



LEHIGH COUNTY AUTHORITY

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BOARD MEETING AGENDA – December 14, 2020 – 12:00 p.m.

Notice of COVID-19 Pandemic Meeting Format: Effective March 23, 2020 and until further notice, meetings of the LCA Board of Directors will be held virtually using the Zoom Meetings application, to avoid risk of infection during the national COVID-19 pandemic emergency. Public participation is welcomed via Zoom, and instructions for joining the meeting online or by phone are posted on the LCA website in the morning on the day of the meeting, prior to the start of each meeting. You may also issue comment to LCA via email to LCABoard@lehighcountyauthority.org in advance of any meeting, or view the meeting at a later time by visiting the LCA website. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting.

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 9, 2020 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *Resolution 12-2020-1 – Customer Facility Fees; Connection Fees; and Suburban Wastewater Tapping Fees (Approval) (blue)*
- *2021 Board Meeting Schedule (Approval) (salmon)*

WATER

WASTEWATER

- *Suburban Division – Western Lehigh Service Area: Cost Revenue Benefit Tool – Phase 2 (Approval) (grey)*

6. Monthly Project Updates / Information Items (1st Board meeting per month) – **December 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		
January 11, 2021	January 25, 2021	February 8, 2021

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 9, 2020

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:02 p.m. on Monday, November 9, 2020, Chairman Brian Nagle presiding. The meeting was held via video and audio advanced communication technology ("ACT"), using the Zoom internet application, due to the COVID-19 pandemic emergency. Each Board member and other attendees of the meeting were able to hear each other attendee and be heard by each other attendee. The public could also participate in the meeting via ACT, using the Zoom internet application. A Roll Call of Board members present was taken. Chairman Brian Nagle, Scott Bieber, Richard Bohner, Norma Cusick, Ted Lyons, Linda Rosenfeld, Jeff Morgan, and Amir Famili were present for the duration of the meeting.

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

REVIEW OF AGENDA

Liesel Gross stated there are no changes to the agenda as presented. There are no topics for Executive Session.

Chairman Nagle announced that the Board received their packets prior to the meeting.

APPROVAL OF MINUTES

October 26, 2020 Meeting Minutes

On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the minutes of the October 26, 2020 Board meeting as presented (7-0). Linda Rosenfeld abstained.

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

2021 Water & Wastewater Rate Schedule

Liesel Gross described the proposed rate changes and reviewed the proposed 2021 water and wastewater rate schedules. Throughout the 2021 Budget process, LCA staff presented information about the cost drivers for the increasing rates across all areas of the organization. She noted that the City Division water and sewer rates calculated are in accordance with the amended lease agreement as approved this summer, and the City administration had previously reviewed the proposed rate schedule. The Suburban Division water rates are increasing by an average of 10.5 percent, driven by increased water purchase costs, expanded preventive maintenance and technology costs, and capital improvements. The proposed Suburban Division water rate changes were calculated in accordance with the methodologies used in the water rate study conducted by Keystone Alliance Consulting in 2018. The Western Lehigh Interceptor user charge rates have been presented to the municipal signatories and are now incorporated into the proposed rate schedule as well. Ms. Gross noted that despite the rate increases presented, the Authority's 2021 rates will continue to be among the lowest in the region.

Amir Famili asked how the Authority will communicate with customers regarding the rate increases. Ms. Gross explained that the Authority has a well-established process for communicating rate changes. The process started in October with communication to municipalities and large industrial customers. The Authority has developed a stakeholder listing, which is broken into various categories for communication on specific rate changes of interest to those stakeholders. For example, the townships are notified about rates with an explanation of what their citizens will be paying for water service. Municipalities that receive either bulk water or regional sewer service from the Authority receive rates that apply to their service area in October as well so they can be incorporated into their municipal budgets. The Authority's website is used to announce proposed rate changes to the general public prior to adoption. Thereafter, if the Board adopts the rates, all customers will have an additional 60 days to provide feedback to the Board prior to the rates being implemented on January 1, 2021. The newsletter included in the first quarter water and sewer bills to Authority customers will contain an explanation of the updated rates.

Linda Rosenfeld made a motion, seconded by Richard Bohner, to approve the 2021 Water & Sewer Rate Schedules as presented (8-0).

Scott Bieber questioned if the Suburban Division water rates are adequate to provide reserves needed for long-term capital planning so that the Authority does not have to borrow money for projects. Liesel Gross explained that the 2021 rates cover the capital requirements for 2021 as well as the increased operation costs. She added that the Authority's five-year capital plan calls for rates to increase by 6 to 7 percent annually over the next several years to continue to build capital reserve and reduce future reliance on borrowing for capital improvements.

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

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

Customer Assistance Program

Liesel Gross provided a presentation regarding the collections program performance during the COVID-19 pandemic. Currently, all late fees and service terminations for non-payment have been suspended. In November, delinquent notices were modified to inform customers that the Authority will again be applying late fees starting on January 1, 2021. During the six-month period of March to September 2020, the Authority lost approximately \$417,000.00 in penalty revenue which is unrecoverable. In addition, due to customers not paying their water or sewer bills and the suspension of service terminations, past-due bills have increased by more than \$700,000. She noted that this is expected to increase by approximately \$200,000 per month if no action is taken.

Richard Bohner asked if the Authority distinguishes between a customer being an owner, a landlord or a tenant. Ms. Gross explained that the Authority does keep landlord and tenant information in cases where the tenant receives the water bill directly from the Authority. She noted that many of the apartment complexes in Allentown are actually billed based on a master account, so that individual rental units are not bill separately. The water bill is issued to the property manager in those cases.

Ms. Gross reviewed information about other water utilities' collections programs, and noted the Pennsylvania Public Utility Commission issued a ruling in October allowing regulated utilities to resume service terminations in November. She noted that some larger water utilities are also developing customer assistance programs similar to what the Authority is considering. Ms. Gross noted that the CARES Act funding has been very limited in terms of providing assistance for utility customers.

Ms. Gross reviewed the staff's recommended approach to address the need for increased collections activity while also supporting customers who have been hurt economically by the pandemic. First, the Authority must reinstate its collection procedures, including late fees and service terminations, and develop a safe way to re-open the office to allow customers to walk in to make cash payments. In addition, staff is recommending the establishment of a Customer Relief Fund to provide grants to low-income customers to help them pay down their water and sewer balances. The Customer Relief Fund would utilize a one-time block of funding of \$500,000.00 available from proceeds from the 2020 Lease Bond refinancing. A third-party administrator would be selected to assist LCA with establishing program parameters, accept and evaluate customer applications, handle customer information securely and confidentially, disburse funds back to LCA for eligible customers, and support future fundraising efforts. The Authority should expect to pay approximately \$25 in processing fees for each customer grant processed. Options regarding a third-party administrator were reviewed.

Richard Bohner commented that he feels the Authority should not finance the fund directly, as it will increase costs for customers in good standing. The fund should be established as a charity as most such programs are funded this way. Ms. Gross noted that in the future, if the program is extended beyond the initial block of funding, a charitable giving mechanism would be developed to support the program. However, due to the pandemic and the special needs of the community, along with the availability of funding from the bond refinancing proceeds, the Authority is in position to start the program and have no impact on customer rates.

Jeff Morgan asked if it was requirement to stop charging late fees. Liesel Gross said it was voluntary, but was the standard practice for most utilities in Pennsylvania.

Ms. Gross explained the final recommendation, which is for the Authority to establish payment plan options to provide additional support to customers who either do not qualify for the grants through the Customer Relief Program or who are facing a threat of service termination. The payment plans would be administered by the Authority staff.

Ms. Gross reviewed the proposed next steps including Board approval for the Customer Relief Fund.

There was some Board discussion regarding the funding of the program.

Ms. Gross noted that the \$500,000 available for the Customer Relief Fund is due to the near-historic low interest rates that existed at the time of the 2020 Concession Lease bond refinancing. Those low interest rates, while beneficial to the Authority, were a consequence of the economic impacts of the pandemic. She stated her opinion that in a time when some of the Authority's customers are struggling due to the pandemic, the use of these funds to help the community would be an important and meaningful program for the Authority to offer.

Jennifer McKenna, City of Allentown Office of Compliance, commented that this program is being looked at by the City positively as a way to support the community during the pandemic. She stated that using a third-party administrator has a lot of value in assisting with these types of programs

where citizens are reaching out for help. Ms. McKenna also noted that the program should not be a complete erasure of the bills, but should provide assistance to help customers pay the bills.

Staff Succession Planning Review

Liesel Gross gave a presentation of the Authority's knowledge management and succession planning programs. She reviewed the history of the Authority's program noting how the methods used have changed based on the size of the organization and availability of technology. Succession planning has been a difficult challenge due to a variety of factors including pay compression, the number of unique or hybrid positions in the organization, and some of the Authority's complex legacy processes that are difficult to learn. A retirement risk assessment is completed every other year to identify critical risks to the organization. When the priorities are identified, position-specific succession plans are developed to address the needs of the department and the organization.

Jeff Morgan asked about the cross training that occurs between the water and wastewater plants and if treatment plant operators are licensed to operate both plants. John Parsons explained that most plant operators have both water and wastewater licenses and they work a rotating schedule between both plants to maintain their cross training. There are several treatment plant operators that are eligible for retirement, which is a concern for the Authority.

Chairman Nagle commented that another area to be looked at is management training, strategic planning and strategic thinking, to build up the leadership team's capacity in these areas. Amir Famili agreed and commented that the Authority should assess the organization structure to determine the correct makeup of the leadership team.

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross noted that there are no items for the November 23rd meeting. Unless something new comes up, the meeting will be canceled. Chairman Nagle asked if the SCADA system replacement cut-over had been completed on November 2nd as noted in the report. Chris Moughan stated the cut-over is in process now and will be completed later this week. The Chairman also asked about the Upper Milford–Central Lehigh Division Interconnection project completeness. Chuck Volk noted it will be completed tomorrow, November 10th. Scott Bieber asked when we will receive a report regarding the modeling for the Trexlertown wastewater storage facility. Phil DePoe responded that Arcadis is still working on the hydraulic modeling for this project, which has proven to be more complex than anticipated, so the results will be delayed a few months.

STAFF COMMENTS

Liesel Gross reported that an Authority employee had contracted COVID-19 and was recuperating at home. All employees who had contact with the employee had been sent home to self-quarantine for 14 days.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

EXECUTIVE SESSION

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 1:55 p.m.

Richard Bohner
Secretary

RESOLUTION No. 12-2020-1

(Duly adopted 14 December 2020)

A RESOLUTION ESTABLISHING THE VARIOUS COMPONENTS OF THE LEHIGH COUNTY AUTHORITY CAPITAL RECOVERY FEES FOR THE CITY DIVISION WATER SYSTEM CONNECTION FEE; THE CUSTOMER FACILITIES FEES FOR THE CITY DIVISION WATER SYSTEM AND THE SUBURBAN DIVISION WATER AND WASTEWATER SYSTEMS; AND THE CAPITAL RECOVERY FEES FOR THE VARIOUS SUBURBAN DIVISION WASTEWATER SYSTEMS.

WHEREAS, Lehigh County Authority ("Authority") is a Pennsylvania municipal authority incorporated by the County of Lehigh in accordance with the Municipality Authorities Act to provide, among other services, wastewater and water services; and

WHEREAS, the Authority owns and/or operates water and wastewater systems throughout the Lehigh Valley of Pennsylvania, which systems are divided between its City of Allentown and Suburban Divisions; and

WHEREAS, the Authority charges certain rates and fees for use of and connection to its systems; and

WHEREAS, the Authority desires to establish its fees in accordance with §5607 of the Municipality Authorities Act, as amended by legislative action in December 2003, setting forth the appropriate fee components; and

WHEREAS, the Authority has calculated the allowable basis for such fees for certain of its wastewater and water systems in accordance with the attached calculations and its summary of the Capital Recovery Fees for the City Division Water System Connection Fee, the Customer Facilities Fees for the City Division Water System and the Suburban Division Water and Wastewater Systems (as Attachment A) and the Suburban Division Wastewater Systems Capital Recovery Fees (as Attachment B), the current version of which, as well as any future changes thereto, is made a part hereof as if included herein; and

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

1. The capital recovery fees for wastewater and water service in various of the Authority's wastewater and water systems as indicated and shown on Attachment A, *LCA Customer Facilities Fees and Connection Fees, Allentown and Suburban Divisions - Water and Wastewater* and Attachment B, *Lehigh County Authority Sewer System Tapping Fee Calculations for Suburban Division, December 2020*, attached hereto and made a part hereof, are adopted effective 1 January 2021.

2. The Authority's Schedules of Rates and Charges shall be amended to reflect the fees hereby adopted, which fees shall be effective as of 1 January 2021.

ATTACHMENT A
LCA CUSTOMER FACILITIES FEES AND CONNECTION FEES
ALLENTOWN AND SUBURBAN DIVISIONS - WATER AND WASTEWATER

Suburban Division - Water System - Customer Facilities Fees

Meter Component - With DC Backflow

<u>Meter Size</u>	<u>2021 Supply Cost</u>	<u>2021 Labor Cost</u>	<u>2021 Rate</u>
5/8"	\$314	\$122	\$436
5/8" Pit	\$379	\$122	\$501
3/4"	\$333	\$122	\$455
3/4" Pit	\$389	\$122	\$511

Meter Component - With No Backflow

<u>Meter Size</u>	<u>2021 Supply Cost</u>	<u>2021 Labor Cost</u>	<u>2021 Rate</u>
5/8"	\$280	\$122	\$402
5/8" Pit	\$345	\$122	\$467
3/4"	\$299	\$122	\$421
3/4" Pit	\$355	\$122	\$477
1"	\$377	\$122	\$499
1" Pit	\$402	\$122	\$524
1 1/2" Displacement	\$670	\$50	\$720
1 1/2" Turbine	\$943	\$50	\$993
1 1/2" Compound	\$1,299	\$50	\$1,349
2" Displacement	\$885	\$50	\$935
2" Turbine	\$1,099	\$50	\$1,149
2" Compound	\$1,486	\$50	\$1,536

Suburban Division - Wastewater System - Customer Facilities Fees

Meter Purchase Only (Plumber Install)

<u>Meter Size</u>	<u>2021 Supply Cost</u>	<u>2021 Inspection Fee</u>	<u>2021 Rate</u>
5/8"	\$280	\$50	\$330
5/8" Pit	\$345	\$50	\$395
3/4"	\$299	\$50	\$349
3/4" Pit	\$355	\$50	\$405
1"	\$377	\$50	\$427
1" Pit	\$402	\$50	\$452
1 1/2" Displacement	\$670	\$50	\$720
1 1/2" Turbine	\$943	\$50	\$993
1 1/2" Compound	\$1,299	\$50	\$1,349
2" Displacement	\$885	\$50	\$935
2" Turbine	\$1,099	\$50	\$1,149
2" Compound	\$1,486	\$50	\$1,536

Allentown Division - Water System - Customer Facilities Fees

<u>Meter Size</u>	<u>2021 Meter Price</u>	<u>Components</u>	<u>2021 Labor Cost</u>	<u>2021 Rate</u>
5/8"	\$86	\$120	\$119	\$325
3/4"	\$147	\$120	\$119	\$386
1"	\$136	\$119	\$119	\$373
1 1/2"	\$292	\$236	\$119	\$647
2"	\$380	\$314	\$119	\$814
3" Compound	\$1,526	\$186	\$50	\$1,659
3" Turbine	\$1,053	\$186	\$50	\$1,289
4" Compound	\$2,650	\$213	\$50	\$2,913
4" Turbine	\$2,051	\$213	\$50	\$2,313
6" Compound	\$4,577	\$270	\$50	\$4,897
6" Turbine	\$3,692	\$270	\$50	\$4,012
8" Compound	\$7,394	\$375	\$50	\$7,818
8" Turbine	\$6,266	\$375	\$50	\$6,690

<u>Other Components</u>	<u>2021 Price</u>
5/8" Meter Horn	\$47.10
3/4" Meter Horn	\$55.13
Curb Box - Metal	\$65.00

Allentown Division - Water System - Water Connection Fees

Water Taps 3/4 inch - 2 inch

	<u>Corporation</u>	<u>Tail Piece</u>	<u>Saddle Clamp</u>	<u>Employee Wages</u>	<u>Equipment</u>	<u>2021 Rate</u>
Size 3/4 "	\$49	\$30	\$0	\$301	\$69	\$448
Size 1 "	\$61	\$39	\$0	\$301	\$69	\$470
Size 1 1/2"	\$148	\$87	\$82	\$301	\$69	\$686
Size 2 "	\$244	\$138	\$90	\$301	\$69	\$841

Water Sleeve and Valve Connectors

	<u>Valve</u>	<u>Casing</u>	<u>Tapping Fitting</u>	<u>Employee Wages</u>	<u>Equipment</u>	<u>2021 Rate</u>
Size 4"x 4"	\$505	\$129	\$464	\$869	\$232	\$2,200
Size 6"x 4"	\$505	\$129	\$497	\$869	\$232	\$2,232
Size 6" x 6"	\$663	\$129	\$546	\$869	\$232	\$2,439
Size 8"x 4"	\$505	\$129	\$510	\$869	\$232	\$2,246
Size 8"x 6"	\$663	\$129	\$548	\$869	\$232	\$2,441
Size 8"x 8"	\$995	\$129	\$668	\$869	\$232	\$2,893
Size 12"x 4"	\$505	\$129	\$635	\$869	\$232	\$2,371
Size 12"x 6"	\$663	\$129	\$682	\$869	\$232	\$2,576
Size 12"x 8"	\$995	\$129	\$808	\$869	\$232	\$3,033
Size 12"x 12"	\$1,964	\$129	\$1,452	\$869	\$232	\$4,647

ATTACHMENT B



LEHIGH COUNTY AUTHORITY SEWER SYSTEM TAPPING FEE CALCULATIONS FOR SUBURBAN WASTEWATER DIVISION

November 2020

Keystone Alliance Consulting, Inc.



**LEHIGH COUNTY AUTHORITY – SUBURBAN WASTEWATER DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

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EXHIBITS

Table 1 – Fee Schedule / Summary

Exhibit A – Interceptor System (Western Lehigh Interceptor Capacity) - Calculation of Sewer Tapping Fee

Exhibit B – Interceptor System (Western Lehigh Interceptor) - Calculation of Sewer Tapping Fee

Exhibit B-1 – Interceptor System (Western Lehigh Interceptor) – Capacity Assets

Exhibit C – Little Lehigh Relief Interceptor - Calculation of Sewer Tapping Fee

Exhibit D1 – Upper Milford Township - Calculation of Sewer Tapping Fee

Exhibit D1-1 – Upper Milford Township – Assets

Exhibit D1-2 – Upper Milford Township – Contributions

Exhibit D2 – Lower Macungie Connection to UMiT Interceptor - Calculation of Sewer Tapping Fee

Exhibit E – Heidelberg Heights System - Calculation of Sewer Tapping Fee

Exhibit F – Wynnewood System - Calculation of Sewer Tapping Fee

Exhibit G – Sand Springs Wastewater System - Calculation of Sewer Tapping Fee

Exhibit H – Western Weisenberg Wastewater System - Calculation of Sewer Tapping Fee

Exhibit I – Western Weisenberg Treatment Plant - Calculation of Sewer Tapping Fee

**LEHIGH COUNTY AUTHORITY – SUBURBAN WASTEWATER DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

**SUMMARY OF FEES CALCULATED FOR
ACT 57 TAPPING FEE STUDY**

On December 19, 1990, the Pennsylvania State Legislature enacted Act 209 of 1990, which amends the Act of July 31, 1968 (P.L. 805, No. 247). One of the provisions of that law requires municipalities that assess tapping or similar water and sewer fees to comply with the requirements of Act 203 of 1990, which amended Section 4 of the Municipalities Authorities Act. Subsequently, on December 30, 2003, the aforesaid Act 203 was amended by Act 57 of 2003 (hereinafter referred to as the “Act”). The intent of the Act was to clarify certain sections of the aforesaid Act 203. As a result, no municipality is permitted to impose any connection fee, customer facilities fee, tapping fee or any similar fee, except as provided specifically under the Act. The various provisions of the Act are effective on or about June 30, 2005 or immediately upon any revision of a municipality’s tapping fee.

Similar to the aforesaid Act 203, the Act provides for the imposition of a tapping fee with three separate components that are designed to allow the Lehigh County Authority (the “Authority”) to recover specific capital costs. With the exception of assessments and to some extent reserve capacity fees, these are the only capital charges that an Authority may impose. Water rents and other charges that are intended to recover operation, maintenance, and debt service costs are unaffected by the Act.

The three components of the Authority’s tapping fee are (1) connection fee; (2) customer facilities fee; and (3) tapping fee. Parenthetically, it should be noted that the term “tapping fee” refers to a one of the three components of the overall fee as well as the overall fee itself. Generally, the connection fee focuses on the cost of the facilities between the sewer and the property line while the customer facilities fee deals with the cost from the property line to the building. The tapping fee component covers the costs associated with the sewer collection lines and capacity related facilities and may, under certain circumstances, include any projected capital improvement costs approved by the Authority. The tapping fee calculation is comprised of four parts – capacity, collection, special purpose and reimbursement. Each part of the tapping fee may not be applicable to every municipality. In the case of the Lehigh County Authority’s tapping fees for the Suburban Wastewater Division, the calculations are broken down by service area and the only pertinent parts are capacity and/or collection. The situations surrounding the imposition of the special purpose and/or reimbursement portions of the tapping fee are not applicable to the Authority at this point in time but may be imposed at a later date, if warranted.

The amounts shown in Table 1 reflect the tapping fees calculated for the Authority in accordance with Act 57 of 2003 and Act 209 of 1990. The Authority is justified in charging these figures or any lesser amount.

**LEHIGH COUNTY AUTHORITY – SUBURBAN WASTEWATER DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS****SCHEDULE A****CONNECTION FEE COMPONENT**

The connection fee recovers the cost of the installation of the service line from the Authority's sewer to the property line or curb stop of the dwelling or building being connected. When the Authority does incur costs associated with the installation of these facilities, the fee may be calculated using either: (1) the actual costs of the particular installation; or (2) the average cost of similar installations or (3) the current/trended value of the average cost. The Authority may require this cost to be borne by the property owner. Costs associated with the connection fee may include materials, rental equipment, labor, inspection, engineering, legal and administration.

The Authority may also require, at its discretion, that an Escrow Account be established to cover any expenditure that the Authority may incur associated with making the connection. The amount of any Escrow can be based upon an estimate of actual costs or based upon a flat fee. In lieu of payment of a connection fee, the Authority may require the construction and dedication of these facilities by the property owner.

The Authority has selected to charge the average cost of similar installation to all customers. The costs of these connections have been calculated by the Authority staff and are shown in the fee schedule.

**LEHIGH COUNTY AUTHORITY – SUBURBAN WASTEWATER DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

SCHEDULE B

CUSTOMER FACILITY FEE COMPONENT

This fee covers the cost of the facilities from the property line or curb stop to the proposed dwelling or building being connected to the Authority's sewer system.

The developer is responsible for the installation and cost of the service line beyond the curb stop. In the event that the service involves a single property, the installation and cost will be the responsibility of the property owner. However, whether the developer or the property owner installs the service line, the installation of the water meter is the responsibility of the Authority. The cost of the water meter and its installation is borne by the developer or the property owner and is paid to the Authority.

The Authority may be required to provide inspection to insure that the facilities have been installed properly and in conformance with its regulations. Any costs attendant to inspection will be passed onto the property owner.

The Authority has selected to charge the average cost of similar installation to all customers. The costs of these connections have been calculated by the Authority staff and are shown in the fee schedule.

**LEHIGH COUNTY AUTHORITY – SUBURBAN WASTEWATER DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS****SCHEDULE C****TAPPING FEE COMPONENT**

The tapping fee is charged to allow the Authority to recover capital costs associated with the original construction and any additions or improvements to the Authority's sewer system as long as these facilities are still used on a regular basis. Facilities funded by others, such as a developer, and dedicated to the Authority are considered contributed capital and therefore not included in the computation of this fee.

All property owners or developers connecting to the Authority's sewer system are subject to a tapping fee, which may consist of up to four parts, which are calculated separately. The capacity part includes costs for the construction of those facilities that are related to the system's capacity, such as, interceptors, pumping stations, and the treatment plant. The collection part covers costs for the installation of collection mains. The remainder of the tapping fee includes the special purpose and the reimbursement parts. These are not applicable to the Lehigh County systems. Accordingly the tapping fee will focus on the capacity and collection parts only.

The Act provides for the determination of the capital costs of the system based on either:

- Original or historical costs of the system plus any capital improvement projects as well as the interest paid to date on any indebtedness associated with the system or
- Original costs trended to current dollars plus any capital improvement projects less any remaining indebtedness (principal only) associated with the system

The net capital costs (either original or trended) are divided by the capacity amount, resulting in the tapping fee per gallon. For Lehigh County sewer systems, the capacity is generally determined by the permitted capacity of the system or component in question. The resultant is the tapping fee per gallon.

The tapping fee calculation under the original cost and the trended original cost methodologies are presented for each component or system. The tapping fee per is disaggregated between the capacity and collection part of the sewer system where applicable. However, in some cases, such as interceptors there is no collection part. In some cases the asset details are shown on a separate exhibit if necessary.

Some of the capital costs incurred by the Authority have been funded by state and federal grants. These costs are, for the purposes of this calculation, considered to be contributed and therefore subtracted from the total capital costs incurred by the

Authority. If necessary, the contribution details are shown on a separate exhibit in some cases.

Debt is either added or subtracted in some aspect from the calculation depending on the methodology. The interest paid on the loans is added to the original cost base while the outstanding principal on the loans is subtracted from the trended original cost base.

The Authority is permitted under the Act to choose the methodology that produces the highest tapping fee, which in the case of all the calculations contained in this report is the trended original cost approach.

The Act references two other aspects to the tapping fee component, specifically the Special Purpose Part and the Reimbursement Part. These are not currently applicable to the Authority's tapping fees. However, if the situation arises, then either or both could be addressed and incorporated into the calculations.

The Special Purpose Part is only applicable to a particular group of customers. The Special Purpose Part is designed to recover the Authority's cost for facilities that service a special purpose or specific area, such as a pump station and transmission main. Fees would be separately calculated for each applicable group and applied to new users as appropriate. The same calculation methodology used for the capacity part and the collection part would apply. At this time, the Authority has not designated any special purpose part.

Where appropriate, a reimbursement component may be included in the tapping fee charged for new connections to facilities constructed by others for which a reimbursement is due to the person/developer constructing the facilities. Generally, this reimbursement will be defined in a written reimbursement agreement between the Authority and the person constructing the facilities. Typically such agreements reimburse the cost of the excess capacity available for use by future connections. At this time the Authority has no agreement(s) with any developer(s) which would require the calculation of a reimbursement part.

Table 1
LEHIGH COUNTY AUTHORITY
SUMMARY OF WASTEWATER FUND CAPITAL RECOVERY FEES
Updated November 2020

		Per Gallon			Per EDU			(1)	(2)	
		Existing Charge	Maximum Charge	New Charge	Existing Charge	Maximum Charge	New Charge	Gallons	Change	
Exhibit	Charge	1/1/2019			1/1/2019			per EDU	%	Costing Method
Interceptor System:										
A	Western Lehigh Interceptor Capacity	\$6.32	\$6.43	\$6.43	\$1,409.42	\$1,432.90	\$1,432.90	223.0	1.67%	Historical Trended Cost
B	Western Lehigh Interceptor	4.10	4.22	4.22	915.09	941.40	941.40	223.0	2.88%	Historical Trended Cost
C	Little Lehigh Relief Interceptor	1.17	1.59	1.59	259.90	355.25	355.25	223.0	36.69%	Historical Trended Cost
Total Western Lehigh Service Area		11.59	12.24	12.24	2,584.41	2,729.55	2,729.55			
Upper Milford System										
D1	Capacity	\$5.56	\$5.70	\$5.70	\$1,307.03	\$1,338.81	\$1,338.81	234.9	2.43%	Historical Trended Cost
D1	Collection	8.49	8.92	8.92	1,994.49	2,094.55	2,094.55	234.9	5.02%	Historical Trended Cost
D1	Planning Costs Capacity	0.60	0.61	0.61	139.90	142.24	142.24	234.9	1.67%	Historical Trended Cost
Lower Macungie										
D2	Capacity	\$2.65	\$2.69	\$2.69	\$632.06	\$642.59	\$642.59	238.5	1.67%	Historical Trended Cost
	MFR Charge	1.59	1.62	1.62	379.24	385.55	385.55		1.67%	
Heidelberg Heights Wastewater System										
E	Capacity	\$25.33	\$29.02	\$29.02	\$6,110.32	\$7,000.44	\$7,000.44	241.2	14.57%	Historical Trended Cost
E	Collection	3.69	3.75	3.75	889.37	904.18	904.18	241.2	1.67%	Historical Trended Cost
Wynnewood Terrace Wastewater System										
F	Capacity	\$13.48	\$56.26	\$56.26	\$3,251.76	\$13,569.29	\$13,569.29	241.2	317.29%	Historical Trended Cost
F	Collection	13.63	14.68	14.68	3,287.65	3,539.82	3,539.82	241.2	7.67%	Historical Trended Cost
Sand Springs Wastewater System										
G	Capacity	\$9.78	\$14.63	\$14.63	\$2,358.58	\$3,529.58	\$3,529.58	241.2	49.65%	Historical Trended Cost
	MFR Charge	6.36	9.51	9.51	1,533.08	2,294.22	2,294.22		49.65%	
G	Collection	3.64	3.70	3.70	878.38	893.01	893.01	241.2	1.67%	Historical Trended Cost
	MFR Charge	2.37	2.41	2.41	570.95	580.46	580.46		1.67%	
Western Weisenberg System										
H	LCA Land Fee	4.59	4.82	4.82	1,204.22	\$1,264.43	1,264.43	262.5	5.00%	Historical Trended Cost
H	LCA Collection Fee	2.73	2.77	2.77	715.82	\$727.75	727.75	262.5	1.67%	Historical plus Financing Costs
I	W Weisenberg Treatment Plant	\$41.74	\$42.44	42.44	10,957.60	\$11,140.14	11,140.14	262.5	1.67%	Historical Trended Cost

(1) The gallons per EDU figure to calculate the per gallon rate has changed with the 2010 census data

(2) Based on Charge Per EDU

Resulting Charges

Upper Milford System

Rt 29, Ramer Heights and Vera Cruz	\$	26.24	\$	27.46	\$27.46	\$	6,025.84	\$	6,305.15	\$6,305.15	4.64%	ABC + D1-Cap + D1-Coll + D1-Plan
MFR Charge		15.74		16.48	16.48		3,615.50		3,783.09	3,783.09	4.64%	
Other UMiT Areas		12.18		12.85	12.85		2,724.31		2,871.79	2,871.79	5.41%	ABC + D1-Plan
MFR Charge		7.31		7.71	7.71		1,634.59		1,723.08	1,723.08	5.41%	

Exhibit A
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Interceptor System: Western Lehigh Interceptor Capacity

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
General Pool	\$1,152,500	\$1,530,631
Salisbury Portion	600,000	718,311
	<hr/>	<hr/>
	\$1,752,500	\$2,248,942
Less: Contributions	-	-
Net Capital	<hr/>	<hr/>
	\$1,752,500	\$2,248,942
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<hr/>	<hr/>
	\$1,752,500	\$2,248,942
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<hr/>	<hr/>
	\$1,752,500	\$2,248,942
Total Capacity	350,000	350,000
Capacity Tapping Fee per Gallon	\$5.01	\$6.43
Gallon per EDU for Capacity Part (1)	223.0	223.0
Capacity Tapping Fee per EDU	\$1,116.59	\$1,432.90
(1) Total Gallons Per Day Per EDU Per Agreements	223	

Exhibit B
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Interceptor System: Western Lehigh Interceptor

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Original Interceptor	B - 1	\$5,215,326	\$33,893,401
Phase II, Stage 1	B - 1	884,097	2,097,895
Phase II, Stage 2	B - 1	6,069,549	11,773,401
Phase II, Stage 4	B - 1	3,315,228	4,974,589
Flow Equaliz. Basin	B - 1	5,495,586	6,993,211
Iron Run PS & Force Main	B - 1	30,022	31,942
Wastewater Treatment Capacity	B - 1	601,763	726,387
WLI - WW Capacity Prg Dev	B - 1	660,592	784,291
Interceptor Conn	B - 1	1,823	2,149
Flow Monitoring Network	B - 1	419	494
Spring Creek PS Improvements	B - 1	572,283	602,671
Meter Stat. No. 5 Improvements	B - 1	172,176	196,512
Trexlerstown Wastewater Storage Facility	B - 1	89,636	92,197
		<hr/>	<hr/>
		\$23,108,499	\$62,169,140
Less: Contributions		2,536,420	16,483,706
Net Capital		<hr/>	<hr/>
		\$20,572,079	\$45,685,434
 Financing Costs for Capacity Part		 -	 -
Total Cost of Capacity Part		<hr/>	<hr/>
		\$20,572,079	\$45,685,434
 Plus: Interest Paid On Debt		 4,911,674	 n/a
 Less: Outstanding Debt		 n/a	 3,204,179
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$25,483,753	\$42,481,255
 Total Capacity		 10,063,000	 10,063,000
 Capacity Tapping Fee per Gallon		 \$2.53	 \$4.22
 Gallon per EDU for Capacity Part (1)		 223.0	 223.0
 Capacity Tapping Fee per EDU		 \$564.73	 \$941.40
 (1) Total Gallons Per Day Per EDU		 223	
Per Agreements			

Exhibit B - 1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Interceptor System: Western Lehigh Interceptor
Capacity Assets

<u>Expenditure</u>	<u>Placed in Service</u>		<u>Original Cost</u>	<u>Cost Index</u>		<u>Trended Current Replacement Cost</u>
				<u>Original</u>	<u>Current</u>	
Original Interceptor						
Interceptor	Jan	1972	\$5,215,326	1753	11392	\$33,893,401
Phase II, Stage 1						
Interceptor	May	1991	\$884,097	4801	11392	\$2,097,895
Phase II, Stage 2						
Interceptor	Jan	1998	\$2,449,063	5852	11392	\$4,767,726
PS Structure	Jan	1998	2,044,224	5852	11392	3,979,603
Pump & Elect	Jan	1998	1,506,462	5852	11392	2,932,712
Land	Jan	1998	44,915			44,915
Metering	Jan	1998	24,885	5852	11392	48,445
Phase II, Stage 4						
Interceptor	Sep	2005	\$3,247,728	7540	11392	\$4,907,089
Land	Sep	2005	67,500			67,500
Flow Equaliz. Basin						
	Dec	2010	\$5,488,588	8952	11392	\$6,984,523
	Jan	2012	6,998	9176	11392	8,688
Iron Run PS & Force Main						
	Prior to	Jan 2012	\$1,086,546	Excluded - Previously counted		
		Jan 2012	1,782	9176	11392	\$2,213
		Jan 2013	200	9437	11392	242
		Jan 2014	106	9664	11392	124
		Jan 2015	209	9972	11392	239
		Jan 2017	3,172	10542	11392	3,428
		Jan 2018	23,986	10878	11392	25,121
		Jan 2019	566	11206	11392	575
Wastewater Treatment Capacity						
		Jan 2012	\$350	9176	11392	\$435
		Jan 2013	600,369	9437	11392	724,748
		Jan 2014	298	9664	11392	351
		Jan 2015	747	9972	11392	853
WLI - WW Capacity Prg Dev						
	Prior to	Jan 2012	\$546,637	Excluded - Previously counted		
		Jan 2012	66,774	9176	11392	\$82,903
		Jan 2013	246,735	9437	11392	297,851
		Jan 2014	213,732	9664	11392	251,958
		Jan 2015	91,472	9972	11392	104,501
		Jan 2016	41,663	10133	11392	46,844
		Jan 2017	216	10542	11392	233

Exhibit B - 1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Interceptor System: Western Lehigh Interceptor
Capacity Assets

<u>Expenditure</u>	<u>Placed</u>		<u>Original Cost</u>	<u>Cost Index</u>		<u>Trended Current</u>
		<u>in Service</u>		<u>Original</u>	<u>Current</u>	<u>Replacement Cost</u>
Signatory I&I Program	Prior to	Jan 2012	\$2,291,652	Excluded - Repairs		
		Jan 2012	—438,574	Excluded - Repairs		
		Jan 2013	—400,188	Excluded - Repairs		
		Jan 2014	—467,300	Excluded - Repairs		
		Jan 2015	—324,637	Excluded - Repairs		
		Jan 2016	—296,267	Excluded - Repairs		
		Jan 2017	—491,531	Excluded - Repairs		
		Jan 2018	—438,574	Excluded - Repairs		
		Jan 2019	—630,016	Excluded - Repairs		
Interceptor Conn		Jan 2014	\$1,823	9664	11392	\$2,149
Flow Monitoring Network		Jan 2014	\$419	9664	11392	\$494
Spring Creek PS Improvements		Jan 2014	\$528	9664	11392	\$622
		Jan 2015	413	9972	11392	472
		Jan 2016	49,537	10133	11392	55,697
		Jan 2017	75,841	10542	11392	81,959
		Jan 2018	343,731	10878	11392	359,985
		Jan 2019	102,233	11206	11392	103,936
Meter Stat. No. 5 Improvements		Jan 2015	\$161,709	9972	11392	\$184,744
		Jan 2016	10,466	10133	11392	11,768
Test & Seal - Cycle 1		Jan 2016	\$534,283	Excluded - Repairs		
		Jan 2017	—498,251	Excluded - Repairs		
		Jan 2018	—45,209	Excluded - Repairs		
		Jan 2019	—64,871	Excluded - Repairs		
Spring Creek Force Main AARV Rep		Jan 2017	\$12,751	Excluded - Repairs		
		Jan 2018	—15,665	Excluded - Repairs		
		Jan 2019	—22,929	Excluded - Repairs		
High Flow Emergency Response		Jan 2018	\$96,725	Excluded - Maintenance		
		Jan 2019	—1,929,162	Excluded - Maintenance		
Trexlerstown Wastewater Storage Facility		Jan 2018	\$34,858	10878	11392	\$36,506
		Jan 2019	54,778	11206	11392	55,690
Rehab - Cycle 1		Jan 2019	\$2,147	Excluded - Maintenance		
			\$23,018,863			\$62,076,943

Exhibit C
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Little Lehigh Relief Interceptor

A. Capacity Part

	<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs - Dec. 1986	\$4,750,332	\$12,437,998
Park PS Improvements Ph1 - Prior to 2012	34,670	43,044
Park PS Improvements Ph1 - 2012	102,160	126,836
Park PS SCADA Gen - Prior to 2012	34,421	42,735
Park PS SCADA Gen - 2012	11,326	14,062
Park PS Improvements Ph1 - 2013	21,619	26,098
Park PS SCADA Gen - 2013	6,189	7,472
Park PS Improvements Ph1 - 2014	74	88
Park PS SCADA Gen - 2014	140,634	165,787
Park PS Improvements Ph1 - 2015	973	1,112
Park PS SCADA Gen - 2015	72,378	82,688
Park PS Improvements Ph1 - 2016	98,867	111,160
Park PS Force Main Upgrade - 2016	101	114
Park PS Improvements Ph1 - 2017	283,576	306,451
Park PS Force Main Upgrade - 2017	2,402	2,596
Park PS Force Main Extension - 2017	7,087	7,659
Park PS Improvements Ph1 - 2018	380,094	398,067
Park PS Force Main Upgrade - 2018	19,225	20,134
Park PS Force Main Extension - 2018	710	744
Park PS Improvements Ph1 - 2019	3,590,626	3,650,441
Park PS Force Main Upgrade - 2019	12,092	12,293
	<u>\$9,569,558</u>	<u>\$17,457,579</u>
Less: Contributions	583,221	1,527,073
Net Capital	<u>\$8,986,337</u>	<u>\$15,930,506</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$8,986,337</u>	<u>\$15,930,506</u>
Plus: Interest Paid On Debt	4,890,657	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$13,876,995</u>	<u>\$15,930,506</u>
Total Capacity	10,000,000	10,000,000
Capacity Tapping Fee per Gallon	\$1.39	\$1.59
Gallon per EDU for Capacity Part (1)	223.0	223.0
Capacity Tapping Fee per EDU	\$309.46	\$355.25
(1) Total Gallons Per Day Per EDU	223	
Per Agreements		

Exhibit D1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost & Capitalized Interest	D1 - 1	\$987,650	\$2,436,491
		<hr/>	<hr/>
		\$987,650	\$2,436,491
Less: Contributions		-	-
Net Capital		<hr/>	<hr/>
		\$987,650	\$2,436,491
Financing Costs for Capacity Part		-	-
Total Cost of Capacity Part		<hr/>	<hr/>
		\$987,650	\$2,436,491
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	232,673
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$987,650	\$2,203,817
Total Capacity		386,669	386,669
Capacity Tapping Fee per Gallon		\$2.55	\$5.70
Gallon per EDU for Capacity Part (1)		234.9	234.9
Capacity Tapping Fee per EDU		\$599.99	\$1,338.81

Exhibit D1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township

B. <u>Collection Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost & Capitalized Interest	D1 - 1	\$658,434	\$1,624,329
South 7th Street - Ph - 1	D1 - 1	204,222	272,147
South 7th Street - Ph - 2	D1 - 1	233,261	297,897
Ramer Heights Project & Capitalized Interest	D1 - 1	148,811	335,109
Vera Cruz Project	D1 - 1	4,284,326	5,318,097
Additional Project Costs	D1 - 1	127,500	138,286
		<hr/>	<hr/>
		\$5,656,554	\$7,985,864
Less: Contributions	D1 - 2	<hr/>	<hr/>
Net Capital		2,688,249	3,288,701
		<hr/>	<hr/>
		\$2,968,305	\$4,697,162
Financing Costs for Collection Part		-	-
Total Cost of Collection Part		<hr/>	<hr/>
		\$2,968,305	\$4,697,162
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	1,249,323
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$2,968,305	\$3,447,839
Total Capacity		386,669	386,669
Collection Tapping Fee per Gallon		\$7.68	\$8.92
Gallon per EDU for Capacity Part (1)		234.9	234.9
Collection Tapping Fee per EDU		\$1,803.23	\$2,094.55

Exhibit D1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township

C. <u>Capacity Part - Planning Costs</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Planning Costs		\$186,279	\$231,374
		<hr/>	<hr/>
		\$186,279	\$231,374
Less: Contributions		-	-
Net Capital		<hr/>	<hr/>
		\$186,279	\$231,374
Financing Costs for Capacity Part		1,184	2,759
Total Cost of Capacity Part		<hr/>	<hr/>
		\$187,463	\$234,133
Plus: Interest Paid On Debt		29,122	n/a
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$216,585	\$234,133
Total Capacity		386,669	386,669
Capacity Tapping Fee per Gallon		\$0.56	\$0.61
Gallon per EDU for Capacity Part (1)		234.9	234.9
Capacity Tapping Fee per EDU		\$131.57	\$142.24
(1) Average Household Size Per 2010 Census for Upper Milford		2.61	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		<hr/>	
Total Gallons Per Day Per EDU		234.9	

Exhibit D1 - 1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Upper Milford Township

Capacity Assets

<u>Expenditure</u>	<u>Placed in Service</u>		<u>Original Cost</u>	<u>Cost Index Original Current</u>		<u>Trended Current Replacement Cost</u>
Rt. 29 Project Cost & Capitalized Interest Interceptor	Aug	1989	\$987,650	4618	11392.41	\$2,436,491
			\$987,650			\$2,436,491

Collection Assets

Expenditure	Placed in Service			Cost Index		Trended Current Replacement Cost	
			Original Cost	Original	Current		
Rt. 29 Project Cost & Capitalized Interest							
Collector	Aug	1989	\$658,434	4618	11392.41	\$1,624,329	
Ramer Heights Project & Capitalized Interest							
Collector	Dec	1992	\$148,811	5059	11392.41	\$335,109	
South 7th Street - Ph - 1							
Collector	Jan	2009	\$204,222	8549	11392.41	\$272,147	
South 7th Street - Ph - 2							
Collector	Oct	2010	\$233,261	8921	11392.41	\$297,897	
Vera Cruz Project							
	Prior to	Jan	2012	\$2,495,282	9176	11392.41	\$3,098,003
		Jan	2012	1,765,192	9176	11392.41	2,191,564
		Jan	2013	18,891	9437	11392.41	22,804
		Jan	2014	1,572	9664	11392.41	1,853
		Jan	2015	3,390	9972	11392.41	3,873

Exhibit D1 - 1
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Upper Milford Township

Capacity Assets

Expenditure	Placed		Original Cost	Cost Index		Trended Current
	in Service			Original	Current	Replacement Cost
Additional Project Costs						
South 7th Street Extension	Jan	2012	\$458	9176	11392.41	\$569
South 7th Street Extension - Ph - 2	Jan	2012	2,701	9176	11392.41	3,353
Weaver - 4751 Mill Road	Jan	2012	1,650	9176	11392.41	2,048
Weaver - 4751 Mill Road	Jan	2013	8,555	9437	11392.41	10,327
Fields at Indian Creek	Jan	2014	2,048	9664	11392.41	2,415
Weaver - 4751 Mill Road	Jan	2015	150	9972	11392.41	172
Fields at Indian Creek	Jan	2015	4,433	9972	11392.41	5,064
Fields at Indian Creek	Jan	2016	25,037	10133	11392.41	28,150
Fields at Indian Creek	Jan	2017	12,829	10542	11392.41	13,864
Kohler Tract - Sewer	Jan	2017	442	10542	11392.41	477
New Tripoli Bank - Buckeye	Jan	2017	809	10542	11392.41	874
Fields at Indian Creek	Jan	2018	266	10878	11392.41	278
Kohler Tract - Sewer	Jan	2018	39,264	10878	11392.41	41,121
New Tripoli Bank - Buckeye	Jan	2018	226	10878	11392.41	237
Fields at Indian Creek - Ph 3	Jan	2018	6,536	10878	11392.41	6,845
Weaver - 4251 Chestnut Street	Jan	2018	874	10878	11392.41	915
Fields at Indian Creek	Jan	2019	48	11206	11392.41	49
Kohler Tract - Sewer	Jan	2019	13,193	11206	11392.41	13,412
Fields at Indian Creek - Ph 3	Jan	2019	1,233	11206	11392.41	1,253
Weaver - 4251 Chestnut Street	Jan	2019	349	11206	11392.41	355
Fields at Indian Creek - Ph 4	Jan	2019	6,401	11206	11392.41	6,507
			\$5,656,554			\$7,985,864

Exhibit D1 - 2
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Upper Milford Township

Expenditure	Contributions - Collection			Cost Index		Trended Current Replacement Cost
	Placed in Service		Original Cost	Original	Current	
South 7th Street - Ph - 1						
Federal Grant	Jan	2009	\$172,100	8549	11392.41	\$229,341
South 7th Street - Ph - 2						
Federal Grant	Oct	2010	\$206,649	8921	11392.41	\$263,911
Vera Cruz Project Costs thru 4/30/14						
Federal Grant	Dec	2012	\$1,309,500	9412	11392.41	\$1,585,036
State Grant	Dec	2012	1,000,000	9412	11392.41	1,210,413
			\$2,688,249			\$3,288,701

Exhibit D2
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Lower Macungie Connections to UMiT Interceptor

A. <u>Capacity Part</u>		<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost	\$1,646,084		
% of Project applicable to LMT Interceptor	24.79%	\$408,064	\$1,006,677
		<hr/>	<hr/>
		\$408,064	\$1,006,677
Less: Contributions		<hr/>	<hr/>
Net Capital		\$408,064	\$1,006,677
		<hr/>	<hr/>
Financing Costs for Capacity Part		-	-
Total Cost of Capacity Part		\$408,064	\$1,006,677
		<hr/>	<hr/>
Plus: Interest Paid On Debt		-	n/a
		<hr/>	<hr/>
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		\$408,064	\$1,006,677
		<hr/>	<hr/>
Total Capacity		373,632	373,632
		<hr/>	<hr/>
Capacity Tapping Fee per Gallon		\$1.09	\$2.69
		<hr/>	<hr/>
Gallon per EDU for Capacity Part (1)		238.5	238.5
		<hr/>	<hr/>
Capacity Tapping Fee per EDU		\$260.48	\$642.59
		<hr/>	<hr/>
(1) Average Household Size Per 2010 Census for Lower Macungie Twp		2.65	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		90	
Total Gallons Per Day Per EDU		<hr/>	<hr/>
		238.5	

Exhibit E
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Heidelberg Heights System

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs	\$785,141	\$1,433,897
WWTP Upgrades - 2017	85,762	92,680
WWTP Upgrades - 2018	17,879	18,724
WWTP Upgrades - 2019	192,887	196,101
	<hr/>	<hr/>
	\$1,081,669	\$1,741,402
Less: Contributions	-	-
Net Capital	<hr/>	<hr/>
	\$1,081,669	\$1,741,402
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<hr/>	<hr/>
	\$1,081,669	\$1,741,402
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<hr/>	<hr/>
	\$1,081,669	\$1,741,402
Total Capacity	60,000	60,000
Capacity Tapping Fee per Gallon	\$18.03	\$29.02
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$4,348.31	\$7,000.44

Exhibit E
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Heidelberg Heights System

B. <u>Collection Part</u>		<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs		\$123,157	\$224,921
I&I Removal Project - 2016	Excluded - Repairs	57,099	
I&I Removal Project - 2017	Excluded - Repairs	1,729	
I&I Removal Project - 2018	Excluded - Repairs	352,619	
I&I Removal Project - 2019	Excluded - Repairs	385,652	
		<hr/>	<hr/>
		\$123,157	\$224,921
Less: Contributions		-	-
Net Capital		<hr/>	<hr/>
		\$123,157	\$224,921
Financing Costs for Collection Part		-	-
Total Cost of Collection Part		<hr/>	<hr/>
		\$123,157	\$224,921
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$123,157	\$224,921
Total Capacity		60,000	60,000
Collection Tapping Fee per Gallon		\$2.05	\$3.75
Gallon per EDU for Capacity Part (1)		241.2	241.2
Collection Tapping Fee per EDU		\$495.09	\$904.18
(1) Average Household Size Per 2010 Census for Heidelberg Township		2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		90	
Total Gallons Per Day Per EDU		<hr/>	<hr/>
		241.2	

Exhibit F
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Wynnewood System

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$247,393	\$420,971
System Improvements - Prior to 2012	3,990	4,954
System Improvements - 2012	32,645	40,531
System Improvements - 2013	55,264	66,713
System Improvements - 2014	67,642	79,740
WWTP Improvements - 2015	21,241	24,266
WWTP Improvements - 2016	5,080	5,712
WWTP Improvements - 2017	85,467	92,361
WWTP Improvements - 2018	80,619	87,123
WWTP Improvements - 2019	2,362,497	2,553,074
	<hr/>	<hr/>
	\$2,961,839	\$3,375,445
Less: Contributions	-	-
Net Capital	<hr/>	<hr/>
	\$2,961,839	\$3,375,445
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<hr/>	<hr/>
	\$2,961,839	\$3,375,445
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<hr/>	<hr/>
	\$2,961,839	\$3,375,445
Total Capacity	60,000	60,000
Capacity Tapping Fee per Gallon	\$49.36	\$56.26
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$11,906.59	\$13,569.29

Exhibit F
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Wynnewood System

B. <u>Collection Part</u>		<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs		\$406,318	\$691,403
Riverside Prof Cntr Additions - 2012		132	164
Riverside Prof Cntr Additions - 2013		1,476	1,781
Wynnewood I&I Project - 2013	Excluded - Repairs	24,096	
Wynnewood I&I Project - 2014	Excluded - Repairs	17,020	
Wynnewood I&I Project - 2019	Excluded - Repairs	5,120	
Main, PS & Force Main - 2015		645,390	737,322
Main, PS & Force Main - 2016		102,876	115,668
Main, PS & Force Main - 2017		691	747
		<u>\$1,156,883</u>	<u>\$1,547,085</u>
Less: Contributions		-	-
Net Capital		<u>\$1,156,883</u>	<u>\$1,547,085</u>
Financing Costs for Collection Part		-	-
Total Cost of Collection Part		<u>\$1,156,883</u>	<u>\$1,547,085</u>
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	666,533
Eligible Cost for Capacity Part		<u>\$1,156,883</u>	<u>\$880,553</u>
Total Capacity		60,000	60,000
Collection Tapping Fee per Gallon		\$19.28	\$14.68
Gallon per EDU for Capacity Part (1)		241.2	241.2
Collection Tapping Fee per EDU		\$4,650.67	\$3,539.82
(1) Average Household Size Per 2010 Census for North Whitehall Township		2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		<u>90</u>	
Total Gallons Per Day Per EDU		241.2	

Exhibit G
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Sand Spring Wastewater System

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$88,048	\$137,465
System Improvements - 2005	6,358	9,848
WWTP Improvements - 2015	20,683	23,630
WWTP Improvements - 2016	14,546	16,355
WWTP Improvements - 2017	95,588	103,298
WWTP Improvements - 2018	54,764	57,354
WWTP Improvements - 2019	161,528	164,219
	<hr/>	<hr/>
	\$441,516	\$512,169
Less: Contributions	-	-
Net Capital	<hr/>	<hr/>
	\$441,516	\$512,169
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<hr/>	<hr/>
	\$441,516	\$512,169
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<hr/>	<hr/>
	\$441,516	\$512,169
Total Capacity	35,000	35,000
Capacity Tapping Fee per Gallon	\$12.61	\$14.63
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$3,042.68	\$3,529.58

Exhibit G
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Sand Spring Wastewater System

B. <u>Collection Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$58,452	\$91,258
System Improvements - 2010	5,980	7,867
System Improvements - 2012	3,256	4,042
System Improvements - 2013	21,882	26,416
	<hr/>	<hr/>
	\$89,570	\$129,583
Less: Contributions	-	-
Net Capital	<hr/>	<hr/>
	\$89,570	\$129,583
Financing Costs for Collection Part	-	-
Total Cost of Collection Part	<hr/>	<hr/>
	\$89,570	\$129,583
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<hr/>	<hr/>
	\$89,570	\$129,583
Total Capacity	35,000	35,000
Collection Tapping Fee per Gallon	\$2.56	\$3.70
Gallon per EDU for Capacity Part (1)	241.2	241.2
Collection Tapping Fee per EDU	\$617.27	\$893.01
(1) Average Household Size Per 2010 Census for North Whitehall Township	2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003	<hr/>	
Total Gallons Per Day Per EDU	241.2	

Exhibit H
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Western Weisenberg Wastewater System

A. <u>Land</u>	<u>Original Cost</u>	<u>Inflation Factor (2)</u>	<u>Trended Cost</u>
LCA Costs for Western Weisenberg System	\$82,800	1.628895	\$134,872
Less: Contributions			-
Net Capital			\$134,872
Financing Costs for Capacity Part			-
Total Cost of Capacity Part			\$134,872
Plus: Interest Paid On Debt			n/a
Less: Outstanding Debt			-
Eligible Cost for Capacity Part			\$134,872
Prorated Share of Design Capacity			28,000
Capacity Tapping Fee per Gallon			\$4.82
Gallon per EDU for Capacity Part (1)			262.5
Capacity Tapping Fee per EDU			\$1,264.43
B. <u>Collection Part</u>	<u>Original Cost</u>	<u>Trending Factor (3)</u>	<u>Trended Cost</u>
LCA Costs for Western Weisenberg System	\$19,548	1.701884	\$33,268
Less: Contributions			-
Net Capital			\$33,268
Financing Costs for Collection Part			-
Total Cost of Collection Part			\$33,268
Plus: Interest Paid On Debt			n/a
Less: Outstanding Debt			-
Eligible Cost for Capacity Part			\$33,268
Prorated Share of Design Capacity			12,000
Collection Tapping Fee per Gallon			\$2.77
Gallon per EDU for Capacity Part (1)			262.5
Collection Tapping Fee per EDU			\$727.75

(1) By agreement with Western Weisenberg , an EDU is equal to 262.5 gallons.

(2) LCA Land fee is inflated by Agreement.

(3) LCA Collection system is inflated by the ENR index.	ENR Index 6/1/03	6,694
	ENR Index 1/1/20	11,392

Exhibit I
Lehigh County Authority - Suburban Wastewater Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Western Weisenberg Treatment Plant

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
W. Weisenberg Treatment Plant Estimated Cost (1)	\$3,247,214	
Portion attributable to New Customers	43.7%	
Total Attributable to New Customers	\$1,417,652.45	\$1,671,200
Less: Contributions		-
Net Capital		\$1,671,200
Financing Costs for Capacity Part		-
Total Cost of Capacity Part		\$1,671,200
Plus: Interest Paid On Debt		n/a
Less: Outstanding Debt		-
Eligible Cost for Capacity Part		\$1,671,200
Prorated Share of Design Capacity		17,463
Capacity Tapping Fee per Gallon		\$95.70
2014 Original Fee		\$36.00
2019 Existing Fee		\$41.74
2020 Recommended fee per gallon (1)		\$42.44

(1) The unrecovered capital costs will be captured through ongoing user fees.

The Plant fee per gallon is increased by the change in the ENR index since project completion in 2014.

Note: These fees exclude existing Western Weisenberg customers and the West Hills

Business Center, which is constructing the plant and contributing towards the plant.

Plant Allocation:	<u>Total Allocation (gpd)</u>	<u>LCA Share</u>
Western Weisenberg	10,537	-
Western Weisenberg - Remaining Commercial	1,463	1,463
West Hills Business Ctr	12,000	-
Weisenberg Elementary School	8,000	8,000
Bandit Truck Stop	3,000	3,000
Unallocated	5,000	5,000
	40,000	17,463
		43.7%



LEHIGH COUNTY AUTHORITY BOARD 2021 MEETING SCHEDULE

*Meetings of the Lehigh County Authority ("LCA") Board
are held on the 2nd & 4th Mondays of each month, except as noted below.*

All LCA Board meetings begin at Noon, 12:00 p.m.. Due to the COVID-19 Pandemic emergency, and until further notice, LCA Board meetings will be held virtually, and not in-person, using the Zoom Meetings internet application, or other video and audio advanced communication technology (ACT). LCA Board meetings are open to the public. Public participation at the meeting is welcomed. Instructions for joining the meeting online or by phone are posted on the LCA website the morning on the day of the meeting, prior to the start of each meeting. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting. The Board's meeting agenda and other meeting materials are also posted on LCA's website. You may also issue comment to LCA via email to LCABoard@Lehighcountyauthority.org in advance of any meeting, or view a recording of the meeting at a later time by visiting the LCA website. Comments received prior to a meeting will be read at the Board's meeting and become part of the public record.

Board Meetings

January 11, 25

February 8, 22

March 8, 22

April 12, 26

May 10, 24

June 14, 28

July 12, 26

August 9, 23

September 13, 27

October 11, 25

November 8, 22

December 13

BRIAN NAGLE
Chair

MEMORANDUM

Date: December 14, 2020

To: LCA Board of Directors
Liesel Gross, CEO

From: Phil DePoe, Senior Planning Engineer

Subject: Regional Act 537 Plan Alternatives Analysis: Pretreatment Plant (PTP)
Upgrade Option – Planning Phase (Revenue Planning Tool)

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
A	Professional Services Authorization: AECOM – Revenue Planning Tool for PTP Upgrade Option	\$97,000

Introduction & Background

Since 2008, Lehigh County Authority (LCA) and the Western Lehigh sewer signatories have been developing plans to address two major sewer system challenges:

1. Excess inflow and infiltration (I&I) that creates operational and environmental challenges during wet-weather events; and
2. Sewer capacity for future growth in our region.

These interrelated challenges have been difficult to address due to a variety of factors including complex historical inter-municipal agreements, varying needs and priorities of each of the 15 municipalities that use the Kline's Island Sewer System (KISS), and shifting regulatory guidance and oversight between the U.S. Environmental Protection Agency (EPA) and the Pa. Department of Environmental Protection (DEP). Most recently, in mid-2019, DEP assumed oversight of the planning efforts of the KISS after over a decade of EPA oversight. Through discussion with DEP, the KISS municipalities have agreed to address both I&I and sewer capacity challenges through the development of a regional Act 537 Plan (the first regional sewage facilities plan in our region) by 2025.

Prior efforts to address the sewer capacity challenge have involved developing detailed alternatives analyses looking at treatment capacity and conveyance capacity requirements to meet future needs in the 20-30 year time horizon. The work that will be completed over the next five years to develop a regional Act 537 Plan will require an update to the prior alternatives analysis, reflecting current dry- and wet-weather flows, updated growth projections, updated climate projections, and more. Early estimates of the cost to complete the required system upgrades was in the range of \$300 million, which means extensive financial analysis will be required in addition to the development of updated inter-municipal agreements to reflect how these costs will be shared among all municipalities.

LCA Pretreatment Plant Upgrade Alternative

A key component of the planning work completed over the last decade was an evaluation of treatment alternatives, as the Kline's Island Wastewater Treatment Plant (KIWWTP) has limited additional capacity to address future growth. While an upgrade and expansion of the KIWWTP has been viewed as the most cost-effective option to achieve regional goals, an alternative

approach has been studied which involves upgrading LCA's Industrial Pretreatment Plant (PTP) in Fogelsville. If the PTP could be upgraded to full treatment, with a new, separate discharge point, the diversion of flows out of the KISS could provide significant benefit to downstream KISS municipalities by freeing up both conveyance capacity in the regional interceptors and treatment capacity in the KIWWTP.

Prior studies have indicated the PTP performs at a very high level, such that upgrading to full treatment is a viable alternative to pursue further. Specific additional study is required to more fully evaluate the capacity of the PTP to treat current and future dry-day and wet-weather flows, and to quantify the impact on downstream conveyance systems if those flows are removed from the system. This analysis is complicated by the dynamic and somewhat unpredictable nature of the industrial flows and loads being discharged to the PTP.

Prior studies on the PTP upgrade alternative had focused on the viability of various discharge options, including a new discharge to the Lehigh River (located near the KIWWTP discharge), discharge to the Jordan Creek, or land application of treated effluent through a drip irrigation "living filter" system. These studies, conducted from 2011 to 2015, highlighted the permitting challenges of each of these options and treatment standards that would need to be met in each scenario. Ultimately, the Lehigh River discharge was determined to be the most cost effective, and the most viable option for the PTP upgrade to be compared to the KIWWTP upgrade option. However, due to shift in regulatory focus at that time, the studies were discontinued.

As the region moves forward with developing a regional Act 537 Plan by 2025, a critical first step is to refine the scope of the alternatives that will be pursued, picking up on prior work that was discontinued about five years ago. The PTP upgrade option is a critical piece of the puzzle, as it has potential to drastically alter the downstream conveyance capacity projects that will be needed, which will be the most expensive portion of the future system upgrades. LCA's Board of Directors authorized the engineering work to more fully evaluate this alternative in August 2020, and preliminary results are expected to be available by mid-2021.

December 14, 2020 Update

As described above, and in order to keep pace with an aggressive planning schedule, LCA and the Western Lehigh sewer signatories recently moved forward with the engineering and regulatory analysis of the PTP upgrade. While this engineering work is being completed, a parallel effort is recommended to develop a detailed financial analysis Tool.

The intended outcome of this work is a clear understanding of the feasibility and cost associated with upgrading the PTP to full treatment, along with a calculation of the flows that could be diverted out of the KISS via this alternative approach. This work will also provide a financial baseline analysis that can then be used to compare with other alternatives, including an upgrade and expansion to the KIWWTP and collection system improvements.

AUTHORIZATION OVERVIEW

As part of the long-term Act 537 planning process, a Revenue Planning Tool is required to help predict the impact of proposed system modifications in the Western Lehigh Service Area. This Tool will simulate financial impacts based on current and future flows and loads and utilizing the terms of existing inter-municipal agreements. For the alternatives being evaluated by LCA's engineering consultants for potential upgrade of the PTP to full treatment, the Revenue Planning Tool will simulate changes in future flows and loads and general financial analyses to assist with decision-making regarding these alternatives. Terms of potentially new inter-municipal agreements can also be entered into the Tool to simulate future scenarios.

Prior phases of this work were completed in 2019 and 2020 to review the assumptions and parameters required to develop the financial model. The next phase includes developing the Revenue Planning Tool for use when the engineering work is completed by mid-2021.

The modeling inputs will include some of the following:

- Project costs
- Capacity allocation
- Allocation of debt service and O&M costs
- Flow and load (BOD, TSS, TKN) allocation
 - Additional load parameters as needed in the future

The modeling outputs will include some of the following:

- City and LCA Signatory revenue impact by year
- Incremental operating revenue and operating expense
- Net operating income
- Debt Service Coverage Ratio
- Operating ratio, NPV, discounted payback period

The Tool will be built in Microsoft Excel. A risk analysis add-on will be incorporated into the Tool to account for the wide variety of uncertainties related to this effort.

FINANCIAL

The LCA Suburban Division will fund these 2021 services.

CURRENT STATUS

The consulting engineer has completed the preliminary analysis of parameters to be included in the Revenue Planning Tool, with a memorandum submitted in November of 2020.

THIS APPROVAL

AECOM is serving as the Program Manager for the Regional Act 537 Plan PTP Upgrade Option analysis. The specific financial planning services for this approval include, but are not limited to, the following:

Professional Services
<ul style="list-style-type: none">• Attend a virtual kick-off meeting with LCA• Develop initial Revenue Planning Tool based on guidance from Phase 1• Provide the draft model for review (and attend workshop to review)• Develop the final Tool with internal and LCA testing• Prepare Tool user manual and provide in-person training

CONSULTANT SELECTION PROCESS

AECOM was retained by LCA as the Regional Act 537 Program Manager at the August 24, 2020 Board Meeting.

SCHEDULE

A total of five months is anticipated to fully develop and test the Revenue Planning Tool. Delivery of the final Tool is expected in early June 2021. This is in alignment with the PTP engineering studies that were authorized by the LCA Board on August 24, 2020.

FUTURE AUTHORIZATIONS

Future authorizations related to other Regional Act 537 planning processes are anticipated in 2021 and beyond.



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

610.832.3500 tel
610.832.3501 fax

December 2, 2020

Ms. Liesel M. Gross
Chief Executive Officer
Lehigh County Authority
1053 Spruce Street
Allentown, PA 18106-0348

RE: Proposal to Develop a Revenue Forecasting Tool, Phase 2, Lehigh County Authority

Dear Ms. Gross,

AECOM Technical Services, Inc. (AECOM) appreciates the opportunity to provide this proposal to Lehigh County Authority (the “Authority”) to develop the revenue modeling tool presented in our technical memorandum that will facilitate planning efforts and help estimate potential revenue impacts from proposed system modifications.

1.0 Scope of Work

AECOM has assembled an outstanding team of professionals with unique technical and management expertise to successfully develop a revenue planning tool. LCA desires a planning tool (Tool) to evaluate future scenarios for maintaining and expanding the capacity of KI, PTP, Allentown (City) collection system, and/or suburban collection system, including the potential for direct discharge at the PTP. The Tool will assess the potential impacts to revenue from the City and Suburban Signatories. The capital costs for the possible scenarios are expected to exceed the \$1M threshold for “Pay Go Capital”, therefore, it is expected that capital costs would be debt funded. Currently, debt would be distributed based upon existing agreements, however, LCA also needs to evaluate potential changes to existing agreements to provide equitable treatment.

This Tool will be used for planning and is not expected to replace the billing system; it will not completely mirror the billing system since factors not expected to change with each scenario would not be included (e.g., existing debt service). The Tool will be based in Excel with the Palisade @Risk add-on to enable risk analysis. The Tool will be developed by AECOM and tested by both AECOM and LCA to confirm that LCA will be able to operate the Tool independently and that the Tool will meet LCA’s needs. AECOM will provide a User’s Manual for the Tool and will be available to provide on-site training.

The following sections outline AECOM’s project understanding, assumptions, schedule, and cost proposal for this Project. The basis of the proposal represents our understanding of the functionality desired by LCA and documented in the memo.

Phase 2 – Develop Revenue Planning Tool:

Phase 1 determined the extent and desired features to incorporate into the Tool. Specific tasks of Phase 2 will include:

Model Development

1. Attend a virtual kick-off meeting with LCA.
2. Develop initial Tool based on guidance from Phase 1.
3. Provide the DRAFT model for the Tool for review by LCA.

4. Attend Workshop to review the Tool with LCA.
5. Based on input from LCA, develop the final Tool (including design, functionality, inputs, outputs).
6. Internal testing followed by verification and testing by LCA.
7. Prepare model User Manual to explain functionality of the Tool.
8. Provide in-person demonstration and training on how the Tool works.

1.1 Baseline Conditions

The development of the Tool begins with defining the baseline. Each of the project scenarios will be compared with the baseline to estimate the incremental changes in revenue that would be anticipated from the scenario. The baseline, presented in our 11/24/20 technical memorandum, will need to be verified by LCA so the current billing structure is incorporated into the Tool accurately. LCA may have the option of running alternative baselines by changing key parameters to reflect potential changes to existing agreements with the City and Signatories. It is assumed that LCA will provide all data necessary to develop the baseline for the Tool.

There are three primary sources of revenue collection for LCA:

1. Existing customers (City Signatories and LCA Signatories)
2. Tapping fees (new customers connecting to the system)
3. Waste haulers (independent haulers)

The baseline will be established using historical information and available projections for flows and loads to forecast future revenue streams from existing customers and Waste Haulers. Historical information will be based on 2017 actuals and the prior 5 years of data. Tapping fees will be excluded from the Tool at the request of LCA. Waste Hauler revenue will be forecast based on the total flow and revenue from 2015 to 2019.

Because 2018 and 2019 were very wet years, it was agreed that 2017 would be used for the Tool baseline. Flows and loads and corresponding costs (LCA revenue) for the City and Suburban Signatories and In-City customers will be forecast out 40 years or the expected lifespan of the project. The Tool will have capabilities to forecast out to 2062.

1.2 Modeling

The purpose of the Tool is to evaluate various alternative scenarios for expanding the capacity of KI, PTP, City collection system, and/or suburban collection system and the potential revenue impact to each City and Suburban Signatory. In addition, a scenario for direct discharge from the PTP (bypassing KI) will be incorporated into the Tool.

The Tool user will have the option to use default values or to revise the default values for the baseline. Users will input values for the alternative scenario. The alternative scenario will be modeled to the year 2062 based on the Tool user inputs and any adjustments to the model parameters. The alternative scenario created by the Tool user will be compared with the baseline to calculate the incremental cost and revenue implications.

The modeling output includes the revenue impact for each City and Suburban Signatory according to year, the incremental operating revenue, incremental operating expenses, net

operating income, debt service coverage ratio, operating ratio with depreciation, net present value, discounted payback period, and average annual revenue.

1.3 Risk Analysis

The Tool will be built in Microsoft Excel and incorporate risk analysis using the @Risk add-on. The modeling will be based on the user inputs and assumptions incorporated into the Tool. The Tool user will be allowed to incorporate uncertainty by defining ranges and the probability distributions for certain inputs. These probability distributions will be selected based on the user's understanding of which distribution is most appropriate. A Monte Carlo simulation will be used to account for imprecise information or changing conditions.

2.0 Assumptions

The proposal has been based on the following assumptions:

1. Existing spreadsheets, revenue recognition procedures, and governing inter-municipal agreements will be shared with AECOM.
2. All projected growth/sewage input needs will be provided by LCA and no analyses or justification will be required to establish new or expanded service areas or simulation conditions.
3. LCA will answer questions related to the existing models (outside of the workshop) to ensure we have a complete understanding.
4. The Tool will incorporate general assumptions and default values based on guidance from LCA. Some of the default values will be locked and the user will not be able to change these values, while other default values may be edited by the user. The default values that will be locked may be changed from locked to editable based on feedback from LCA. LCA will have access to lock and unlock values and cells within the Tool. The Tool user will be able to edit most of the default values to allow for the possibility of assumptions changing, such as changes to Signatory agreements. Risk analysis will also be incorporated into the Tool by allowing the user to use a range and probability distribution for each of the assumed values.
5. It is assumed that all capital costs will be financed with bonds and the debt service will be allocated based on existing agreements or as designated by the Tool user.
6. LCA staff will provide input and calculations for City Division revenues generated by charges to City users in accordance with the Lease agreement.
7. Major capital investments that will be debt-financed will have a 30-year amortization period. The interest rate will be allowed to vary between 3.5 percent and 4 percent and will be uniformly distributed.
8. Due to the lease expiring in 2062, the repayment period for any debt that is issued must not extend beyond 2062. It is assumed that LCA will not be able recover the amortization of MCI costs beyond 2062.
9. The Tool will be used for planning and will not completely mirror the billing system. Factors not expected to change with an alternative scenario are not included in the Tool since there would be zero net difference.

10. Since past debt service will not change with the alternative scenarios evaluated, it will not be included in the Tool.
11. At the request of LCA, the Tool will exclude tapping fees.
12. AECOM has not included the evaluation of various simulations with the final model since user training will be included, but can support this effort, if requested, under a separate authorization.

3.0 Schedule and Budget Estimate

AECOM is prepared to immediately start on this project upon authorization and has already been in active consultation with the Authority staff and through our prior meetings and conference calls along with execution of Phase 1 which enabled initial planning and further insight on the project objectives. AECOM will work expeditiously to meet the Authority's objective of developing a tool to help with simulating modifications to collection, conveyance, treatment alternatives to determine impacts to forecasted revenue per the Agreements in place with the other Contributing Municipalities. The schedule for the creation of the updated revenue tool under Phase 2 authorization will be 5 months once authorization is received.

A Phase 2 authorization budget is recommended at this time to enable immediate initiation of activities as indicated below:

Item	Budget
Labor	\$ 95,000
ODCs	\$ 2,000
TOTAL Revenue Modeling Planning Tool Development	\$ 97,000

AECOM proposes to conduct this project on a Time and Materials basis in accordance with the Engineering Services Agreement between Lehigh County Authority and AECOM Technical Services, dated 2020.

Once again, we appreciate the opportunity to provide this proposal to you and look forward to assisting the Authority with this important project. Please reply that we are authorized to proceed in accordance with this proposal for our records. If you have any questions or need additional information, please contact me at 610-234-0404 or chris.curran@aecom.com.

Sincerely,



Christopher Curran, PE
AVP, Project Director

Cc: Mr. Philip DePoe, PE



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. 2

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

Date: December 14, 2020
Requested By: Phil DePoe

Approvals

Department Head: _____
Chief Executive Officer: _____

Suburban Division – Western Lehigh Service Area: Development of Revenue Planning Tool: Phase 2

As part of the long-term Act 537 planning process, a revenue planning tool is required to help predict the impact of proposed system modifications in the Western Lehigh Service Area. This tool will simulate financial impacts based on current and future flows and loads and utilizing the terms of existing inter-municipal agreements. For the alternatives being evaluated by LCA's engineering consultants for potential upgrade of the Pretreatment Plant to full treatment, the revenue planning tool will simulate changes in future flows and loads and general financial analyses to assist with decision-making regarding these alternatives. Prior phases of this work were completed in 2019 and 2020 to review the assumptions and parameters required to develop the model. The next phase includes developing the revenue planning tool for use when the engineering work is completed by mid-2021. Services include, but are not limited to:

Professional Services (1)
1. Attend a virtual kick-off meeting with LCA
2. Develop initial Revenue Planning Tool based on guidance from Phase 1
3. Provide the draft model for review (and attend workshop to review)
4. Develop the final Tool with internal and LCA testing
5. Prepare Tool user manual and provide in-person training

(1) For Planning Phase 2 services only

Prior (Phase 1A) Authorization: \$20,000

Prior (Phase 1B) Authorization: \$17,500

This (Phase 2) Authorization: \$97,000

Cost Estimate (not to be exceeded without further authorization): \$134,500

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

(For Authority Use Only)

Authorization Completion:

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

FINANCE & ADMINISTRATION

ACTION ITEM

1. Resolution 12-2020-1 – Customer Facility Fees; Connection Fees; and Suburban Wastewater Tapping Fees – December 14, 2020

Resolution No. 12-2020-1 is presented for Board consideration to update certain tapping fees, customer facilities and connection fees. The Suburban Wastewater Tapping Fees are updated annually with the assistance of LCA's rate consultant and apply to all new sewer connections in the Suburban Division. The 2021 Customer Facilities Fees and Connection Fees reflect actual costs for LCA purchase and installation of required metering equipment and other installation details for each connection size for water and sewer service.

2. 2021 Board Meeting Dates – December 14, 2020

The proposed Board meeting schedule for 2020 is presented for Board approval so the schedule can be advertised and posted to the Authority's website.

DISCUSSION ITEMS

INFORMATION ITEMS

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

Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	Industrial and Commercial Bank of China USA	New York, NY	245,000.00	8/28/20	2/28/22	0.200
WW Capac	Bank Hapoalim B.M.	New York, NY	249,000.00	8/26/20	8/26/22	0.250
WW Capac	Meridian Bank	Paoli, PA	249,000.00	8/28/20	2/28/22	0.150

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:

8323/8449 Congdon Hill Drive, 2 industrial lots with warehouses, 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

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
 1224 Weilers Road Townhouses, 144 townhouse units (sfa), UMT
 5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT

5420 Crackersport Road, 1 commercial lot, UMT
ATAS International, 1 industrial lot, UMT
Cedarbrook Road Industrial Park, 2 industrial lots, LMT
Estates at Maple Ridge, 30 residential units (sfd), UMiIT
Hidden Meadows, Phase 2, 86 townhouse units (sfa), UMT
Laurel Field, Phase 5, 25 townhouses, UMT
Lehigh Hills, Lot 5 Phase 2, 240 residential units (sfd.), UMT - New
Lehigh Hills Townhouses, 24 townhouse units (sfa), UMT – New
Madison Village at Penn's View, 66 manufactured homes, 1 lot, water and sewer, LynnT
Mountain View Estates, 27 residential units (sfd), LMT
Ridings at Parkland – Phase 2, 38 residential units (sfd), NWT
Schoeneck Road, Lot 1, 1 lot warehouse, LMT
Shepherds Corner, 1 commercial lot, LMT
Towneplace Suites by Marriott, 91-room hotel, UMT
West Hills Business Center-Bldg H – 1 Commercial Lot, Weisenberg T

Sewage Planning Modules Reviewed in Prior Month:

4601 Quarry Street, CWSA, 645 gpd.
St. Luke's Emergency Department Entrance, Allentown, 1,836 gpd.
2938 W Chew Street Subdivision, Allentown, 238 gpd.
Brewers Hill Development Group, Allentown, 4,116 gpd.

WATER**ACTION ITEM**

DISCUSSION ITEMS

INFORMATION ITEMS

1. Allentown Division – Water Main Replacement Program Cycle 5

The project is for the annual replacement of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with the new amended lease requirements (one mile per year), based on the design engineer's risk prioritization protocol. The design engineer (Gannett Fleming) halted work on Cycle 5 following City Compliance office acceptance of the Cycle 5 main replacement prioritization, pending available funding. Capital Works has re-started Cycle 5 design phase for construction in 2021 of a water main replacement project. As of November 2020, LCA is in the process of negotiations for cost sharing with the City for road surface restoration and anticipates submitting substantially complete plans and specifications to the City for approval in December 2020. Bid phase is anticipated to occur in early 2021. **(No Change)**

2. 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. Construction is 99% complete. This project will be funded by LCA Allentown Division. Majority of hardware in place and running. Working through reporting and data collection items. Expected completion on 12/11/2020

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

The Water Filtration Plant (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 was identified as unfunded in 2018 and 2019 prior to the dispute settlement with the City and may be supported through a PENNVEST loan pending. Board approval was granted at the 8/12/19 Meeting for the design phase of this project. Contract drawings representing 90% design were received in mid-November 2019. The design engineer also completed an "Arc-Flash" study in summer 2020 to identify related electrical deficiencies at the WTP. Final design engineering work was re-started in early September 2020 following execution of the new Agreement with the City. Capital Works met with a representative of PennVEST on 9/18/20 to discuss an upcoming application submission and final design completion schedule. Capital Works' submitted the funding application and supporting documentation to PennVEST by the 11/4/20 application submission deadline for the 1/20/21 PennVEST meeting. The application has been deemed complete by PennVEST and DEP.

4. Allentown Division – Water Filtration Plant: Raw Water Pump Room Painting Construction Phase

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 was approved at the 2/10/20 Board meeting. The pre-construction meeting was held on 2/12/20, construction began in March and is currently on hold due to pandemic related concerns. Construction is anticipated to resume once restrictions are eased and the risk of seasonal pipe sweating has abated, and should be completed by the end of 2020. **(No Change)**

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

The project features 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 (Jasper Ridge). 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 and a preconstruction meeting was held on 6/25/19. The NPDES permit was issued on 3/9/20 and a premobilization teleconference was held on 3/19/20. Upper Milford Township has issued building permits. Construction is more than 90% complete. A punch list of the remaining items to address is being prepared. The station went on-line on November 19th.

6. **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. 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. USGS and LCA have now found all three GW monitoring wells, LE860, LE 861 and LE862, who's usage had all been discontinued decades ago and their locations were presently unknown. USGS is now checking the viability of using them again. USGS has now completed the installation of (4) new surface water (SW) Gauging Stations in the Little Lehigh Watershed and all are collecting data. Two additional SW stations need to be relocated because of the intermittent streams they were originally planned to monitor. Additional ground water (GW) flow monitoring stations are in the planning stages. All six (6) Fybr sites are currently collecting flow data and the calibration process is expected to last several months. Four (4) out of eight (8) planned weather stations are currently operational and are recording data. **(No Change)**

9. **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 began in February 2020 and is approximately **40%** complete. Equipment delivery delays from the pre-cast building manufacturer

have slowed the progress of this project. the building is scheduled to be delivered in mid-December.

10. 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 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 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 project is substantially complete. The contractor completed replacing radios that were not working properly on December 2 and will return in January to complete any additional accounts that can be scheduled by LCA.

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

This Project focuses on the development of an additional well for the Madison Park North (MPN) system per DEP guidelines to have a backup source of water supply. An agreement is in place with an adjoining property owner to MPN to drill a test well on their property. 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 was approved by DEP in late September of 2019. Authorization was granted at the June 22 Board meeting for aquifer testing of the proposed well as per the combined Pre-Drilling and Aquifer Test Plan. Well testing was performed in August in coordination with LCA's engineer. Testing was halted upon discovery of a water bearing zone blocked by casing pipe grouting. A second test well location has been identified on the same property and well drilling has been completed with positive results. A sustained pump test of Well 2 will be completed as soon as hydrogeologic conditions are favorable.

12. Arcadia West Division – Water Storage Tank Replacement

The Arcadia West water storage tank has had several leaks in recent years and the coating has reached the end of its useful life. This project is for the replacement of the tank with a new concrete reservoir. Design phase authorization was awarded to Entech Engineering at the April 27, 2020 Board meeting. This project will be funded by the LCA Suburban Division. Design is underway and expected to be completed and ready for bid at the end of 2020. The DEP Public Water Supply Permit Application will be submitted in November. **(No Change)**

13. Allentown Division – 36" DI Water Main Condition Assessment

Water distribution system consultant Gannett Fleming, Inc is working with Pure Technologies to develop a condition assessment project focusing on the 36" ductile iron transmission line that feeds the north end of Allentown and Huckleberry Ridge Reservoir. This line has had two recent major failures and it would be beneficial to determine if there is a root cause for these failures that can be corrected to prevent further damage and water loss. The work is scheduled for the week of 12/14/2020.

WASTEWATER

ACTION ITEMS

1. **Suburban Division – Western Lehigh Service Area: Revenue Planning Tool- December 14, 2020**

As part of the long-term Act 537 planning process, a revenue planning tool is required to help predict the impact of proposed system modifications in the Western Lehigh Service Area. This tool will simulate financial impacts based on current and future flows and loads and utilizing the terms of existing inter-municipal agreements. For the alternatives being evaluated by LCA's engineering consultants for potential upgrade of the Pretreatment Plant to full treatment, the revenue planning tool will simulate changes in future flows and loads and general financial analyses to assist with decision-making regarding these alternatives. Prior phases of this work were completed in 2019 and 2020 to review the assumptions and parameters required to develop the financial model. The next phase includes developing the revenue planning tool for use when the engineering work is completed by mid-2021. Authorization for Phase 2 (development of the actual revenue planning tool) is being requested at the 12/14/2020 Board Meeting.

DISCUSSION ITEMS

INFORMATION ITEMS

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 – 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. The permit will be resubmitted in early 2021 upon action by DEP on the Interim Act 537 Plan (submitted in September 2020). Therefore, the original permit submission is 100% completed – awaiting Revision #1. This project is considered an AO expense under terms of the Lease and is City funded. **(No Change)**

3. **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. **(No Change)**

4. **Allentown Division – Sanitary Sewer Collection System: I&I Source Reduction Program Plan (Year 1 and 2)**

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 phase of the "Year 1 Project" was granted at the March 9, 2020 Board Meeting. This project commenced in early May 2020 and was finished in the middle of June 2020. The project is now officially closed. This project is considered an AO expense under terms of the Lease and is City funded. Year 2 details will be finalized in early 2021, with construction anticipated to start in Q2 of 2021. **(No Change)**

5. **Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning – 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 was granted 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. As of late August 2020, the Interim 537 Draft is 100% completed and was delivered to sixteen planning commissions on 3/16/2020. Planning commission meetings occurred with public advertisement opening on 6/10/20 and closing on 7/10/20. Municipal resolution adoptions occurred in August and the Plan was delivered to DEP on 9/4/20. **(No Change)**

6. **Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning – Sewage Billing Meter QAQC Data Analytics and 2021 Flow Metering Preparation**

As part of the Interim Act 537 Plan, the municipalities served by the Kline's Island Sewer System have committed to completing a flow metering and modeling project beginning in 2021. The flow metering data will be used to prepare modeling and identify the capital improvements needed to meet the future sewage capacity needs of the region through 2050. The flow metering will include a mix of temporary meters and the existing sewage billing meters. Data delivery and storage procedures, quality assurance, and flow analytics need implemented in 2020 for these sewage billing meters. Without this meter development program, the data cannot be used from these meters. Therefore, to prepare for 2021 flow metering, a consulting engineer has been preliminarily retained, and approval of their full Professional Service proposal was granted at the April 27, 2020 Board meeting. Costs associated with the development of the QAQC data

analytics and the 2021 flow metering preparation 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. **(No change)**

7. Regional Act 537 Plan Alternatives Analysis: Pretreatment Plant Upgrade Option

To begin the process of developing the long-term Regional Act 537 Plan, the evaluation of the LCA Pretreatment Plant Alternatives was identified as an immediate need to assist with completing the full alternatives analysis to be completed within the next five years. The alternative to upgrade the Pretreatment Plant to full treatment was previously evaluated in the 2011-2016 timeframe. Additional study is required to fully evaluate the facility's capacity to treat current and future dry-day, wet-weather, and peak flows. To complete this evaluation, LCA staff has received proposals for two engineering firms that will serve in Program Manager and Technical Lead roles. The Program Manager will oversee all alternatives being evaluated at both the Pretreatment Plant and Kline's Island Wastewater Treatment Plant in Allentown as the Act 537 Plan is being developed. The Technical Lead will provide specific engineering and treatment plant modeling services to support evaluation of the Pretreatment Plant alternatives. Board approval for these professional services authorizations was granted at the 8/24/2020 meeting. Final reports are expected by June 2021.

8. Suburban Division – Western Lehigh Service Area – 2020 Flow Metering Program

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. Approval of a Professional Services Authorization and three-year contract with Flow Assessment Services was granted at the February 10, 2020 Board meeting. On February 10, 2020, the Board approved a Professional Services Authorization for Arcadis to provide quality assurance and data analysis services for the 2020 flow monitoring program. As of late November 2020, data collection is 100% completed. The QA/QC of the data is ongoing.

9. Suburban Division – Western Lehigh Service Area: 2020 Sewer Modeling

The Western Lehigh Sewer Partnership (WLSP) hydraulic model has been calibrated using 2019 flow meter and rainfall data and is available to support long-term Act 537 planning for the Western Lehigh Interceptor (WLI). Five separate modeling tasks will be performed in order to facilitate broader Kline's Island Sewer System (KISS) planning need discussions. The results of this 2020 modeling will help to inform further future modeling decisions and alternative analyses that will occur during the full KISS model calibration period in 2022. A consulting engineer has been preliminarily retained and full authorization was granted at the 5/11/2020 Board meeting. The full model results will be available by early 2021. The project will be funded by the LCA Suburban Division. A presentation was presented to the Board at the 8/10/20 Board Meeting.

10. 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. LCA will conduct a limited manned inspection (tentatively Q4 of 2020) 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. One-day trial runs are tentatively scheduled in September to verify the amount of time available to keep Park Pump Station offline. The pump station must be inactive in order to perform the investigations. **(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 with respect to corroded structural steel tanks and outdated mechanical equipment and is to be replaced with this project. The new facility shall meet the effluent limits criteria established in the 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 was substantially completed in October 2020, with testing, start-up and training tasks completed. Construction is approximately 99% complete as of November 2020. Outstanding work consists of final restoration and demolition of the existing plant.

12. 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. DEP sent a letter to LCA dated 6/8/20 granting 55 EDUs of sewer allocation relief for new connections to the system. **(No Change)**

13. 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 in October 2019. A Consent Order & Agreement (CO&A) was drafted by DEP and sent to LCA in May 2020, which incorporates the projects and schedule outlined in LCA's proposed CAP. The final CAP was adopted by resolution by the LCA board at the 6/22/20 meeting. **(No Change)**

14. 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. Conditional Use approval and land development waiver were granted by North Whitehall Township in Spring 2020. Construction mobilization for site work occurred in late winter 2020 and construction is proceeding. Substantial completion and start-up of the new facility is anticipated for early 2021. **(No Change)**

16. 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 proceeding based on modeling information provided to date from Arcadis.

17. Suburban Division – Lynn Township Manhole Rehabilitation Project

This project involves the rehabilitation of manholes in the Lynn Township service area found to be structurally deficient &/or leaking. The project includes frame and cover replacement, interior pipe connection grouting, exterior concrete work and sealing of manholes, and sealing around manhole frames located within roadway surfaces that are found experiencing infiltration through the frame and cover. The purpose of the project is to eliminate inflow and infiltration into manholes in the system. The project scope includes approximately 185 manholes will be rehabilitated in 2020. The project was advertised for bid in early June 2020, bids were opened on 6/26/20, and construction phase authorization was approved at the 7/13/20 LCA board meeting. Construction will be completed by the end of 2020. **(No Change)**

18. Suburban Division - Heidelberg Heights 2020 Sanitary Sewer Replacement Project

In accordance with the adopted, executed Corrective Action Plan mandated by DEP, LCA is required to complete annual I/I mitigation projects to eliminate hydraulic overloads and bypass events at the Heidelberg Heights wastewater treatment plant. The Order requires that all original vitrified clay sewer main and lateral pipe be replaced within the next 5 years. This project was originally advertised for bid in March 2020 and bids were opened on 3/24/20. The low bid price exceeded this capital project construction budget for 2020, and the LCA board authorized rejection of bids at the 4/13/20 board meeting. The project scope was modified to reduce cost and the project was re-advertised for bid in June 2020, bids were opened on 7/13/20, and board authorization of construction phase was approved at the 7/27/20 LCA board meeting. Construction will be substantially completed by the end of 2020. **(No Change)**

19. Suburban Division – Western Lehigh Manhole Rehabilitation Project

This project involves the rehabilitation of key manholes in the Western Lehigh Interceptor service area. The project includes flood-proofing, interior pipe connection grouting, exterior concrete work and sealing of manholes, particularly those manholes that are in close proximity to the floodway and experience floodwater inundation. The purpose of the project is to eliminate floodwater inflow into the system. The project scope includes approximately 50 manholes to be rehabilitated in 2020 as part of a phased manhole rehabilitation program. The project was advertised for bid in April 2020, bids were opened on 5/12/20, and construction phase authorization was approved at the 6/8/20 board meeting. Construction will be completed in fall 2020. **(No Change)**

20. Allentown Division – Kline's Island WWTP: Sodium Hypochlorite System Installation Project – Construction Phase Approval

This project involves the replacement of the existing gaseous chlorination system at the Kline's Island Wastewater Treatment Plant (KIWWTP). The use of gaseous chlorine for effluent disinfection, while reliable, is outdated and creates significant public health and employee safety risks. In addition, the existing equipment has reached the end of its useful life. The 2018 KIWWTP Master Plan recommended abandoning gaseous chlorine and switching to (liquid) sodium hypochlorite. The design commenced in March of 2019 and was completed in early 2020. The project was advertised for bid in February 2020 and bids were opened on 4/14/20. Construction phase was authorized at the 6/8/2020 Board meeting and the contractor mobilized in late summer 2020. The project is anticipated to be completed in the first quarter of 2021. The project will be funded by the LCA Allentown Division. **(No Change)**