March 15, 2020
Begin 60-Day Municipal Planning Review	March 16, 2020
End 60-Day Municipal Planning Review	May 15, 2020
Address Comments/Re-issue	May 22, 2020
Begin 30-Day Public Comment Period	May 23, 2020
End 30-Day Public Comment Period	June 22, 2020
Address Comments/Re-issue	June 28, 2020
Municipal Adoptions	June 29 – August 30, 2020
Final Plan to PADEP	September 14, 2020

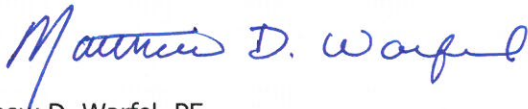
Philip M. DePoe, PE  
Lehigh County Authority  
December 20, 2019  
Page 4  
Amendment No. 1

## **COMPENSATION**

The total not-to-exceed fee of Thirty-Four Thousand, Nine Hundred Dollars (\$34,900.00) is hereby amended to Eighty-One Thousand, Three Hundred Eighty-Five Dollars (\$81,385). In the event that such services are altered by a modification to our Agreement, the Authority and ARRO, shall, at the time of such modification, also agree to an equitable adjustment in the not-to-exceed value stated above.

We appreciate the opportunity to present this Amendment No. 1 to the Authority and we look forward to working with the Authority on this project. All other items agreed to by the Authority and ARRO from the original proposal remain unchanged. Please let us know if you have any questions or would like to discuss this amendment in more detail.

Sincerely,



Matthew D. Warfel, PE  
Senior Vice President

MDW/mas



**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  
AMENDMENT NO. 33**

**Professional:** ARCADIS U.S., INC.  
1128 Walnut Street, 4<sup>th</sup> Floor  
Philadelphia, PA 19107

**Date:** February 10, 2020

**Requested By:** Phil DePoe

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

**Suburban Division – Western Lehigh Sewer Service Area - Engineering and Program Support**

Arcadis will provide coordination and on-call services to LCA to facilitate 537 plan development and management of the sewer conveyance system. These sewer program support services will be for tasks not defined in other project specific authorizations. These services are for the 2020 calendar year only and may include:

<b>Professional Services <sup>(1)</sup></b>
1. Meetings with PADEP and other stakeholders
2. Preparation of responses to regulators regarding the sewer capacity and connection management
3. Meetings with City of Allentown and other signatories
4. Status meeting with LCA
5. Technical evaluations and data reviews
6. Small modeling, flow assessment, or other conveyance related work
7. Other related services as requested by LCA

(1) Please reference the cover Memo for additional information.

**Prior Approval:** \$49,000 (via previous unused authorizations)

**This Approval:** \$71,000

**New Amended Amount (not to be exceeded without further authorization):** \$120,000

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

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(For Authority Use Only)

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Arcadis U.S., Inc.  
1128 Walnut St., 4<sup>th</sup> Floor  
Philadelphia  
Pennsylvania 19107  
Tel 215.931.4372  
[www.arcadis-us.com](http://www.arcadis-us.com)

Mr. Philip DePoe  
Capital Works Program Manager  
Lehigh County Authority  
P.O. Box 3348  
Allentown, PA 18106

Subject:  
537 Conveyance Engineering and Program Support through 2020

Dear Mr. DePoe:

Arcadis is pleased to offer this scope and budget proposal for 537 Conveyance Engineering and Program Support through the end of 2020.

#### PROPOSED SCOPE OF SERVICES

Arcadis will provide coordination and on-call services to LCA to facilitate 537 plan development and management of the sewer conveyance system. These sewer program support services will be for tasks not defined in other project specific authorizations. These services may include:

- Meetings with PADEP, USEPA and other stakeholders
- Preparation of responses to regulators regarding the sewer capacity and connection management
- Meetings with City of Allentown and other Signatories
- Status meetings with LCA for the overall program
- Technical evaluations and data reviews
- Small modeling, flow assessment, or other conveyance related work
- Other related services as requested by LCA

Larger efforts will be submitted for separate authorization such as modeling for Trexlertown Interceptor, pretreatment plant flow segregation, etc.

#### DELIVERABLES AND SCHEDULE

Deliverables and schedule for delivery will be determined on an assignment by assignment basis.

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

Date:  
1/16/2020

Contact:  
Anthony J. Dill

Phone:  
215.931.4372

Email:  
[Anthony.Dill@arcadis.com](mailto:Anthony.Dill@arcadis.com)

Our ref:  
66000247



BUDGET

As this is undefined work, we recommend allocating \$10,000 per month to cover the work anticipated through the end of 2020. We propose to transfer remaining funds in our existing SCARP Program Management (567), SCARP Improvements Implementation Plan (565), and Iron Run Trunk Line Assessment (572) projects into this project, reducing the amount of this request to \$71,000. We propose to complete these services on a time and materials basis per the current Summary of Standard Charges for Lehigh County Authority. We will track the costs associated with this work and report them to LCA monthly throughout the program. We will not exceed the authorized budget without written professional services authorization from LCA.

Please contact me with your authorization to proceed if this scope and budget are acceptable to you. If you have any questions please do not hesitate to call me at 215-931-4372 or 610-761-3253 (mobile).

Sincerely,

ARCADIS U.S., Inc.



Tony Dill, PE, BCEE  
Program Manager – Buried Infrastructure Team

Cc: Jim Shelton, Arcadis



**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:** FLOW ASSESSMENT SERVICES  
804 Plumtry Drive  
West Chester, PA 19382

**Date:** February 10, 2020

**Requested By:** Phil DePoe

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

### **Suburban Division: Flow Monitoring Contract (2020-2022)**

Flow Assessment Services will provide sewage flow monitoring services for 2020 and 2021, with the option of extending to 2022 if needed. For the year 2020, the services will include the installation of approximately 33 flow meters and 10 rain gauges within the Western Lehigh Service Area. The data provided will help further guide the proposed I&I work within the Lower Macungie, Upper Macungie, Alburtis, Macungie, and Upper Milford collection systems.

<b>Professional Services <sup>(1)</sup></b>
1. Flow meter installation and telemetry installation
2. Flow meter monthly maintenance
3. Flow meter and related equipment rental
4. Data reduction and presentation
5. Rain gauge installation and data collection

(1) Please reference the cover Memo for additional information.

### **This Approval:**

**Estimated 2020 Amount:** \$223,950

**Estimated 2021 Amount (will request Approval in January 2021):** *Unknown at this time*

**Estimated 2022 Amount (will request Approval in January 2022, if needed):** *Unknown at this time*

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

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(For Authority Use Only)

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_



804 Plumtry Drive · West Chester, PA 19382 · Phone: (610) 918-3857

Lehigh County Authority  
1053 Spruce Street  
Allentown, PA 18106

January 13, 2020

Attn: Philip M. DePoe

Re: Flow Metering Estimate for Board Presentation

Dear Phil:

This proposal is to offer you pricing for the 2020 flow metering program estimate. It is based on the current estimate of 33 meters for 9 months each. To make this estimate somewhat flexible for your, I am using Flow Assessment's typical unit price categories. The pricing elements show how we derived the pricing we offered as a response to your RFP.

For flow monitoring, typically we break-out our pricing as follows:

- Flow meter installation: one-time charge, and includes rigorous site analysis
  - Flow meter removal is included in our installation cost
- Flow Meter Site Maintenance: each site will be visited for our crew to:
  - Enter the manhole to inspect, clean and adjust the sensor
  - Download the data and analyze the current period for data quality
  - Make any adjustments necessary to improve data quality
  - Communicate with our client on each site
- Flow meter rental: shown on a per-month basis
  - We offer constant pricing regardless of the flow measurement method and plan
- Flow data reduction & presentation: shown on a per-month basis.

**LEHIGH COUNTY AUTHORITY 2020 PRICE ESTIMATE**  
**January 13, 2020**  
**Temporary Flow Monitoring – With Telemetry**

Item #	Task Description	Quantity	Unit	Unit Cost	Total Cost
1	Flow Meter Installation and Telemetry Installation	33	Installations	\$1,250.00	\$41,250.00
2	Flow Meter Maintenance (33 Meters x 9 Months = 297 Meter Months)	297	Meter Months	\$175.00	\$51,975.00
3	Flow Meter + Telemetry + Ultra + Pressure Sensor Rental (33 Meters x 9 Months = 297 Meter Months)	297	Meter Months	\$225.00	\$66,825.00
4	Data Reduction & Presentation (33 Meters x 9 Months = 297 Meter Months)	297	Meter Months	\$200.00	\$59,400.00
	<b>Total of Above:</b>				<b>\$219,450.00</b>
A	Option - Logging Rain Gauge (1 Rain Gauge x 9 Months = 9 Rain Gauge Months)	9	Rain Gauge Months	\$100.00	\$900.00

- B. Flow monitoring will be performed to obtain information necessary to accurately analyze the monitoring tributary areas for infiltration during high groundwater periods and for rainfall related inflow during wet weather periods. Continuous metering will be conducted for the designated time period as directed by the Client.

The flow monitoring will be accomplished by one of the following methods:

1. The use of continuous monitoring devices incorporating a velocity sensor combined With a depth sensor; or
  2. Palmer Bowlus flumes, in conjunction with continuous depth recording (used for smaller pipes and lower flows).
- C. [option proposed] A minimum of one recording tipping bucket rainfall gauge will be installed at a central location within the study area. The rain gauge will be capable of recording rainfall data in 5-minute increments. The rainfall data will enable the correlation of metered flow rates to rainfall intensity, duration, and volume for the purpose of identifying inflow and its components.

- D. [option not proposed] Groundwater gauges will be installed in locations determined by the Client in an attempt to monitor groundwater levels throughout the flow monitoring period. Readings will be taken and will be incorporated into the flow monitoring report. Field reading of the gauges will be provided to the Client on a weekly basis.
- E. Flow monitoring data reduction and review will be performed on all data obtained each flow monitoring location. The data obtained will be reduced, evaluated, and presented in report form. Three (3) copies of the completed report will be submitted to the Client. This will include, for each location, tabular reports based on 5-minute time increments.

The tabular report will be provided and will include:

A summary of daily flow information for a selected time period. The summary presents, for each day, the minimum flow rate, peak flow rate, total daily flow, total rain, peak hourly rain, and peak 5-minute rainfall, if applicable. The summary also included the total flow volume, average daily flow, and total rainfall quantity, if applicable, for the selected time period.

Detailed flow reports of the flow rate data in 5-minute time increments will also be prepared and submitted. The detailed report will include depth of flow, velocity of flow, incremental flow rate, cumulative flow rate and recorded rainfall. The report will also include the total daily flow volume and total daily rainfall quantity, if applicable.

In addition, flow hydrographs will be prepared for each flow monitoring location, which present a plot of the recorded flow rates for a selected time period. A bar graph of rainfall recorded during the selected time period is also plotted on the hydrograph.

Further, periodically data will be posted to a secure password protected web site that will allow project personnel (both city and consultant) access to flow, rainfall and groundwater recorded data. Users then can prepare and review detailed flow reports, graphs and tables. Comparison between wet and dry periods as well as net flows per sub system calculations is also capable. Online data export format capabilities included Excel, Access, and ASCII.

## **I. CLIENT RESPONSIBILITIES**

While developing this proposal, I have assumed that Lehigh County Authority (hereafter referred to as Client) or the engineer would provide the following at no additional charge to Flow Assessment Services (hereafter referred to as sub-consultant):

- A. Furnish copies of the necessary plot maps of all sewers to be studied. The sewer lines and manholes should be clearly marked and labeled with a numbered reference system.
- B. Make arrangements to provide traffic control and permitting as required by local public safety authorities; FAS will provide normal traffic control with our vans and cones. If police detail is required, we will pass that through at cost.
- C. Make arrangements prior to installation to provide access to and exposure for entry those manholes within the study area which are buried, covered or otherwise not readily accessible.
- D. Provide free and legal access to all sites of work. If all sites are not accessible, we will postpone installation and reschedule.
- E. Assure the prompt clearance of major blockages or obstructions in the sewer system, if needed, should such clearance be required for meter installation and/or maintenance. If we find a location that needs work or is unsuitable, we will notify the project manager and return later.
- F. Provide the shutdown of certain pump stations, upon prior request, should it become necessary for the satisfactory performance of the work.

## **II. MUTUAL AGREEMENTS**

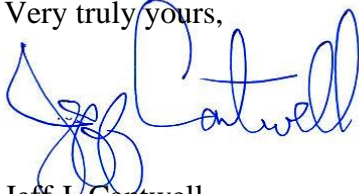
- A. Sub consultant shall not be held liable to the Client if delayed or prevented from performing the work as specified herein through any cause beyond the control of Sub consultant and not caused by his own fault or negligence, including acts of God, or the public enemy, weather conditions; acts of government, including changes in state and/or federal requirements governing sewer system evaluation surveys after the effective date of this contract; fires, floods, epidemics, strikes, jurisdictional disputes, lockouts, and freight embargoes. Sub consultant shall advise the Client, in writing, of any such delays
- B. Sub consultant is an equal opportunity employer.
- C. Sub consultant agrees to carry
  - a. Commercial General Liability, Personal & ADV Injury and Products, Comp/Op AGG.
  - b. Automobile Liability, Bodily Injury, Property Damage
  - c. Umbrella Liability
  - d. Workman's Compensation Insurance covering any liability of the Consultant during the course of the services performed and as described herein.
    - i. A sample certificate is available showing our standard coverage
    - ii. Coverage beyond our standard may require pass through cost beyond our proposed pricing
- D. The provisions of the Agreement may be revised upon written notice by either party, and the written acceptance of the revisions by both parties to this Agreement.
- E. Sub consultant shall not assign, sublet, or transfer his interest in this Agreement without the written consent of the Client.

## **III. METHOD OF PAYMENT**

The Method of Payment for Professional Services outlined above shall be in the form of monthly invoices to be submitted to the Client for the items above. Such invoices are due and payable within thirty days (30) days of invoice.

Thank you for the opportunity to offer our services.

Very truly yours,



Jeff J. Cantwell

Email: [jcantwell@flowassessment.com](mailto:jcantwell@flowassessment.com)



**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  
AMENDMENT NO. 34**

**Professional:** ARCADIS U.S., INC.  
1128 Walnut Street, 4<sup>th</sup> Floor  
Philadelphia, PA 19107

**Date:** February 10, 2020

**Requested By:** Phil DePoe

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

**Suburban Division – Western Lehigh 2020 Flow Data QA/QC and RDII Analysis**

In 2020, the Western Lehigh municipalities will conduct flow metering for a period of eight months to gather additional data on inflow and infiltration and the impact of prior rehabilitation work using the services of a flow metering company. To properly analyze and utilize the data collected from this monitoring, quality data control review steps are necessary to ensure accuracy and validity. In addition, an analysis of rainfall derived inflow and infiltration (RDII) must be conducted to quantify results of prior rehabilitation work and to evaluate the potential for removal of additional RDII via continued system rehabilitation.

<b>Professional Services <sup>(1)</sup></b>
1. Data quality assurance reviews
2. Rainfall derived I&I analysis
3. Rehabilitation effectiveness
4. Deliver results to LCA staff and stakeholders
5. Meet with LCA staff and stakeholders

(1) Please reference the cover Memo for additional information.

**Prior Approval:** \$0

**This Approval:** \$154,000

**Amount not to be exceeded without further authorization.**

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

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**(For Authority Use Only)**

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_



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

Arcadis U.S., Inc.  
1128 Walnut Street  
Suite 400  
Philadelphia  
Pennsylvania 19107  
Tel 215 625 0850  
Fax 215 625 0172  
[www.arcadis.com](http://www.arcadis.com)

Subject:

Sewer Capacity Assurance and Rehabilitation Program  
Scope and Budget for 2020 Flow Data QA/QC, RDII Analysis, and Rehabilitation Effectiveness

Date:

January 20, 2020

Dear Mr. DePoe:

Arcadis is pleased to provide Lehigh County Authority (LCA) with this scope and budget for the review and validation of flow data and subsequent analysis of the data for Rainfall Derived Inflow and Infiltration (RDII) effects.

Contact:

Tony Dill

Phone:

215.931.4372

Email:

[Anthony.Dill@arcadis.com](mailto:Anthony.Dill@arcadis.com)

Our ref:

## **OBJECTIVES**

There are three goals of this work.

1. To screen eight months of flow and rainfall data collected in 2020 using quality control data review step to ensure they are accurate and valid.
2. To conduct RDII analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow leakage, compare this against the 2017 statistics for these same meter locations to preliminarily assess the effectiveness of the rehabilitation work done upstream of the meter since 2017, and to use hydrograph interpretation to help the municipalities focus their rehabilitation work (both secondary SSES investigations and rehabilitation efforts) toward the sources contributing the leakage.
3. Perform control basin method rehab effectiveness analyses that definitively demonstrate real effectiveness of the sewer rehabilitation work conducted since the 2017 metering period.

For the purposes of this scope and budget, we assume that 40 flow meters and 5 rain gauges will be installed by March 1, 2020 and remain in service for approximately eight months.

## **SCOPE OF WORK**

### **Task 1 – Data Quality Assurance Reviews**

While it is assumed that the flow meter contractor will assess their data before submission to LCA, we have found that contractor QC'd data sets have a significant percentage (~20%) with defects in the data that, if used, would lead to erroneous findings. It is simply not in the flow meter contractor's best interests to self-identify defective data. Therefore, Arcadis will conduct data quality assurance (QA) reviews on the first (March), second (April-May), third (June-July) and last (August-October) submittals of the flow data.

These QA reviews will check that the data being collected are valid and suitable for the proposed analyses and will provide recommendations for improving data suitability as needed. The Data Quality Objectives of these metering efforts are to ensure the delivery of data that are both valid (follow a logical depth:velocity profile) and true (consistently respond to rainfall, downstream flows appropriately higher than upstream flows). The accuracy of the flow and rain data collected will be reviewed to ensure the data are valid, true, and suitable for RDII analysis, model calibration and verification, and catchment-wide rehabilitation effectiveness evaluations.

The Arcadis data quality assurance reviews will assess the site set-up reports prepared by the flow metering entity to identify any site conditions that might affect the normal depth:velocity profile, evaluate depth and velocity patterns (scatter graphs), and assess responses to rainfall. We will use data analysis software to address such issues as:

- Meter imbalance (upstream vs. downstream flow balances)
- Sensor failure
- Low flow/level situations
- Sediment buildup
- Velocity gain adjustments
- Changes in depth:velocity relationship
- Supercritical or subcritical flow issues
- Flow pattern issues that could affect data accuracy
- Upstream and downstream flow loss (SSO) or impediment issues
- Response to rainfall
- Loss of storm peaks.
- Siphon impacts
- Force main influences
- Pump station fill-drain influences

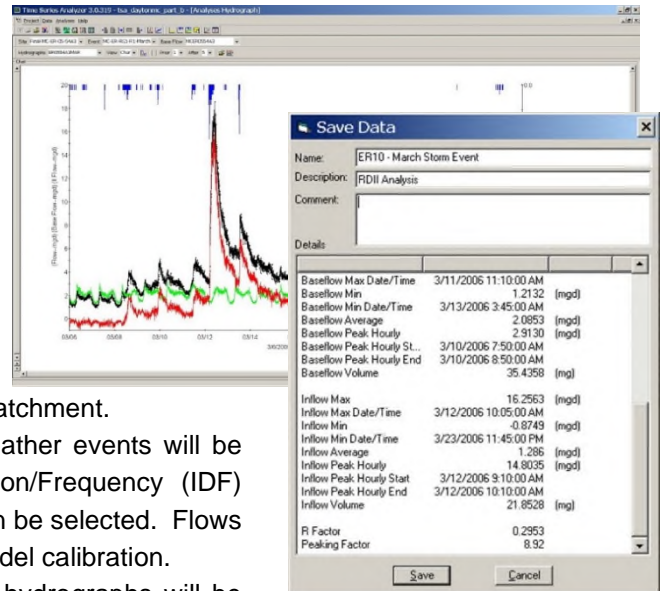
Arcadis' Time Series Analyzer (TSA) or newly developed FlowMaster tool will be applied to automate much of this quality assurance process. We will work with LCA and the metering contractor to resolve problems with flow meter or rain gauge data, especially during the first 3-week period following meter installation to ensure data meet quality objectives. During the flow metering period, all data will be validated to identify questionable flow meter and rain gauge data.

## Task 2 – Rainfall Derived I&I Analysis

Arcadis will conduct rainfall derived removal potential evaluations (RDII analysis) of flow monitoring and rainfall data. The results of the RDII analysis will be used to identify the types and amounts of I&I for each catchment and determine the peaking factor for each storm event. The analysis can also be used to identify the most effective and efficient SS&ES activities for locating actual sources in each catchment.

Upon receipt of the final flow and rainfall data set, wet weather events will be defined and classified according to local Intensity/Duration/Frequency (IDF) curves. The four most significant wet weather events will then be selected. Flows from these storms will be evaluated for RDII analysis and model calibration.

For each metered location, the data will be analyzed, and hydrographs will be developed and interpreted to identify suspected sources of I&I. Our data analysis software automates much of the analysis of flow and rainfall data, providing efficient and effective review of data quality and statistical summaries, base flow patterns, and magnitude of RDII impacts.



The following data assessments will be prepared for each valid and true meter catchment:

- Average dry day flow by individual weekday
- Rainfall duration and intensity (recurrence frequency) for each event
- Peak flow rate and peaking factor for each event
- Peak RDII flow (Q) rate per event
- RDII volume (V) per event
- RDII capture (Q vs. I)
- Normalized peak RDII Q and V (gpd/LF)

These assessments are the same that were performed during the 2017 metering study. The data assessments from the metering locations in 2020 will be compared to the 2017 data to assess impact of work completed since 2017.

We will analyze all flow data collected to calculate average daily flows, peak flows and I&I from each of the catchments. Wet weather and dry weather flow patterns will be established and peak, minimum, and average flow rates will be calculated for each catchment flow element: base infiltration, base sewage flow, and RDII.

For each of the valid and true data sets, appropriate storm hydrographs and scatter graphs will be developed for three to five storms occurring during the monitoring period. Where necessary, upstream flows will be subtracted from downstream flows to represent catchment RDII conditions. After completing analysis of the catchments, rainfall induced infiltration (RII), inflow, and total RDII parameters will be tabulated and compared to the 2017 statistics. The hydrographs will be analyzed qualitatively to determine the nature of RDII in each catchment.

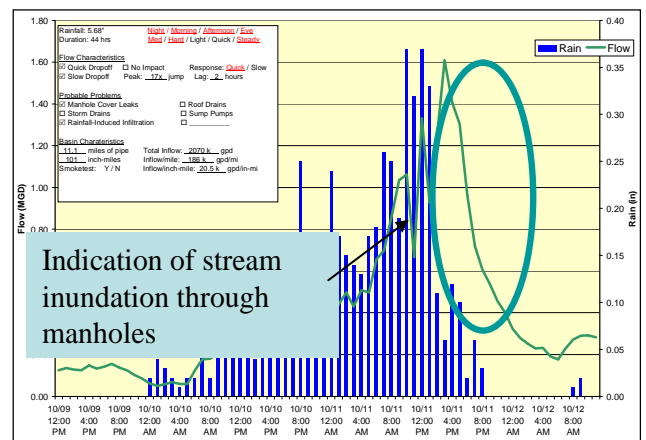
Analysis of the flow hydrographs described above will provide insight into the remaining sources of RDII in each catchment. The hydrograph for each catchment can be used to select the SSES activities. Different sources of RDII have different flow signatures. For example, high peaks in the hydrograph over a short duration are evidence of sources of inundation or inflow; we would identify SSES activities for these catchments to specifically identify inflow and inundation sources as well as cross connections with storm sewer systems as well as illicit storm and/or groundwater connections to the sewer system by private property connections.

Conversely, hydrographs illustrating peaks that are sustained over a long duration are evidence of sources of rainfall-induced infiltration; for these, we would recommend night-time weiring. Hydrographs may also indicate a combination of infiltration and inflow within the same catchment.

The hydrographs and the data tables will be presented as Excel spreadsheets and GIS figures, which will be used to report the findings and, based on the amount and source(s) of RDII entering the catchment.

### Task 3 – Rehabilitation Effectiveness Analysis

Arcadis will conduct a rehabilitation effectiveness analysis using the control basin methodology. This method requires that some basins be selected and/or set-aside to be compared to the basins in which rehabilitation is being performed. For this study, 3 basins have been selected as control basins, leaving up to 37 basins available for rehabilitation effectiveness studies. It is typically recommended that



the basins are monitored for 6-10 months prior to rehabilitation, and 6-10 months after rehabilitation, creating a “pre” and “post” data set. It is recommended that each data set contain 8-10 rain events. In this case, the pre-rehabilitation data set will be drawn from the 2017 data set. The post data set will be drawn from the 2020 monitoring period. Because there are plans for performing lateral rehabilitation, this data set will be referred to as the “mid” rehabilitation data set. The results of the pre/mid rehabilitation study will become a major factor in guiding the potential necessity and location of the lateral rehabilitation work.

Arcadis recommends reduction in total system RDII volume resulting from a rain event be your primary yardstick. We find this method is the most reliable measure of performance. Reduction of peak flow rate during a rain event can also be examined but is often inconsistent due to variability in rainfall intensities across the monitored area. These conclusions are based on actual post rehabilitation flow monitoring data for dozens of rehabilitation projects.

### **DELIVERABLES AND SCHEDULE**

The quality reviews of data will be conducted within 30 days of receipt of data from the flow metering contractor for the first two rounds. The RDII analysis and SSES recommendations will be completed within 5 months of the end of the flow monitoring period. Arcadis will deliver the results of the reviews and of the analysis in the form of tables, hydrographs, scatter-graphs, and GIS figures and will meet with LCA staff and stakeholders as necessary to present the results and recommendations. No written report will be provided.

### **BUDGET ESTIMATE**

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

Task	Hours	Cost
Task 1 – Data Quality Assurance Reviews	270	\$41,000
Task 2 – Rainfall Derived I&I Analysis	420	\$63,000
Task 3 – Rehabilitation Effectiveness	330	\$50,000

Mr. Philip DePoe  
January 20, 2020

Task	Hours	Cost
Total	1,020	\$154,000

We propose to complete these services on a time and materials basis in accordance with the Agreement between LCA and Malcolm Pirnie, Inc., and the current Summary of Standard Charges for Lehigh County Authority. Arcadis will track the costs associated with this work and report them to LCA monthly throughout the project; we will not exceed the authorized budget without written professional services authorization from LCA. Payment for services will be based upon the actual labor and expenses incurred.

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

Sincerely,

ARCADIS U.S., Inc.

A handwritten signature in blue ink, appearing to read "Anthony J. Dill".

Anthony J. Dill, PE  
Project Manager

## FINANCE & ADMINISTRATION

### ACTION ITEMS

#### 1. Board of Directors – Nomination of Officers – February 24, 2020

The Board of Directors will nominate and approve officers for 2020 at the February 24, 2020 Board meeting.

### DISCUSSION ITEMS

#### 1. Preliminary 2021-2025 Allentown Division Capital Plan – February 10, 2020

Staff will present the preliminary 2021-2025 Capital Plan. The Plan follows the revised planning cycle that allows more time to review projects and priorities, funding sources and rate impacts of LCA's plans. This presentation will focus on the Allentown Division. Board review, public distribution for comment, subsequent staff revisions and final review and approval is expected to be completed within the first quarter of 2020.

### INFORMATION ITEMS

#### 1. Recently Purchased Investments – Certificates of Deposit (CDs)

CERTIFICATES OF DEPOSIT						
31-Jan-20						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
WW Capac	Morgan Stanley Private Bank	Purchase, NY	245,000.00	1/16/20	1/18/22	1.750
WW Capac	Morgan Stanley Bank	Salt Lake City, UT	245,000.00	1/16/20	1/18/22	1.750
WW Capac	Wells Fargo National Bank West	Las Vegas, NV	245,000.00	1/17/20	1/18/22	1.800

Cons Wtr (2)	Consolidated Water (2)
LLRI CR	Little Lehigh Relief Interceptor Capital Reserves
Cons LL2 (314)	Consolidated Little Lehigh Relief Interceptor 2
WW Capac	Wastewater Capacity
2010 Wtr Cons A	2010 Water Construction, Series A Bond
Wtr R&R	Renewal and Replacement

#### 2. Developments

Water system construction is occurring in the following developments:

- 5354 Hamilton Blvd., 1 commercial lot, LMT
- 8615/8783 Congdon Hill Drive, 2 industrial lots with warehouses, LMT
- Fields at Indian Creek, Phases 4 & 5, 86 residential units (sfd), water and sewer, UMiIT & Emmaus
- Kohler Tract, 123 residential lots (sfa), water and sewer, UMiIT
- Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT
- Millbrook Farms, Section 6, 42 residential units, LMT & UMiIT
- Wrenfield Townhouses, 98 townhouse units, UMT

Water system plans are being reviewed for the following developments:

- 749 Route 100, 1 industrial lot with warehouse, UMT

1047 Cetronia Road, 8 unit apartment building, UMT  
5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT  
5374/5392 Hamilton Blvd., 1 commercial lot, LMT  
5420 Crackersport Road, 1 commercial lot, UMT  
8323/8449 Congdon Hill Drive, 2 industrial lots with warehouses, LMT  
ATAS International, 1 industrial lot, UMT  
Cedarbrook Road Industrial Park, 2 industrial lots, LMT  
Estates at Maple Ridge, 30 residential units (sfd), UMiIT  
Jaindl Commercial Park North, 1 commercial lot, LMT  
Laurel Field, Phase 5, 25 townhouses, UMT  
Madison Village at Penn's View, 66 manufactured homes, 1 lot, water and sewer, LynnT  
Mill Creek Hotel, 1 commercial lot with 205 room hotel & restaurant, UMT  
Mountain View Estates, 27 residential units (sfd), LMT  
Ridings at Parkland, 53 residential units (sfd), NWT  
Ridings at Parkland – Phase 2, 38 residential units (sfd), NWT  
Schoeneck Road, Lot 1, 1 lot warehouse, LMT  
Towneplace Suites by Marriott, 91-room hotel, UMT  
Weilers Road Twins, 82 residential lots (sfa), UMT

Sewage Planning Modules Reviewed in Prior Month:

Chestnut Ridge at Rodale, Emmaus, 628 gpd.  
Carlisle-Cumberland Subdivision, Allentown, 878 gpd.  
Riverview Lofts, Allentown, 8,800 gpd.  
Barnes Lane Subdivision, Allentown, 16,800 gpd.  
1690 Harold Ave, SWT, 1,115 gpd.  
Luv & Hugs Daycare, Allentown, 6,700 gpd.



## WATER

### **ACTION ITEMS**

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1. **Allentown Division – Water Filtration Plant: Raw Water Pump Room Painting Construction Phase – February 10, 2020**

Since 2015, the piping and appurtenances of the high lift pump station (Phase 1) and the filter gallery (Phase 2) have been painted. It is the intent of Phase 3 to paint the piping and associated appurtenances in and around the raw water pump room, as the coatings are in poor condition. The project was advertised for bid in late December and bids were received mid-January. Construction phase Board approval will be requested at the first Board meeting in February. Construction is expected to begin in late February and will be completed by May 2020.

### **DISCUSSION ITEMS**

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### **INFORMATION ITEMS**

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1. **Allentown Division – Hamilton Street Cedar Creek Bridge Water Main Relocation Project**

As part of the Pennsylvania Rapid Bridge Replacement Program, the replacement of the Cedar Creek Bridge on Hamilton Street has required the relocation of approximately 500 linear feet of water main. The design phase was approved at the December 2016 Board meeting and the construction phase at the January 2018 meeting. As of February 22, 2018, the contractor completed a majority of the relocation work for LCA's facilities; however, they were pulled off the site due to construction conflicts. As of March 22, 2019 the original LCA water line relocation scope of work was completed, however an additional relocation of a LCA sanitary sewer line was added to the original scope and agreement as of April 15, 2019 with an anticipated completion of April 26, 2019. LCA anticipates submitting all final paper work to the state for reimbursement in the very near future when the project has reached 100% completion. As of November 27, 2019 the project is still under construction due to delays caused by environmental timelines to preserve the high quality clear water fishery. It is anticipated that this work will be reimbursed 100% by the state and that the construction related activities. **(No Change)**

2. **Allentown Division – Water Main Replacement Program Cycle 5**

The project is for the replacement of 2-miles of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with the lease requirement and our risk prioritization protocol. The design engineer (Gannett Fleming) halted work on Cycle 5 after prioritization scope identification and preliminary layout until monies become available. Construction is not anticipated in 2020. **(No Change)**

3. **Allentown Division – Water Filtration Plant: SCADA System Replacement**

The project consists of the replacement of the existing SCADA System at the Water Filtration Plant. The purchase and installation of new servers, new control panel cabinets, new cabling, and new programming software will encompass this project. Board approval to purchase this equipment was granted at the August 27, 2018 Board Meeting. Replacement will be completed by early 2020. This project will be funded by LCA Allentown Division.

4. **Allentown Division – Water Filtration Plant: High Lift Pump VFD Replacements**

The Water Filtration Plan (WFP) supplies water to residential and commercial customers in the City of Allentown, as well as wholesale water to surrounding communities. One of the critical elements at the WFP is the High Service Pumping System (HSPS), which is the primary means of conveying treated water into the distribution system. The HSPS has experienced regular failures of aging electrical components. The July 2017 Allentown Water Master Plan categorizes the pump variable frequency drives (VFDs) in very poor condition and notes that the VFDs are no longer supported by the manufacturer. This project will replace two of the existing VFDs and

add a third VFD. This project is currently unfunded, but may be supported through a PENNVEST loan pending ongoing discussion with the City of Allentown. Board approval was granted at the 8/12/19 Meeting for the design phase of this project to ensure loan application timelines can be met - in the event an agreement can be reached. 90% contract drawings were received in mid-November. Since an agreement will not be reached by the 2/5/20 PennVEST application deadline, the project is on indefinite hold. **(No Change)**

5. **Suburban Division – Mechanical Asset Management Upgrade Project**

This third phase of Suburban Division Asset Management upgrade program will again focus on mechanical components, and will replace components that were deferred due to budget limitations in 2019. Design phase commenced in Q4 of 2019, and the project will be bid in early 2020. The upgrade locations were determined from asset management data collected from internal interviews conducted by Capital Works with senior Operations staff, and based on risk ratings. **(No Change)**

6. **Suburban Division – CLD Auxiliary Pump Station Project**

The project consists of installation of a new booster pumping station with SCADA and water main extension to pump water from the Lower Pressure System to the Upper Pressure System. The LCA Suburban Division will fund the project. Bids for the project were received on 6/29/18. Board approval for the construction phase of the project was granted at the 7/23/18 meeting. A preconstruction meeting was held on August 28<sup>th</sup>. Due to delays in station startup, construction should be substantially completed in February of 2020.

7. **Suburban Division – Upper Milford-CLD Interconnection Project (Kohler Tract)**

The project will feature the installation of a new booster pumping station and water main extension to interconnect the Central Lehigh Division (CLD) with the Upper Milford Division (UMD) allowing the abandonment of the UMD water supply facilities, and to provide water service to the proposed 123-lot Kohler Tract subdivision in Upper Milford Township. Costs are being shared between the LCA Suburban Division and the developer of the Kohler Tract. Pumping station bids were opened on 4/25/19. Board approval for the construction phase of the project was granted at the 5/13/19 meeting. A preconstruction meeting was held on 6/25/19. Construction should be completed by September of 2020. **(No Change)**

8. **Suburban Division – Watershed Monitoring Program**

The project will include setting up a surface water flow-monitoring network for the Little Lehigh Creek. The work is in response to the Watershed Monitoring Plan that was developed and reported to LCA by AI Guiseppe (SSM, Inc.) in 2017. Flow monitoring in 2019 will focus on the Little Lehigh Creek only. In 2018, USGS selected the Delaware River Basin to pilot the National Next Generation Integrated Water Observing System (NGWOS). The Little Lehigh Watershed was picked as a targeted area of the NGWOS Project and additional surface water and ground water monitoring stations will be developed. USGS and LCA met on 11/19/2019 to discuss the proposed monitoring stations and the program in general. A follow up meeting was held on 12/16/2019. Four sites are relatively firm, including one near the mouth of the Swabia Creek, one at Schantz Spring, one near the mouth of Cedar Creek and one on the Little Lehigh Creek near SR100. The other two sites are TBD. Additional groundwater monitoring sites may be added to the program as well. All six (6) Fybr sites are currently collecting flow data and the calibration process is expected to last several months. **(No Change)**

9. **Suburban Division - Additional (Redundant) Water Supply - Small Satellite Divisions**

This Project addresses the needs of three satellite water systems that currently are operating on one source of supply and have no redundant water supply. The Clear View Farms system long operated on one well, and in 2019 Well No. 2 was successfully rehabilitated to restore diminished well capacity for use as a secondary source. The Madison Park North system has only one well, and an additional well is planned to be developed and constructed. An engineer

has been retained to assist with the development of a second well for Madison Park North and the rehabilitation of an existing well at Clear View Farms. An agreement is in place with an adjoining property owner to Madison Park North to drill a test well on their property, in coordination with DEP guidelines. The “step drawdown test” was performed on 3/26/19 and indicated that the test well is a viable backup source to Well 1. A Pre-Drilling and Aquifer Test Plan has been approved by DEP. The reconstruction of the test well has been completed. The next item to be completed will be a 72 hour sustained pump test. If the test is successful, we will need to obtain approval from the Agricultural Lands Condemnation Approval Board prior to permitting and construction of the facilities.

**10. Suburban Division – Buss Acres Pump Station Replacement Construction**

The project consists of the consolidation and replacement of two well stations with a single new pump station and a new water storage tank to replace two antiquated hydropneumatic pump stations. The new station will be a variable frequency drive controlled double pumping system with full SCADA control. The design will include radon reduction elements and also accommodate the future installation of additional radon removal equipment, to be implemented upon DEP’s mandate of a regulatory limit. The project is in construction phase. The Notice to Proceed was issued to the contractors on 9/24/19. Construction will begin in February.

**11. Suburban Division – Water Meter Reading Equipment Upgrade**

LCA’s capital program includes the replacement of 20,000 transceiver units, and 10,000 units will be replaced in 2019 with the remaining to be replaced in 2020 under separate authorization. The new units have a 20-year battery life and are compatible with the new meter reading software purchased in 2017. This project will replace 100% of the remaining old style radio units over a two-year period. Construction phase services for the first round of 10,000 units was approved at the 5/13/19 Board meeting. Construction began in July 2019 and is expected to be concluded by December of 2019. The first phase of the project is currently 95% complete. This project is funded by the LCA Suburban Division. A change order was issued to the contractor for the installation of the remaining transceiver units that were originally scheduled for replacement in 2020, in order to expedite the completion of the work under the program and take advantage of favorable contract unit pricing. The second phase of the project is approximately 95% complete.

**WASTEWATER****ACTION ITEMS**

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**1. Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning – February 10, 2020**

At the February 10, 2020 Board meeting, LCA staff will present an update on regional sewer capacity and wet-weather planning activities, and request approval for four professional services authorizations as described in items A-D below:

**A. Allentown Division – Interim Act 537 Plan Preparation**

Following several months of discussion with the Pennsylvania Department of Environmental Protection (PA-DEP), all municipalities flowing into the Kline's Island Wastewater Treatment Plan have agreed to complete an Interim Act 537 Plan ("Interim Plan") by September 2020. This Interim Plan will primarily consist 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 Interim Plan, a consulting engineer has been preliminarily retained, and approval of their full Professional Service proposal will be requested at the February 10, 2020 Board meeting. Costs associated with the development of the Interim 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.

**B. Suburban Division – Western Lehigh Service Area – Engineering & Program Support**

While the Interim Plan described in item A (see above) is being completed, the municipalities in the Western Lehigh Service Area will continue to work on inflow and infiltration source removal as part of the ongoing program previously known as the Sewer Capacity Assurance and Rehabilitation Program (SCARP). Ongoing engineering support is required to facilitate continued progress and coordination among the Western Lehigh municipalities. In addition, LCA and its Western Lehigh municipalities will be participating in the Interim Plan and Regional Plan development and will require engineering support to compile data on current and future sewer flows and assess conveyance system requirements. This is an extension of ongoing engineering and program support that Arcadis has provided for many years. LCA will seek approval of a Professional Services Authorization for program support in 2020 at the February 10, 2020 Board meeting.

**C. Suburban Division – Flow Metering Contract (2020-2022)**

LCA previously contracted with a flow metering company for various sewer flow metering projects from 2009 to 2019. The contract ended in 2019 with the completion of flow metering work in October 2019. Future flow metering work is anticipated over the next several years for both the Western Lehigh service area as well as the entire regional Kline's Island Sewer System. In 2020, the Western Lehigh group will conduct flow metering for a period of eight months to gather additional data on inflow and infiltration and the impact of prior rehabilitation work. It is anticipated that more extensive flow metering will be required in 2021 and 2022 to develop a Regional Plan described in item A (see above). To ensure cost-effective and professional data management services are available for this work as well as other flow metering projects that will arise over the next several years, LCA invited three leading flow metering companies to submit a proposal for a three-year assignment. Approval of this Professional Service will be requested at the February 10, 2020 Board meeting.

**D. Suburban Division – Western Lehigh 2020 Flow Data QA/QC and RDII Analysis**

In 2020, the Western Lehigh municipalities will conduct flow metering for a period of eight months to gather additional data on inflow and infiltration and the impact of prior rehabilitation work using the services of a flow metering company as described in item C (see above). To properly analyze and utilize the data collected from this monitoring, quality data control review steps are necessary to ensure accuracy and validity. In addition, an analysis of rainfall derived inflow and infiltration (RDII) must be conducted to quantify results of prior rehabilitation work and to evaluate the potential for removal of additional RDII via continued system rehabilitation. The rehabilitation effectiveness analysis will be performed using the control basin methodology and comparing data from 2017 flow monitoring to the 2020 proposed flow monitoring data to be collected this year. Approval of this Professional Service to complete these analyses will be requested at the February 10, 2020 Board meeting.

**DISCUSSION ITEMS**

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**INFORMATION ITEMS**

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**1. Allentown Division – Kline’s Island WWTP: Phase 1 AO Design Improvements**

This project includes the design of the AO improvements at the wastewater treatment plant. This conceptual design concept was approved by the City and the relevant final deliverables were received by LCA. The City then directed LCA to proceed with the final design of improvements related to the blending alternative. Board approval for the Professional Services Authorization with Kleinfelder East, Inc. was granted at the September 11, 2017 Board Meeting. The project is identified as Administrative Order Work and will be funded by the City. The 30% design drawings and specifications have been received. The City directed to “pause” the design phase of the project. The City has now directed LCA to keep this project on indefinite hold. **(No Change)**

**2. Allentown Division – Sanitary Sewer Collection System: I&I Source Reduction Program Plan**

This project includes the design of the City of Allentown’s I&I Source Reduction Program Plan. In 2014, Video Pipe Services complete various CCTV inspections throughout twenty Primary and Secondary Basins. All pipe segments that called for complete pipe replacement have already been repaired. The remaining source reduction activities within the twenty Basins have been organized into a 5-Year Plan, with each year focusing on a different geographic region of the City’s sewer collection system. Design has been approved for all five years, with the first project commencing in 2020 and the last project finishing in 2024. Board approval for the construction of the “Year 1 Project” will be requested at a March Board Meeting.. This project is considered an AO expense under terms of the Lease and is City funded

**3. Allentown Division – Kline’s Island WWTP: Max Monthly Flow Capacity Evaluation**

DEP has noted that the KIWWTP has been performing at a high level and meeting its permitted effluent quality limits during a period of prolonged wet weather since early 2018. This study will provide the basis for confirming the plant’s maximum monthly average that can be sustained during prolonged periods of wet weather – while remaining in full compliance with effluent quality requirements of the plant’s permit. Approval of the study was granted at the 8/26/19 Board Meeting. The study was completed in mid-October 2019 and a Part II Permit was sent to DEP on 10/18/19. This project is considered an AO expense under terms of the Lease and is City funded. **(No Change)**

**4. Allentown Division – Kline’s Island WWTP: Sodium Hypochlorite Disinfection**

This project involves the replacement of the existing gas chlorination system at the WWTP. The use of gas chlorination for sewage disinfection, while reliable, is outdated and contains inherent

risks. In addition, the existing equipment has reached the end of its useful life. Switching to sodium hypochlorite was also identified in the recently completed WWTP Maser Plan. The design started in March of 2019. The project was advertised for bid in December 2019 and approval of the construction contract will be requested in early 2020. The construction phase of the project will begin in Q2 of 2020 and will be completed by Q4 of 2020. This project will be funded by the LCA Allentown Division. **(No Change)**

5. **Allentown Division – Lehigh Street (Rte. 145) Water and Sewer Main Relocation Project**

As part of the Pennsylvania Rapid Bridge Replacement Program, the proposed replacement of the Lehigh Street Bridge near the intersection with MLK Boulevard has required the relocation of existing City water and sewer lines that are located within the PennDOT right of way. Because the bridge is owned by Lehigh County and not the Commonwealth, the normal PennDOT relocation reimbursement schedules do not apply. Therefore, the County and LCA have executed an agreement on cost reimbursement on similar terms. LCA's engineer is working on behalf of LCA on a final sewer relocation design that minimizes the extent of the relocation. There will be less water infrastructure relocation work required since the existing water main is attached under the bridge and will be reattached after the new bridge is constructed. Construction will commence in 2021.

6. **Suburban Division – Park Pump Station Force Main Rehabilitation**

The Park Pump Station and Force Main line were constructed in 1980 to provide wet weather relief to the Little Lehigh Creek Interceptor, which conveys wastewater from ten municipalities from outlying areas to the Kline's Island Wastewater Treatment Plant (KIWWTP). The force main consists of 8,715 linear feet of prestressed concrete cylinder pipe (PCCP) of various sizes (2,615' of 24"; 2,695' of 30"; and 3,405' of 36"), and connects with the 54" sanitary sewer interceptor that runs to KIWWTP. PCCP is particularly sensitive to deterioration due to hydrogen sulfide gas from wastewater, and corrosion of exposed reinforcing steel can result in structural degradation and pipe failure. An internal investigation of the pipe is required to assess the condition of the PCCP pipe and identify damage areas, in order to determine the locations and extent of rehabilitation needed to restore the level of service, prolong service life, and mitigate the risk of failure. Capital Works is planning a limited manned inspection of the force main pipe at 5 air release valve (ARV) locations, 100 feet in both directions from the ARV manhole, which will be used as the initial evaluation of the representative condition of the pipe. Using this data, the need for performing a complete pipeline condition assessment will be determined, possibly utilizing a new electromagnetic technology for performing an internal pipe condition assessment that entails minimal interruption of operation of the pump station and force main. Commencement of this work will follow the return of "normal" dry weather flows, and also following the completion of the Park Pump Station upgrade construction. **(No Change)**

7. **Suburban Division – Park Pump Station Upgrade**

The Park Pump Station is to be upgraded to address mitigate risk of failure, restore station capacity, and prolong the service life of this critical facility. Design was completed in December 2017. The Park Pump Station Upgrade was advertised for bid in December 2017, pre-bid meeting was held on 1/4/18, and bids were opened 2/1/18. Construction phase was authorized at the 2/12/18 Board meeting. Notice to proceed for the construction contracts was issued dated 3/26/18. A pre-construction meeting was conducted in early April 2018, and construction is anticipated to be completed by late 2019. Start-up and performance testing of the new mechanical and electrical equipment is scheduled for January 2020. **(No Change)**

8. **Suburban Division – Wynnewood WWTP Upgrade Project**

Wynnewood Terrace WWTP was constructed in 1980 by the developer to serve the Wynnewood Terrace subdivision, located in the Laury's Station area in North Whitehall Township. Sewer service is provided to approximately 217 residential and 2 commercial properties. LCA acquired the system in 2003.

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and was concluded in late Summer 2018. The DEP Part 2 Water Quality Management Permit was received in March 2018. The project was advertised for bid in August 2018, bids were opened in September 2018, and bids were authorized for award at the October 22, 2018 Board meeting. Construction work mobilized in early 2019 and is anticipated to finish the first quarter of 2020. **(No Change)**

**9. Suburban Division - Lynn Township Corrective Action Plan**

Excessive inflow and infiltration (I&I) and high wet-weather flows into the Lynn Township sewer system has been ongoing and increasingly challenging to address. As noted in LCA's monthly operations reports, treatment plant bypasses and sanitary sewer overflows have occurred in this system and must be addressed. On 6/4/19 a meeting was held with DEP, Lynn Township and LCA representatives as a result of a hydraulic overload at the wastewater treatment plant, based on 2018 Chapter 94 Report monthly plant flows. At the meeting, DEP directed LCA to submit an amendment to the pre-existing Corrective Action Plan (originally submitted by Lynn Township Sewer Authority) to include an updated system condition assessment and an outline of steps to be taken to mitigate I/I flows and maintain NPDES permit compliance. The Corrective Action Plan (CAP) includes structural and non-structural initiatives and involves coordination with the host municipality. The framework for the CAP was shared with the Board in February 2019. A meeting was held at Lynn Township with DEP in June 2019 to discuss the Lynn Township CAP and Township sewer planning/growth issues, and DEP directed LCA to submit a CAP Amendment by the end of summer 2019. The CAP amendment contained an updated sewer system condition assessment and a corrective plan to further mitigate I/I flows. Updated CCTV work of the entire system was substantially completed in August 2019, and the inspection data was summarized in the CAP Amendment and is being used to scope a capital repair project. The Lynn Township Board of Supervisors adopted a sewer system rules and regulations ordinance on 9/12/19, which gives LCA the authority to inspect private laterals and facilities for illegal connections and perform follow-up enforcement. A meeting with DEP and Lynn Township representatives was held on 1/15/20 to discuss the CAP amendment and plan moving forward. A letter is forthcoming from DEP to grant 55 EDUs of sewer allocation relief in 2020.

**10. Suburban Division - Heidelberg Heights Sanitary Sewer Rehabilitation Program**

High wet-weather flows caused by excessive inflow and infiltration into the sewage collection system have challenged the Heidelberg Heights sanitary sewage system and has been the cause of numerous wastewater treatment plant bypasses over the past two years. In 2019, the replacement of approximately 1,100 lf of VCP sewer main and 26 residential sewer laterals to address a high priority area of the system was completed. Another sewer main replacement project will be bid in Spring 2020.

**11. Suburban Division - Heidelberg Heights Corrective Action Plan**

On 2/11/19, DEP submitted a notice of violation to LCA regarding bypasses and permit exceedances at the Heidelberg Heights wastewater treatment plant. As discussed with the LCA Board during several meetings in 2018, this small satellite system has been challenged by high groundwater levels and significant infiltration and inflow (I&I) of clear water into the sewer system during rain events. LCA staff met with DEP officials on March 6, 2019 to discuss the problems and, as a result, LCA prepared a comprehensive Corrective Action Plan (CAP) and submitted DEP on 5/5/19. A draft of the plan was attached for Board review

at the 4/22/19 Board meeting. The final CAP was submitted to DEP on 4/29/19. The Heidelberg Heights Board of Supervisors approved the advertisement for adoption of a sewer system rules and regulations ordinance on 9/19/19, which gives LCA the authority to inspect private laterals and facilities for illegal connections and perform follow-up enforcement. The ordinance was adopted by the township the following month. **(No Change)**

**12. Suburban Division – Sand Spring WWTP Upgrade Project Construction**

The Sand Spring WWTP was constructed in 1972 by the developer to serve the Sand Spring development, located in the Schnecksville area in North Whitehall Township. Sewer service is provided to approximately 248 apartment units, 8 commercial properties, and an elementary school. Lehigh County Authority (LCA) acquired the system in 2005.

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and final design was delayed due to DEP Part 2 Water Quality Management and NPDES permitting issues. DEP approval of the Water Quality Management Permit was received in late December 2018, the design was finalized in late Spring 2019, and the project was advertised for bid in July 2019. Bids were opened on 8/13/19 and construction phase authorization was approved at the 8/26/19 Board meeting. A pre-construction meeting was held on 11/1/19 following execution of contract documents. Construction is temporarily on hold pending Conditional Use Approval and waiver of Land Development Approval from North Whitehall Township. Construction mobilization is anticipated for late winter 2020.

**13. Suburban Division - Trexlertown Wastewater Storage Facility**

As part of the Western Lehigh service area's Sewer Capacity Assurance & Rehabilitation Program (SCARP), a conveyance capacity "bottleneck" was identified in the Trexlertown area of the Western Lehigh Interceptor, and this area was assigned a high priority due to occurrence of sanitary sewer overflows and basement backups in the vicinity. A parallel interceptor was originally conceived to run approximately from Cetronia Rd to Spring Creek Rd. The concept was modified to focus on providing storage capacity in the system for this area, due to concerns about downstream hydraulic impacts. This project is an interim solution to address local impacts of the system bottleneck, and will become part of the future long-term solution to alleviate regional conveyance capacity challenges. A pre-design feasibility study is being performed to evaluate various engineering alternatives, including an "in-line" parallel storage tank, conventional concrete tank (flow equalization basin), or other options. Award of the pre-design feasibility study to HDR was authorized at the 10/21/2019 Board meeting. The study is anticipated to be completed in late Spring 2020. **(No Change)**