



BOARD MEETING AGENDA – December 10, 2018

1. Call to Order

- NOTICE OF MEETING RECORDINGS

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

- *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

3. Approval of Minutes

- *November 12, 2018 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2019 Board Meeting Schedule (Approval) (pink)*
- *City Division – Monthly Billing Implementation (Discussion)*

WATER

WASTEWATER

- *Sanitary Sewer System Flow Metering for WLI (Approval) (green)*

6. Monthly Project Updates / Information Items (1st Board meeting per month) – **December 2018 report attached**

7. Monthly Financial Review (2nd Board meeting per month)

8. Monthly System Operations Overview (2nd Board meeting per month)

9. Staff Comments

10. Solicitor's Comments

11. Public Comments / Other Comments

12. Executive Sessions

13. Adjournment

UPCOMING BOARD MEETINGS

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

January 14, 2019

January 28, 2019

February 11, 2019

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 November 12, 2018

The Regular Meeting of the Lehigh County Authority was called to order at 12:00 p.m. on Monday, November 12, 2018, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Richard Bohner, Norma Cusick, Ted Lyons, Jeff Morgan and Linda Rosenfeld. Deana Zosky was on the conference phone for the duration of the meeting. Authority Staff present were Liesel Gross, Brad Landon, Charles Volk, Ed Klein, Pat Mandes, John Parsons, Chris Moughan and Susan Sampson. David Busch from Keystone Alliance Consulting was also in attendance for presentation of rate information included on the agenda.

REVIEW OF AGENDA

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

Liesel Gross noted no changes to the agenda, but noted one additional item will be covered under Staff Comments and there would be an Executive Session at the end of the meeting to discuss matters of potential litigation, real estate acquisition and personnel.

APPROVAL OF MINUTES

October 22, 2018 Regular Meeting Minutes

Richard Bohner offered one grammatical correction to the minutes. On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the Minutes of October 22, 2018 meeting as corrected (6-0). Deana Zosky abstained.

PUBLIC COMMENTS

None.

Scott Bieber entered the meeting at 12:07 p.m.

ACTION AND DISCUSSION ITEMS

2019 Water & Wastewater Rate Schedules

Liesel Gross reviewed the materials that were supplied to the Board in advance of the meeting including a summary memo, excerpts from the Suburban Division water rate study, and the proposed water and sewer rate scheduled for 2019. She introduced David Busch of Keystone Alliance Consulting, who presented the results of the Suburban Division water rate study.

Mr. Busch reviewed the exhibits and tables included in the water rate study for the period of 2018 to 2022. The study included a review of current and projected operating expenses and debt service and an allocation of those expenses to different functional categories that drive the cost-of-service rate design. The study also included an evaluation of potential growth and revenue requirements under current rates and proposed rates.

Ted Lyons asked where the risks are in a study like this and Mr. Busch explained that the level of inflation for expenses could change, and the timing and cost of capital improvements and associated

debt could be different. However, the proposed rates can be adjusted to accommodate such changes over time.

Deana asked for an explanation of statutory requirements for municipal authority rate making. Mr. Busch explained the Pa. Municipality Authorities Act requires that rates be fair and uniform and must be established on a cost-of-service basis. This means rates must be uniform by customer class and should be established so each customer is paying their appropriate share of expense. However, the Authority has discretion for determining capital funding strategies and debt levels.

Liesel Gross reviewed all the rate changes shown in the proposed schedules for 2019 water and sewer rates.

Deana Zosky explained she is opposed to the rates as presented because the incremental annual increases, along with some rate decreases in certain areas, are not adequate to support the large infrastructure investment that is needed to maintain or improve the water and sewer systems or to quickly address the Authority's financial sustainability concerns and debt load.

On a motion by Ted Lyons, seconded by Norma Cusick, the Board approved the 2019 Water and Wastewater Rates as presented. (7-1).

Suburban and City Division Connections Fees and Customer Facilities Fees and Suburban Division Wastewater Tapping Fees (Resolution No. 11-2018-1)

Liesel Gross reviewed the resolution for the adoption of tapping fees, and reviewed the Connection Fees and Customer Facilities Fees for the Suburban and City Divisions, as shown in Attachment A of the resolution.

David Busch of Keystone Alliance Consulting reviewed Attachment B, which included exhibits and tables detailing the calculation of the Suburban Division wastewater tapping fees. He reviewed the statutory requirements for the calculation of the tapping fees, which includes calculation of the original cost or trended cost of Authority assets, minus developer contributions and outstanding debt, and divided by system capacity to calculate a per gallon tapping fee.

Mr. Busch answered various questions from the Board regarding requirements of the tapping fee legislation and how costs are categorized, how the fees may be used, and strategies for using tapping fees to fund future capital improvements. He explained that capital projects that are purely for system maintenance, such as inflow and infiltration removal from sewer systems, cannot be included in the tapping fee calculation.

Deana Zosky noted that as the tapping fees are currently structured, they only capture capacity-related projects and new customers should help pay for system rehabilitation and any "catch up" work that is needed to bring system up to current standards. Mr. Busch explained that the thinking behind the tapping fee legislation is that user rates are the appropriate mechanism to recover maintenance and rehabilitation expenses, since those expenses are necessary whether growth happens or not. Ms. Zosky suggested legislators should be contacted about the tapping fee calculation and asked to support utilities adding maintenance-related projects into the fees.

On a motion by Linda Rosenfeld, seconded by Jeff Morgan, the Board approved Resolution No. 11-2018-1 (8-0).

2019 SCARP Program Management

Pat Mandes described the annual process of authorizing engineering services to support program management activities for the Authority and Western Lehigh municipal signatories to address requirements by the Pennsylvania Department of Environmental Protection (DEP) for a Sewer Capacity Assurance and Rehabilitation (SCARP) program. Arcadis U.S. has been serving in this capacity for more than ten years and provides services such as meeting facilitation, flow modeling, and other engineering support. Ms. Mandes noted that the scope of work is broadly defined and the authorization of \$70,000.00 is a not-to-exceed figure unless further authorization is granted.

Deana Zosky asked whether the authorization covers work done on behalf of the Western Lehigh municipal signatories and how the signatories pay for these services. Ms. Mandes explained the cost recovery method as defined by the municipal service agreements. The municipalities are billed quarterly based on budgeted costs such as this authorization, and then actual costs are "trued up" at the end of the year.

On a motion by Jeff Morgan, seconded by Linda Rosenfeld, the Board approved the Professional Services Authorization for 2019 SCARP Program Management to Arcadis U.S., Inc. in the amount of \$70,000.00. (8-0).

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross reviewed the November 2018 project update report that was sent out with the Board packet and noted that there were no planned action items for the upcoming November 26, 2018 Board meeting and the meeting may be canceled. Proper notification will be given the following week.

STAFF COMMENTS

Liesel Gross distributed the Monthly Operations Report for October 2018, which was prepared in advance due to the possible cancelation of the next Board meeting. She stated the report would be posted to the Authority's website following the meeting. John Parsons reviewed the details of the report, noting a Notice of Violation (NOV) from DEP attached to the report.

Liesel Gross review the NOV and the Authority's response, explaining that DEP issued the NOV in October as a response to the three major storm events in August 2018 that caused various sanitary sewer overflows (SSOs) in the system as well as at the Kline's Island Wastewater Treatment Plant in Allentown. She reviewed the Authority's response, which explained the environmental and mechanical factors that impacted system performance. Most notably, the intensity and frequency of storms, which has continued from August to early November 2018, has strained all systems including local waterways and stormwater systems as well as the sanitary sewer system. Just before the current weather pattern commenced, the Authority, City of Allentown and 14 other municipalities had submitted a Regional Flow Management Strategy to the US Environmental Protection Agency (EPA) to address the Administrative Order to eliminate SSOs. To date, no response has been received, although both DEP and EPA have indicated the regulators are collaborating on a response. The regulatory response is required prior to the Authority moving forward on key projects.

Some discussion followed regarding lengthy SSOs in the Trexlertown area of the system, and Ms. Gross explained that the critical projects the Authority wishes to undertake will relieve that portion of the system, but additional discussion is needed with DEP and EPA, as well as the Authority Board.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 1:30 p.m. The meeting reconvened at 1:38 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:38 p.m. to discuss matters of potential litigation, real estate acquisition and personnel. The Executive Session ended at 2:23 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:23 p.m.

Richard H. Bohner
Secretary

LEHIGH COUNTY AUTHORITY
PROPOSED 2019 MEETING SCHEDULE OF THE AUTHORITY BOARD OF DIRECTORS

Meetings are held on the 2nd & 4th Mondays of each month, except as noted below. All LCA Board meetings begin at Noon at the Main Office Conference Room located at 1053 Spruce Road, Wescosville, PA 18106. Meetings are recorded with live feed to LCA's website during the meeting, and a copy of the meeting video posted online at www.lehighcountyauthority.org following the conclusion of the meeting.

January 14, 2019

January 28, 2019

February 11, 2019

February 25, 2019

March 11, 2019

March 25, 2019

April 8, 2019

April 22, 2019

May 13, 2019

May 20, 2019 (moved up to 3rd Monday to avoid Memorial Day)

June 10, 2019

June 24, 2019

July 8, 2019

July 22, 2019

August 12, 2019

August 26, 2019

September 9, 2019

September 23, 2019

October 7, 2019 (October meetings are moved up 1 week for budget approval process)

October 21, 2019 (October meetings are moved up 1 week for budget approval process)

November 11, 2019

November 25, 2019

December 9, 2019

No second meeting in December 2019 due to holiday.



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413

PROFESSIONAL SERVICES AUTHORIZATION

Professional:

TFE Resources.
Kraig Moodie
5 Easter Court, Suite D
Owings Mills, MD 21117

Date: 12/10/18

Requested By: Pat Mandes

Approvals

Department Head: Pat Mandes

Chief Executive Officer: _____

**Description of Services (Work Scope, Steps, Check Points, etc.):
WLSP Model Recalibration Flow Metering Project**

Provide sewer flow and rainfall monitoring services in the Western Lehigh Interceptor System or Western Lehigh Collection Systems or as-needed and directed by LCA.

Tasks include flow monitor or rain gage site investigation and installation, data collection, review, monthly reporting, monitor and rain gage maintenance and other details included in the "Request for Proposal" dated August 2014 and the specific scope language in the attached Scope of Work dated November 2018.

The Scope of Work and including equipment requirements, deliverables, and other requirements are included in the Lehigh County Authority "Request for Proposal" dated August 2014 and is part of this authorization. The TFE proposal and "Schedule of Prices" submitted to LCA in response to the LCA "Request for Proposal" is also a part of this authorization.

Cost Estimate (not to be exceeded without further authorization): Each specific project under the flow metering contract will have it's own PSA and not to exceed value. **This PSA is for the 2019 WLSP Flow Metering Project.**

This authorization is not to exceed \$350,000.

Time Table and Completion Deadline:

This contract is for as-needed services. Specific project details, requirements and schedules will be determined before each project. This authorization is for three years with the LCA option of two additional years. **The 2019 WLSP Model Recalibration Flow Metering Project is for a maximum of 9 months from February 2019 to October 2019. Meters to be installed no later than January 20, 2019. Five of the meters will be installed earlier than February.**

For Authority Use Only)

Authorization Completion:

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

Capital Project S-08-05, Signatory I & I Investigation/Remediation Program

SCOPE OF WORK FOR TFE RESOURCES FOR 2019 FLOW MONITORING PROJECT

NOVEMBER 2018:

Task 1 – Data Quality Assurance

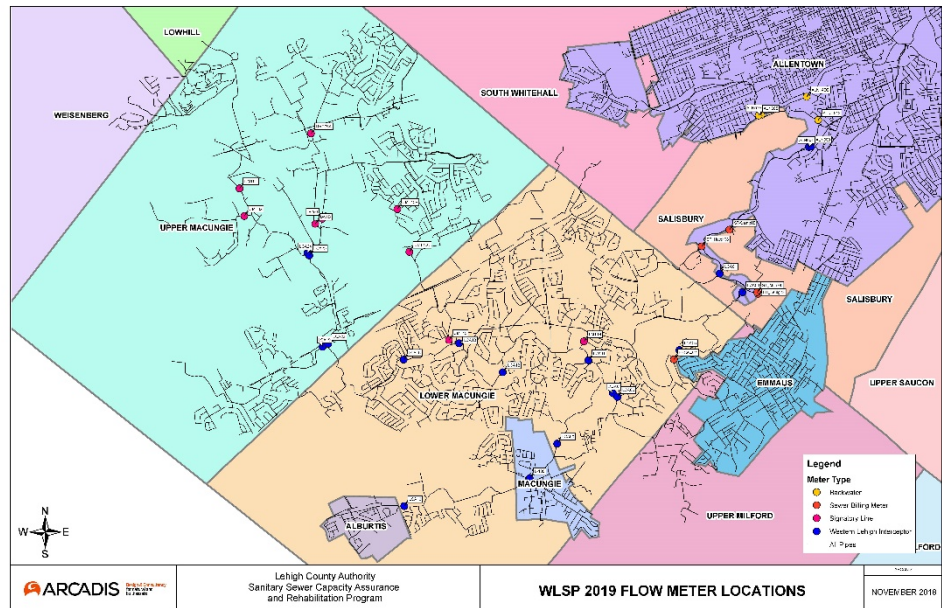
While it is assumed that the flow meter contractor (TFE), given that these data will be used to recalibrate the entire model, which will in turn drive multi-million dollar decisions regarding rehabilitation and infrastructure expansion, extra scrutiny is warranted to ensure this expensive and critical effort yield the highest reliable results. Teaming the QA effort between the two firms will provide the level of effort needed for optimal results.

In accordance with the discussions had between LCA and TFE, Arcadis proposes the following rigorous data quality assurance measures to maximize the accuracy and reliability of the model.

Prior to any fieldwork by TFE, Arcadis will provide historical data statistics to TFE for review. Data provided will be average dry day flow rates and typical dry day flow depth and velocities. Other info may be shared about site characteristics from historical data sets. The historical data will provide a baseline expectation for each metering site where available. Any major variance between the baseline will result in a site investigation and discussion, with recommendations as needed.

As discussed with TFE, TFE will provide the first week's data from each meter as it's installed and Arcadis will conduct a preliminary data validation in the office. TFE must install the meters no later than January 20. TFE will provide Arcadis with an install schedule. A data review and site visit schedule will be worked out between the two firms with the goals of maintaining mobilization efficiencies and having the meters field verified by the second week of February. Arcadis will conduct a physical inspection of the meter installations to confirm site conditions, flow characteristics, and confirm that sensor placements at each location are optimized. The physical inspections will be site specific and will include most of the following steps:

- Pipe dimension measurements. Round pipe can have ovalities which can lead to inaccuracy in the data.
- Level confirmations using flow depth and air gap measurements.



- Velocity measurements using a portable velocity sensor.
- Velocity measurements using dye, measured distance between MH, and stopwatch.
- Manipulating flows within the pipe to change the flow characteristics to confirm meter response to changes in depth and velocity. This step will not be practical for pipes over 18 inches and average flows greater than 3/4 full.
- Insert temporary weir to measure flow rates and compare to the meter readings. This step will not be practical pipes over 18 inches or average flows greater than 1/2 full.

Arcadis will write a summary of the field effort. It will be assumed that 20% of the meters will need corrective action. TFE will address these recommendations within 2 weeks, at which point Arcadis will repeat the field effort at any corrected meter sites. These field verifications will inform all subsequent data reviews.

Once all meters are field validated, Arcadis will conduct 3 major QA/QC reviews. Each round will be split into two groups of meters for each deadline. Half of the meters will be in Group A, and half will be in Group B. All dates listed for the schedule will be for Group A meters. Group B meters will follow the schedule by exactly one week. For the first round of QA/C, we assume the following schedule:

- TFE will deliver meter data from February 1 through March 25 to Arcadis, by March 31.
- Arcadis will review the data and provide QA/QC feedback and corrective measures on all data sets by April 5.
- TFE will make all corrective measures by April 21.

The second round of data will follow this schedule:

- TFE will deliver meter data from March 26 through May 10 to Arcadis, by May 17.
- Arcadis will review data and provide QA/QC feedback and corrective measures by May 24
- TFE will make all corrective measures by May 31

A third round of data will follow this schedule:

- TFE will deliver meter data from May 11 through July 12 to Arcadis, by July 19.
- Arcadis will review data and provide QA/QC feedback and corrective measures by July 26
- TFE will make all corrective measures by August 2

The Group B meters will follow this schedule by exactly one week up until the last data collection and delivery. The final data will be delivered to Arcadis with the full data set, by November 1st.



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413

PROFESSIONAL SERVICES AUTHORIZATION

AMENDMENT NUMBER 31

Professional:

Arcadis
Jim Shelton
1128 Walnut St.
Philadelphia, PA 19107

Date: 12/02/18

Requested By: Pat Mandes

Approvals

Department Head: _____

Chief Executive

Officer: _____

Description of Services (Work Scope, Steps, Check Points, etc.):

This is an amendment to the current Arcadis authorization for the WLI Infiltration and Inflow Project: The work covered by this amendment includes **Flow Data QA/QC of 2019 Model Recalibration Data**. The objective is to Screen all flow and rainfall data collected by TFE using quality control data review steps to ensure the data is accurate and valid.

The work includes the following:

- Task 1 – Meter Installation Performance: Provide TFE with historical data statistics from the 2009 metering data set. Provide a preliminary data validation of the newly installed meters in the office followed by an on-site physical inspection of each meter to make recommendations for any needed corrective action.
- Task 2 – Data QA: Three major QA/QC reviews of the data will be conducted during the eight month metering program and will provide QA/QC feedback and corrective measure recommendations to TFE.

The true and valid data will be used for conducting future RDII (Rainfall Derived Inflow and Infiltration) analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow leakage and to compare this against the 2009 statistics for these same meter locations. The data will also be used to recalibrate the hydraulic model.

The scope of work is described in more detail in the proposal dated November 30, 2018.

Cost Estimate (not to be exceeded without further authorization): This amendment is not to exceed \$89,000 for Flow Data QA/QC.

Time Table and Completion Deadline:

Historical data statistics will be provided to TFE in December 2018, with the field inspections completed within 2 weeks of meter group installation expected to be in January 2019. The

(For Authority Use Only)

Authorization Completion:

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

Capital Project S-08-05, Signatory I & I Investigation/Remediation Program

Ms. Pat Mandes
Wastewater Services Director
Lehigh County Authority
P.O. Box 3348
Allentown, PA 18106

Arcadis U.S., Inc.
1128 Walnut Street
Suite 400
Philadelphia
Pennsylvania 19107
Tel 215 625 0850
Fax 215 625 0172
www.arcadis.com

Subject:
Sewer Capacity Assurance and Rehabilitation Program
Scope and Budget for Flow Data QA/QC of 2019 Model Recalibration Data

Date:
November 30, 2018

Dear Ms. Mandes:

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 RDII effects.

Contact:
Jim Shelton

Phone:
302.723.1450

OBJECTIVES

The primary goal of this work is to ensure data collected for recalibrating the KISS model in 2019 are as usable and accurate as possible. This project will provide quality assurance for flow and rainfall data collected by TFE for LCA under a separate project. For the purposes of this scope and budget, we assume that 35 flow meters and 5 rain gauges will be installed in January 2019 and kept in the field until October 2019.

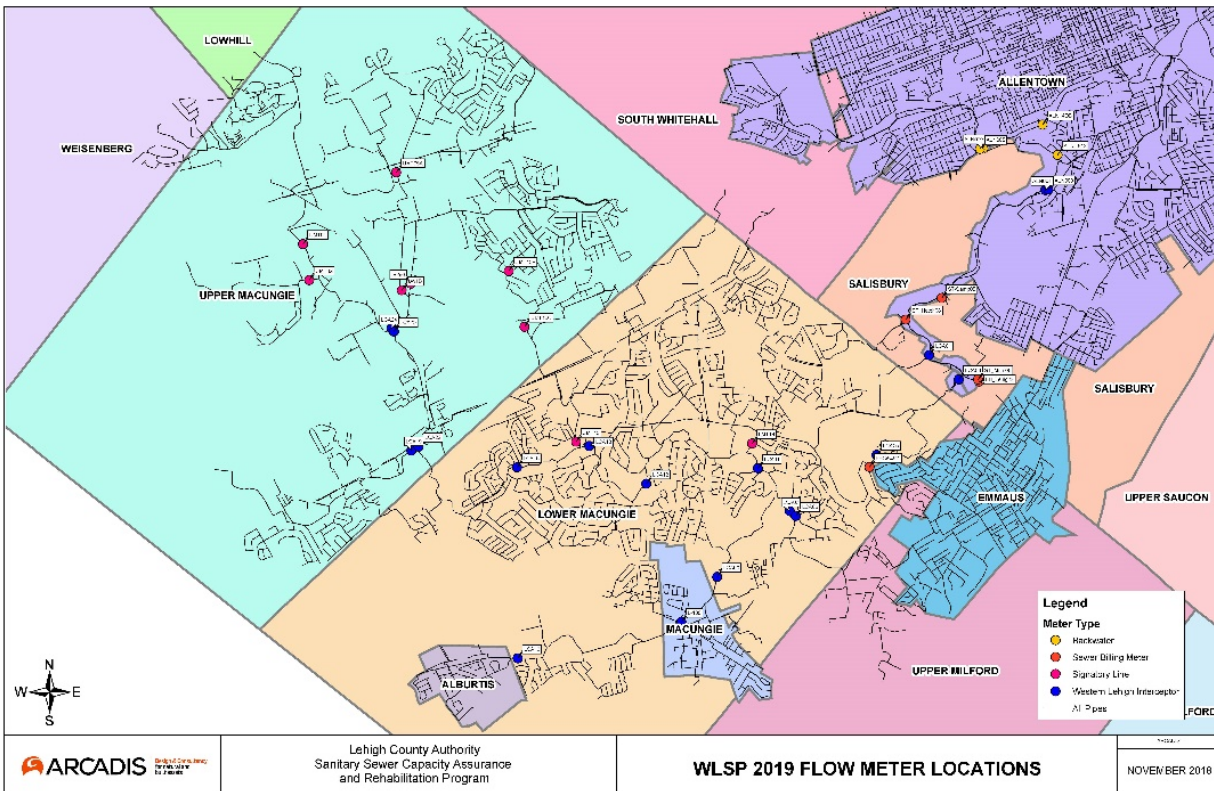
Email:
James.Shelton@arcadis.com

Our ref:
0247-532

SCOPE OF WORK

Task 1 – Meter Installation Performance QA

While it is assumed that the flow meter contractor (TFE) will provide typical data collection quality steps, these practices have in the past been insufficient to ensure the majority of collected data are usable. Given that these data will be used to recalibrate the entire WLSP portion of the KISS model, which will in turn drive multi-million dollar decisions regarding rehabilitation and infrastructure expansion, extra scrutiny is warranted to ensure this expensive and critical effort yield the highest reliable results. Teaming the QA effort between the Arcadis and TFE firms will provide the level of effort needed for optimal results.



In accordance with the discussions had between LCA, Arcadis, and TFE, Arcadis proposes the following rigorous data quality assurance measures to maximize the accuracy and reliability of the model.

Prior to any fieldwork by TFE, Arcadis will provide historical data statistics to TFE for review. Data provided will be average dry day flow rates and typical dry day flow depth and velocities. Other info may be shared about site characteristics from historical data sets. The historical data will provide a baseline expectation for each metering site where available. Any major variance between the baseline will result in a site investigation and discussion, with recommendations as needed.

As discussed with TFE, TFE will provide the first week's data from each meter as it's installed and Arcadis will conduct a preliminary data validation in the office. TFE must install the meters no later than January 20. TFE may install meters as early as the first week of December 2018. TFE will provide Arcadis with an install schedule. A data review and site visit schedule will be worked out between the two firms with the goals of maintaining mobilization efficiencies and having the meters field verified by the second week of February. Arcadis will conduct a physical

inspection of the meter installations to confirm site conditions, flow characteristics, and confirm that sensor placements at each location are optimized. The physical inspections will be site specific and will include most of the following steps:

- Pipe dimension measurements. Round pipe can have ovalities which can lead to inaccuracy in the data.
- Level confirmations using flow depth and air gap measurements.
- Velocity measurements using a portable velocity sensor.
- Velocity measurements using dye, measured distance between MH, and stopwatch.
- Manipulating flows within the pipe to change the flow characteristics to confirm meter response to changes in depth and velocity. This step will not be practical for pipes over 18 inches and average flows greater than 3/4 full.
- Insert temporary weir to measure flow rates and compare to the meter readings. This step will not be practical pipes over 18 inches or average flows greater than 1/2 full.

Arcadis will write a summary of the field effort. It will be assumed that 20% of the meters will need corrective action. TFE will address these recommendations within 2 weeks, at which point Arcadis will repeat the field effort at any corrected meter sites. These field verifications will inform all subsequent data reviews.

Task 2 – Meter Data QA

Once all meters are field validated, Arcadis will conduct 3 major QA/QC reviews. Each round will be split into two groups of meters for each deadline. Half of the meters will be in Group A and half will be in Group B. All dates listed for the schedule will be for Group A meters. Group B meters will follow the schedule by exactly one week. For the first round of QA/C, we assume the following schedule:

- TFE will deliver meter data from February 1 through March 22 to Arcadis, by March 29.
- Arcadis will review the data and provide QA/QC feedback and corrective measures on all data sets by April 5.
- TFE will make all corrective measures buy April 21.

The second round of data will follow this schedule:

- TFE will deliver meter data from March 26 through May 10 to Arcadis, by May 17.
- Arcadis will review data and provide QA/QC feedback and corrective measures by May 24
- TFE will make all corrective measures by May 31

A third round of data will follow this schedule:

- TFE will deliver meter data from May 11 through July 12 to Arcadis, by July 19.
- Arcadis will review data and provide QA/QC feedback and corrective measures by July 26
- TFE will make all corrective measures by August 2

The Group B meters will follow this schedule by exactly one week up until the last data collection and delivery. The meters will be turned off in late October 2019. The final data will be delivered to Arcadis within 4 weeks of metering termination.

The desktop QA reviews will check that the data being collected are valid and suitable for RDII analysis, model calibrations, and rehab effectiveness evaluations, 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 at thirty five meter locations during 8 months (from February to October 2019) 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 for WSLP Phase 1 Source Reduction Program work.

The Arcadis Data Quality Reviews will 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) (similar to ADS's SliCer program) will be applied to automate much of this quality assurance process. We will work with LCA and TFE to resolve problems with flow meter or rain gauge data. During the flow metering period, all data will be validated to identify questionable flow meter and rain gauge data.

Anticipating that the City of Allentown signatories may also wish to have their portions of the KISS model recalibrated at the same time, we offer as an optional additional service the same review as above to confirm that flow data is valid, true and suitable for modeling, RDII analysis, SSES recommendations, and Phase 1 rehabilitation effectiveness evaluations.

DELIVERABLES AND SCHEDULE

The physical field assessment of meter performance will be completed within 2 weeks of meter group installation. The subsequent quality reviews of data will be conducted within 5 business days of receipt of data from TFE for the first three rounds. Arcadis will deliver the results of the reviews and of the analysis in the form of tables and written recommendations. The schedule for the associated model will be detailed in the Modeling proposal. No written report will be provided with this project.

BUDGET ESTIMATE

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

| Area | Hours | Cost |
|---|--------------|-----------------|
| Task 1 – Meter Installation Performance QA | 360 | \$46,000 |
| Task 2 – Meter Data QA | 340 | \$43,00 |
| Total | 700 | \$89,000 |

We propose to complete these services on a time and materials basis in accordance with the current Summary of Standard Charges for Lehigh County

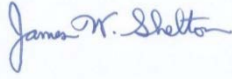
Ms. Pat Mandes
November 30, 2018

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 at 302.723.1450.

Sincerely,

ARCADIS U.S., Inc.

A handwritten signature in blue ink that reads "James W. Shelton". The signature is written in a cursive style and is centered within a light blue rectangular box.

James W. Shelton, PE
Vice President

Copies:

Paul Batman, PE
JP Travis

FINANCE & ADMINISTRATION

ACTION ITEMS

1. 2019 Board Meeting Schedule – December 10, 2018

The proposed Board meeting schedule for 2019 is presented for Board approval so the schedule can be advertised and posted to the Authority’s website.

DISCUSSION ITEMS

1. City Division – Monthly Billing Implementation – December 10, 2018

In May 2018, the LCA Board authorized the implementation of monthly billing in the City Division utilizing the rates included in the Concession Lease Agreement. Staff has completed its implementation planning for this effort, and monthly rates can be implemented in January 2019 to coincide with the annual rate adjustments approved by the Board on November 12, 2018. Should the Board request an alternative implementation schedule, formal action to delay the implementation may be advisable. This item may be required to be discussed in Executive Session.

2. LCA 2020 Action Plan & Update – January 14, 2019

In 2017, LCA staff began development of a three-year action plan on key organizational goals related to financial viability, infrastructure stability, product quality, and employee and leadership development. A review of progress on the 2018 action plan, and updated plans for 2019 and 2020 will be presented at the January 14, 2019 Board meeting.

3. Preliminary 2020-2024 Capital Plan – January 28, 2019

Staff will present the preliminary 2020-2024 Capital Plan, which will follow the revising planning cycle developed in July 2018. The revised planning cycle was intended to allow for more time to review projects and priorities, funding sources and rate impacts of LCA’s plans. Board review, subsequent staff revisions and final review and approval is expected to be completed within the first quarter of 2019.

INFORMATION ITEMS

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

| CERTIFICATES OF DEPOSIT | | | | | | |
|-------------------------|----------------------|---------------|------------|----------|----------|----------|
| 27-Nov-18 | | | Gross | Date of | Date | Net Rate |
| Fund | Bank | Location | Amount | Purchase | Due | % |
| LLRI CR | Discover Bank | Greenwood, DE | 245,000.00 | 11/7/18 | 11/9/20 | 3.00 |
| LLRI CR | JP Morgan Chase Bank | Columbus, OH | 245,000.00 | 11/16/18 | 11/16/20 | 3.05 |

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 – No Change
- Above & Beyond (personal care facility), 2 commercial lots, UMT – No Change
- Fields at Indian Creek, Phase 3, 57 residential units (sfd), UMiIT/Emmaus, water & sewer – No Change
- Kohler Tract, 123 residential lots (sfa), UMiIT, water and sewer – No Change
- Lehigh Hills, Lot 2 Pad Sites, 1 commercial lot with medical office building & restaurant, UMT – No Change
- Lower Macungie Twp. Community Center Expansion, 1 institutional lot, LMT – No Change
- Spring Creek Properties Settlement Subdivision, Lot 1, 1 commercial lot, LMT – No Change
- Trexler Business Center, 1 lot with 6 commercial buildings, LMT – No Change
- Trexler Fields, Phase 1B/8/9, 100 residential lots (sfa), UMT – No Change

Water system plans are being reviewed for the following developments:

- 5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT – No Change
- 5374/5392 Hamilton Blvd., 1 commercial lot, LMT – No Change
- 8615/8783 Congdon Hill Drive, 2 industrial lots with warehouses, LMT
- Cedarbrook Road Industrial Park, 2 industrial lots, LMT – No Change
- Diocesan Pastoral Center, 2 commercial lots, 3 additional lots and residual lot for existing cemetery, LMT – No Change
- Farr Tract, 17 residential lots (sfd), LMT – No Change
- Grant Street Townes, 18 residential lots (sfa), WashT – No Change
- Hickory Park Estates, 3 residential lots (sfd), UMT – No Change
- Hidden Meadows, Phase 1C, 66 townhouses, UMT – No Change
- Hillview Farms, 31 residential lots (sfd), LMT/SWT – No Change
- Indian Creek Industrial Park, 6 commercial lots, UMiIT, water and sewer – No Change
- Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT – No Change
- Madison Village at Penn's View, 66 manufactured homes, 1 lot, LynnT, water and sewer – No Change
- Millbrook Farms, Section VI, 45 residential lots (sfd), LMT – No Change
- Morgan Hills, 40 residential lots (sfd), WeisT, water and sewer – No Change
- Ridings at Parkland, 63 residential units (sfd), NWT – No Change
- Schoeneck Road, Lot 1, 1 lot warehouse, LMT – No Change
- Shepherd's Corner, 1 commercial lot, LMT – No Change
- Stone Hill Meadows, Phase 2, 85 residential units (sfd), LMT – No Change
- Towneplace Suites by Marriott, 91-room hotel, UMT – No Change
- Weilers Road Twins, 82 residential lots (sfa), UMT – No Change
- Woodmere Estates, 60 residential units (sfd), UMT – No Change
- Woodmont Ridge, Phase II, 30 apartment units, UMT – No Change

Sewage Planning Modules Reviewed in Prior Month:

None.

WATER

ACTION ITEMS

DISCUSSION ITEMS

INFORMATION ITEMS

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 construction 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 has completed a majority of the relocation work for LCA's facilities; however, they were pulled off the site due to construction conflicts. It is anticipated at this time the contractor will return by late early spring 2019 to finish all of the LCA line relocation. It is anticipated that this work will be reimbursed 100% by the state and that the construction related activities will be incorporated within the state's work.

2. **Allentown Division – Water Main Replacement Program Cycle 4**

The project is the replacement of 0.97-mile of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with our prioritization protocol. We propose to utilize the 1.1 mile credit of excess water main replacement length accumulated from previous years in order to satisfy the 2.0 miles of annual pipe replacement as outlined in the lease. This Project is required under the Operating Standards in the Concession Agreement and will be funded by the LCA Allentown Division. The reduced-scale project was re-bid following rejection of the bids for the original 2.2 mile project. The project was authorized by the Board on 9/10/18 and will be completed by December 2018. As of October 30, 2018 or contractor Doli Construction corp has begun water main installation and is progressing. Water main construction is to be completed by Dember 3, 2018 with paving completion by late April 2019. **(No Change)**

3. **Allentown Division – Water Filtration Plant: Roof Replacement Phase II**

The project consists of various replacements at the Kline's Island Wastewater Treatment Plant, Water Filtration Plant, and miscellaneous gatehouses and pump stations. Phase I of the project was completed in mid-2016. Phase II of the project was advertised on 3/6/2018 and bids were received on 3/27/2018. Board approval for the construction phase of the project was granted at the 4/23/2018 Meeting. Construction was completed in late August and minor punch list items have been resolved. The project is now 100% complete. This project was funded by the LCA Allentown Division.

4. **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 late 2019. This project will be funded by LCA Allentown Division. **(No Change)**

5. **Allentown Division – Water Filtration Plant: Carbon Dioxide Feed System**

The project consists of the addition of a carbon dioxide feed system at the Allentown Water Plant. With the present conversion from alum to polyaluminum chloride (PACl) as the plant's primary coagulant, proper treatment requires the raw water to be kept within a very small pH range for optimum treatment. The acid feed system will control pH within tight parameters to achieve

treatment goals. A Major Permit Application has been submitted to PaDEP. This project has been delayed several times mostly due to the permitting process, and the goal for Installation and startup is now in the Q4 timeframe. Approval for the construction phase was granted at the October 8, 2018 Board meeting. Construction began on 11/26/2018 and completion is anticipated by late December. This project will be funded by the LCA Allentown Division.

6. **Suburban Division - Water Main Replacement Program Cycle 4**

The project consists of the replacement of approximately 1.36 miles of aged and/or failing Cast Iron water main throughout multiple location in the Suburban Division. The LCA Suburban Division will fund the project. The project bids were opened on July 18, 2018 and project authorization was awarded at the 7/23/18 board meeting. Construction is to be completed in Q4 of 2018. **(No Change)**

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

This next phase of Asset Management upgrade work focuses on mechanical components, along with some HVAC and electrical system improvements at ten locations in the Suburban Division. 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 rating. Also as part of the design phase of this project was the condition assessment of seven (7) hydropneumatic tanks that were placed into service in the 1970s and are reaching the end of their service lives. Design phase was authorized in April 2018, the project was advertised for bid in September 2018, bids were opened on October 11, 2018, and award of bids was authorized at the October 22, 2018 Board meeting. Construction will be finished by Summer 2019.

8. **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. Design of the pump station is under way. The Public Water Supply (PWS) permit has been issued by DEP. One property owner has granted us a water line easement. We are investigating an alternate site for the pumping station. **(No Change)**

9. **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 28th and construction should be completed by late Spring 2019. **(No Change)**

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

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. Design phase was authorized at the August 28, 2017 Board meeting. The Public Water Supply Permit was submitted to DEP at the end of July 2018 and completion of design is held up pending incorporation of DEP permit application review comments. Bid phase is expected to occur in early 2019. **(No Change)**

11. 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 Al Guisepppe (SSM, Inc.) in 2017. Flow monitoring in 2018 will focus on the Little Lehigh Creek only. In 2019, LCA will develop plans to add new monitoring wells to supplement existing groundwater data that is being collected. Total daily flow recordings at Schantz Spring that will need to include the spring field bypass and the tank overflows as well. SSM will assist LCA in calibrating surface flows under the bridges based on the recorded stream elevations. Authorization for the award of the project was approved at the 3/26/2018 Board meeting. LCA and Fybr are currently gaining PennDOT and PPL approvals that will allow us to mount our equipment on their bridges and poles, which has turned out to be a very slow process. **(No change)**

12. Suburban Division – Water Meter Replacement Project

The project consists of the replacement of approximately 2000 residential meters and 430 commercial meters as well as replacing “non-read” meters with new transceiver units. Residential meters which are 20 years and older and commercial meters 15 years and older will be replaced. All meters will be upgraded to the most current radio read capability. The project was approved at the September 25, 2017 Board meeting. The Notice to Proceed was issued in November. Replacement of meters began the second week of January 2018 and the project is substantially complete. The contractor installed additional transceiver units on “non-read” meters as part of an approved change order. **(No Change)**

13. 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 Madison Park North system has only one well, and an additional well is planned to be developed and constructed. The Clear View Farms and Mill Creek systems have one operating well each, but have at least one other existing well that has water supply or quality issues and cannot be presently utilized. 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 exploratory well will be drilled by the end of 2018, which will provide adequate data to determine the feasibility for constructing a permanent well on the site. **(No Change)**

WASTEWATER

ACTION ITEMS

1. **Sanitary Sewer System Flow Metering for WLI – December 10, 2018**

A recommendation to approve a Professional Services Authorization to TFE Resources will be presented to the Board. Flow monitoring of the WLI and Partner systems is planned for January through October 2019. The data will be utilized for recalibration of the model and to evaluate the effectiveness of the source removal work completed to date. This is the first comprehensive flow metering project since the 2009 project. In 2014 bids were solicited for a five year flow metering contract and the contract was awarded to TFE Resources.

A Professional Services Authorization for Arcadis will also be presented. The authorization is for quality control of the flow meter data collected by TFE Resources, rain derived inflow and infiltration analysis of storm events, comparison of data to the 2009 collected data, and rehab effectiveness analysis of mainline lining work previously conducted.

DISCUSSION ITEMS

1. **Heidelberg Heights and Lynn Township Sewer System Updates – January Date TBD**

Excessive inflow and infiltration (I&I) and high wet-weather flows into the Heidelberg Heights and Lynn Township sewer systems have been ongoing and increasingly challenging to address. As noted in LCA's monthly operations report, treatment plant bypasses and sanitary sewer overflows have occurred more frequently in these systems and must be addressed. Staff has been working to develop corrective action plans (CAPs) that include structural and non-structural initiatives and involve coordination with the host municipality. The framework for the CAPs will be shared with the Board in January.

2. **Allentown Division Wastewater Master Plan – January/February Date TBD**

The Kline's Island Wastewater Treatment Plant Master Plan will be completed in early January 2019. Tim Bradley, P.E., will then be making a presentation at a board meeting where the results and conclusions of the Master Plan are to be shared.

INFORMATION ITEMS

1. **Allentown Division – Kline's Island WWTP: Miscellaneous Clarifier Improvements**

In December 2016, the drive unit on Final Clarifier #5 at Kline's Island WWTP experienced a complete failure. The drive was the original unit that was installed during construction of the clarifier in 1968. An emergency declaration was declared to reduce the installation time by several weeks. A request for a retroactive emergency declaration was requested and approved at the January 9, 2017 Board meeting. The drive was installed in April 2017 and is now fully operational. The remaining mechanisms of Final Clarifier #5, and the drive unit and similar mechanisms of Final Clarifier #6 have also reached the end of their useful life and will be replaced in early 2018. Construction approval was granted at the August 28, 2017 Board meeting. Construction was completed at the end of August 2018 and minor punch list items will be resolved in December. This capital project was funded by the LCA Allentown Division.

2. **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 has now directed to “pause” the design phase of the project as the EPA is scheduled to provide further AO direction. **(No Change)**

3. **Allentown Division – Kline’s Island WWTP Master Plan**

This project involves the development of a Master Plan that is required as part of the lease with the City of Allentown. The Master Plan is similar in scope to what was done previously for the Allentown Water System in 2017, and will include Condition Assessments, Process Optimizations, and both short-term and long-term Capital Improvement Plans. The city lease requirements dictate that the Master Plans must be updated every 5 years for the duration of the lease, and 2018 is the first year that a Master Plan is to be prepared for the wastewater system. A Request for Proposal (RFP) was released to five (5) qualified firms on 12/15/2017 and the proposal due date was 1/26/2018. Authorization for the award of the contract was approved at the 3/12/2018 Board meeting. A kickoff meeting was held on May 24, 2018. Data collection and site assessments have been completed. Condition Assessment, Process Optimization and Capital Plan Workshops have been conducted. The Capital Plans are to be completed by the end of December. This project will be funded by LCA Allentown Division.

4. **Allentown Division – Kline’s Island WWTP: Primary No. 2 Digester Miscellaneous Improvements**

This project includes miscellaneous improvements (additional scumbuster and control panel, minor pipe replacement, etc.) for the Primary No. 2 Digester at the wastewater treatment plant. The project was advertised in late April 2018 and bids were received on May 24, 2018. Construction approval granted at the June 11, 2018 Board Meeting. Construction began in early August and was completed at the end of September. Minor punch list items will be completed in early December. This capital project was funded by the LCA Allentown Division.

5. **Allentown Division – Kline’s Island WWTP: Electrical Substation Replacement**

This project involves the replacement of the existing Substation No. 2. The equipment was installed in 1977 and has reached the end of its useful life. The City has reviewed this and has approved this project as a Major Capital Project. Approval of the design engineer was granted at the May 8, 2017 Board Meeting. The project was advertised in early May 2018 and bids were due on June 8, 2018. Approval of the construction contract (Base Bid) was granted at the July 9, 2018 Board Meeting. The construction phase of the project began in August of 2018 and will be completed by October 2019. This Major Capital Project will be funded by the LCA Allentown Division. **(No Change)**

6. **Suburban Division – Test & Seal Project, Western Lehigh Interceptor Service Area**

Project consists of sanitary sewer cleaning, inspections via CCTV, cured-in-place point repairs, pressure testing and chemical grout sealing of joints, and post construction inspection for sanitary sewer lines located in western and central Lehigh County previously identified as areas subject to leakage. This project is part of the SCARP program. Construction began in August 2016 and finished by Summer 2017. Additional scope work under existing contract has been performed and is anticipated to be closed out by end of 2018 **(No Change)**.

7. **Suburban Division – Spring Creek Pump Station**

This project involves the following upgrades to the existing pumping station: Install a comminutor to reduce buildup of debris on the bar screens, replace the manually operated weir gates with new motorized weir gates, and upgrades to the SCADA system. Design of the project is complete. The Notice to Proceed was issued on December 12, 2017. The project is currently under construction. High flows to the pump station due to wet weather events have continued to delay work on the project so completion is expected to be pushed back to the end of 2018.

8. **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. LCA and Arcadis are currently waiting for a dry weather period in late 2018 to conduct test trials at the PTP for reducing flow to the Park Pump Station via utilization of the pretreatment plant flow equalization basin (hold back flow) in order to determine the acceptable duration for a temporary shut-down of the station in order to perform the force main inspection. **(No Change)**

9. **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 Summer 2019. **(No Change)**

10. **Suburban Division – Heidelberg Heights Wastewater Treatment Plant Improvements**

As part of an asset management approach to maintaining the level of service and mitigating risk of failure at the Heidelberg Heights Wastewater Treatment Plant, a condition assessment evaluation is being performed for the Equalization/Sludge Holding tank. The steel tank is part of the original plant, installed in the mid-1970s, and is compartmentalized to serve as both a raw sewage equalization tank (for sequenced pumping to the newer SBR tanks), and for storing liquid sludge (for pump and haul removal). The exposed portions of this tank display areas of corrosion, and the tank was drained and cleaned and a thorough assessment was performed to determine structural integrity and remaining service life, and a study provided to LCA. Design phase services will be completed in early 2019 for structural improvements to the tank per the study recommendations. **(No Change)**

11. **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 will proceed in 2019 and finish in early 2020. **(No Change)**

12. Suburban Division – Sand Spring WWTP Upgrade Project

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 should be concluded by late 2018; progress has been delayed due to DEP permitting issues. Following DEP approval of the Water Quality Management Permit (expected in Q4 this year), the project will proceed to bid phase in early 2019. **(No Change)**

13. Suburban Division – SCARP

EPA is considering terminating the Administrative Order after submission and approval of a regional flow management strategy (RFMS) inclusive of all EPA AO respondents. EPA has indicated that the following critical elements should be included in the program: collection system operation and maintenance plan, system characterization, source removal, flow modeling, and flow targets. Should this action take place, then the Pa. Department of Environmental Protection would resume its enforcement oversight of the program through the Chapter 94 regulations.

The submission for all City Signatories was sent to EPA for the August 1st deadline. The submission included the RFMS inclusive of all Signatories, individual Operation & Maintenance plans, and individual Source Reduction Plans.

Peak flow reports were present to all City Signatories so there is an understanding of what system conditions caused the various bypasses and overflows in August during the wet weather events. Peak flow reporting was initiated for the City signatories for 8 storms between May and mid-September that generated flows at the WWTP in excess of 60 mgd. **(No Change)**