



LEHIGH COUNTY AUTHORITY

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

Agendas & Minutes Posted:
www.lehighcountyauthority.org

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BOARD MEETING AGENDA – November 8, 2021 – 12:00 p.m.

In-Person or Virtual Meeting Attendance Options Available: Meetings of the LCA Board of Directors will be held at LCA's Main Office as well as online using the Zoom Meetings application, which includes a telephone option. Public participation is welcomed both in-person or virtually. Instructions for joining the meeting online or by phone are posted on the LCA website in the morning on the day of the meeting, prior to the start of each meeting. You may also issue comment to LCA via email to LCABoard@lehighcountyauthority.org in advance of any meeting or view the meeting at a later time by visiting the LCA website. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting if you are attending virtually. If attending in-person at LCA's Main Office, please follow all safety and sanitation protocols posted.

1. Call to Order

- **NOTICE OF MEETING RECORDINGS**

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

- *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

- Additions to Agenda (vote required if action will be taken)

3. Approval of Minutes

- *October 25, 2021 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2022 Water & Wastewater Rate Schedules (Approval) (purple) (digital Board packet, pages 7-32)*

WATER

WASTEWATER

- *Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning: Rain Derived Inflow and Infiltration (RDII) Analysis (salmon) (digital Board packet, pages 33-40)*
- *Suburban Division – Western Lehigh Service Area – Engineering & Program Support (Approval) (gray) (digital Board packet, pages 41-46)*

6. Monthly Project Updates / Information Items (1st Board meeting per month) – **November report attached** (digital Board packet, pages 47-58)

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		
November 22, 2021	December 13, 2021	January 10, 2022

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

October 25, 2021

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:01 p.m. on Monday, October 25, 2021, Chairman Brian Nagle presiding. The meeting was hybrid via in-person and video and audio advanced communication technology ("ACT"), using the Zoom internet application, including telephone option. Each Board member and other attendees of the meeting were able to hear each other attendee and be heard by each other attendee. The public could also participate in the meeting in-person or via ACT, using the Zoom internet application, including telephone option. A Roll Call of Board members present was taken. Chairman Brian Nagle, Scott Bieber, Richard Bohner, Norma Cusick, Ted Lyons, Kevin Baker, 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, Chuck Volk, Susan Sampson, Phil DePoe, Lisa Miller, and Todd Marion.

Chairman Nagle stated that the Board received their electronic and hard copy of the Board packet in advance and asked if anyone did not receive their copy of the packet. A copy of the packet is also available online.

REVIEW OF AGENDA

There are no changes to the agenda and no Executive Session is planned.

APPROVAL OF MINUTES

October 11, 2021 Meeting Minutes

On a motion by Richard Bohner, seconded by Amir Famili, the Board approved the minutes of the October 11, 2021 Board meeting as written (9-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

2022 Proposed Budget Review (Approval)

Liesel Gross noted that today is the Board's fourth review of the proposed 2022 Budget. She reviewed the budget timeline and key components of this year's budget discussions.

Ed Klein reviewed the 2022 Budget summary of revenues, expenses, capital expenses and key benchmarks including debt service coverage ratio and the number of days of operating cash on hand. He noted that there were no changes to the proposed 2022 Budget figures since the last presentation provided to the Board on October 11, 2021.

Ms. Gross reviewed the key highlights included in the 2022 Budget process, including strategic planning, staffing, capacity planning, and rate impacts. The strategic planning process is being completed with Board review and approval planned for later this year. She reviewed the simplified mission statement that has been developed and noted key priorities that are being developed for the strategic plan. Resources to begin implementation of the plan are included in the 2022 Budget

proposal. She also reviewed staffing requirements for strategic initiatives including employee development, process improvement, and asset management. These positions require some additional definition prior to being filled.

Ms. Gross reviewed capacity planning projects that are included in the 2022 Budget. This work includes development of a Regional Act 537 Sewage Facilities Plan, Water Filtration Plant Master Plan, and the Suburban Water Supply Study. She highlighted other capital projects included in the 2022 Budget that relate to water and wastewater capacity development.

Ms. Gross reviewed rate increases that will occur in the Allentown Division, Suburban Water, and Suburban Wastewater funds. She shared information from the US Water Alliance and their recent Value of Water Index survey program, which found that 80 percent of voters say their water is affordable and would be willing to pay more to fund improved service. She presented a graph showing the Authority's water and sewer rates and how they compare to other communities in the Lehigh Valley, noting that the Authority's rates will remain among the lowest in the region in 2022. Ted Lyons asked why the City of Bethlehem's rates are lower than other cities like Allentown. Ms. Gross explained that the City of Bethlehem is under Public Utility Commission (PUC) jurisdiction and, as a result, the City of Bethlehem is required to obtain PUC approval prior to implementing rate increases. The time delay associated with PUC rate approval proceedings has the effect of temporarily delaying rate increases, but once the new rates are approved, they may exceed those of neighboring service areas. The City of Bethlehem is currently in front of the PUC for approval of a rate increase.

Chairman Nagle stated that a concern of the Board is the staffing requirements included in the 2022 Budget, explaining that the Board would like more detail prior to filling the Process Improvement and Asset Management positions. Amir Famili also commented that hiring an Asset Manager is essential, but he would like the Board to discuss the roles and responsibilities of the position and how the position will raise the visibility and leadership for the organization's asset management goals.

Ted Lyons asked how much of the Allentown Division debt service expense is due to the debt incurred through the Allentown Water and Sewer Lease to pay the City of Allentown's pension obligations. He asked what the Allentown Division rates would be if this debt didn't exist. Liesel Gross explained that the debt service is not specifically broken down based on different uses of the funds, but she noted that approximately 90 percent of the Lease bonds were used to fund the upfront payment to the City for the Lease. Therefore, the vast majority of the \$15 million of debt service expense in the Allentown Division is based on the Lease expense.

Liesel Gross reviewed the next steps noting that Board approval of the 2022 Budget is requested today and rate details will be presented for approvals next month.

On a motion by Amir Famili, seconded by Linda Rosenfeld, the Board approved the 2022 Budget (9-0).

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

Kevin Baker – yes
Linda Rosenfeld – yes
Jeff Morgan – yes
Amir Famili – yes

Chairman Nagle thanked Ed Klein and his team for their great work on the Budget.

On a motion by Amir Famili, seconded by Kevin Baker, the Board stipulated that the funds included in the 2022 budget for the Process Improvement and Asset Management staff positions not be spent for this purpose until a presentation is given by staff regarding the details of the positions (9-0).

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
Kevin Baker – yes
Linda Rosenfeld – yes
Jeff Morgan – yes
Amir Famili – yes

MONTHLY FINANCIAL REVIEW

Ed Klein presented the Authority's September 2021 financial statements, highlighting the variances between actual expenses and budgeted or forecasted expenses.

Linda Rosenfeld left the meeting at 12:54 p.m.

Jeff Morgan asked how capital expenses and debt service expenses are captured in the forecast since those expenses do not occur uniformly throughout the year. Ed Klein explained that the monthly capital expenses are accumulated in the year-to-date figures and forecasted from there. Regarding debt service, the bonds are paid on different schedules, either monthly, quarterly, and semi-annual.

MONTHLY SYSTEMS OPERATIONS OVERVIEW

John Parsons reviewed the September 2021 Monthly Systems Operations report, highlighting items of interest in the report. Water production is declining this time of year due to people not watering lawns and gardens, washing cars, and filling pools.

Mr. Parsons reported on the failure of belt press #3 at the Kline's Island Wastewater Treatment Plant that occurred in September. A previous repair on the belt had failed, causing major damage to the equipment. Repairs were made in-house and the press was up and running within six days. He also reviewed the significant rainfall events in September including Tropical Storm Ida, which caused several sanitary sewer overflows and treatment plant bypasses.

Jeff Morgan asked the age of the belt presses. Mr. Parsons said that the presses were rebuilt to like-new status in 2014.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

EXECUTIVE SESSION

None.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 1:14 p.m.

Richard Bohner
Secretary



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MEMORANDUM

TO: LCA Board of Directors
FROM: Liesel Gross, CEO
DATE: November 1, 2021
RE: 2022 Water & Sewer Rates

Attached: Sample Residential Bill Calculations for LCA Service Areas
Lehigh Valley Water & Sewer Rate Comparison
Proposed 2022 Water & Sewer Rate Schedules

Important Reminders

1. Lehigh County Authority is a non-profit, municipal authority. All revenues collected through our water and sewer rates are used for the sole benefit of the system to pay for current expenses or to fund future capital improvements. Our Board of Directors are unpaid volunteers, and LCA has no shareholders to pay.
2. While LCA operates as a single organization, the water and sewer revenues collected from our customers in Suburban communities may not and will not be used to pay for expenses associated with the Allentown Division lease agreement. Likewise, revenues from our customers in Allentown may not and will not be used to pay for expenses associated with our Suburban Division water or sewer operations. This is specified in all LCA bond documents that prohibit the mixing of revenues.
3. Across the nation, including in the Lehigh Valley, water and sewer utilities are facing a hidden crisis. Water and sewer infrastructure is buried underground, out of sight, where it is easy to forget or ignore. However, the American Society of Civil Engineers estimates that \$132 billion in water infrastructure investment is needed annually for the next decade to properly care for our nation's aging infrastructure. In LCA's service area, we expect our local need to be \$200 million or greater over the next 10 years.
4. LCA's mission is to protect public health and the environment by providing high-quality, safe, and reliable water and wastewater services. We take this responsibility very seriously. The decision to raise rates is weighed carefully against the long-term needs of the system so that we can fulfill this mission.

Discussion of Cost & Rate Increases

Throughout the 2022 Budget process, LCA staff presented information about the drivers for increasing costs and rates across all areas of the organization. They are outlined below in summary form:

- **Allentown Lease Agreement** – In 2020, LCA and the City of Allentown amended the Water & Sewer Lease Agreement to provide increased capacity for LCA to maintain and upgrade the City's water and sewer infrastructure, to ensure safe and reliable service for the community. The

Every drop matters. Every customer counts.

increased rates that will be applied in 2022 will provide necessary funding for high-priority projects to upgrade and replace critical system assets.

- **Water Purchase Cost Increase** – Also in 2020, LCA and Allentown renewed the water purchase agreement that allows LCA’s Suburban Division to purchase at least 7 million gallons per day of water from the City’s water system. This agreement amendment provides a long-term, reliable supply of water for our region and ensures an equitable distribution of water treatment costs to all users. In 2022, LCA’s Suburban Division faces an increase in its cost to purchase water from the City system due to increased investment in capital upgrades at the water filtration plant.
- **Capital Financing** – Over the past several years, LCA has worked to adopt an updated capital financing philosophy that will reduce our reliance on debt in the future. This will take time to achieve as current rates are structured around a more debt-intensive financing approach. However, we will take a more significant step in this direction in 2022 as approximately \$2.4 million in “repair and replacement” projects will be funded directly through the Suburban Division water rates, thereby lowering the need to borrow next year.

Rate Setting & Review Process

Lehigh County Authority’s 2022 water and sewer rates are presented in the attached schedules for the Board of Director’s consideration for adoption on November 8, 2021. They have been posted on the LCA website in advance of their proposed adoption and shared with key customers directly in accordance with any existing service agreements. Should any customer or member of the general public have questions or comments about these rates prior to their effective date of January 1, 2022, we will bring them back to the Board for consideration and to record them publicly for the record.

To assist the Board and the public with reviewing the proposed rates, a summary of the proposed rate changes is shown on the table below, and all changes are highlighted / shaded grey within the rate schedule documents attached. A calculation of the impact to a typical residential customer is also attached to this memo along with a comparison of how LCA’s rates compare to other water/sewer utilities in the Lehigh Valley region.

It is important to note that these rates were discussed, reviewed, and preliminarily approved as part of the 2022 Budget process that began in August and was concluded in October. This submission represents formal adoption of the rates that were generated based 2022 Budget calculations of revenue requirements as well as contractual requirements for rate-setting. In other words, there are “no surprises” included in the attached rate schedules.

Water Rates

Rate	Page #	Description / Discussion
Suburban Water Fixed & Volume Charges	1	Proposed changes in the fixed and volume rates were calculated considering the 2022 cost increases and increased “pay-go” capital funding needs, as discussed during the budget development process.
Public Fire Protection	2	Fire hydrant and system charges for public fire service provided by the Authority were evaluated as part of the 2018 water rate study.
Allentown Water Rates	9	The 2022 rates reflect increases based on the terms of the Concession Agreement with the City of Allentown, as amended in the summer of 2020. Such increases include an overall 7.1% increase in general rates, phased in increases to fixed charges, plus an updated calculation of the Capital Cost Recovery Charge per the methodology included in the agreement.

Wastewater Rates

Rate	Page #	Description / Discussion
Suburban Exceptional Strength Charge	5	As calculated in the Western Lehigh Interceptor User Charge Report that was submitted to municipal signatories in October 2021. Rates are calculated by formula in compliance with municipal agreements.
Western Lehigh Interceptor & Little Lehigh Relief Interceptor User Charges	7	As calculated in the Western Lehigh Interceptor User Charge Report that was submitted to municipal signatories in October 2021. Rates are calculated by formula in compliance with municipal agreements.
Allentown Sewer Rates	9	The 2022 rates reflect increases based on the terms of the Concession Agreement with the City of Allentown, as amended in the summer of 2020. Such increases include an overall 7.1% increase in general rates, phased in increases to fixed charges, plus an updated calculation of the Capital Cost Recovery Charge and Administrative Order Fee per the methodology included in the agreement.
Allentown Exceptional Strength Charge	10	As calculated by formula and applied to the City's municipal signatories and in-City customers with high-strength waste discharges.
Allentown Industrial Pretreatment Charges	10	Fees that may apply to individual customers depending on permit parameters, based on actual costs.

2022 Tapping Fees / Customer Facilities Fees

Any updates to these fees that may be required will be brought to the Board at a later date with required documentation and Resolution.

Lehigh County Authority - Proposed 2022 Rates

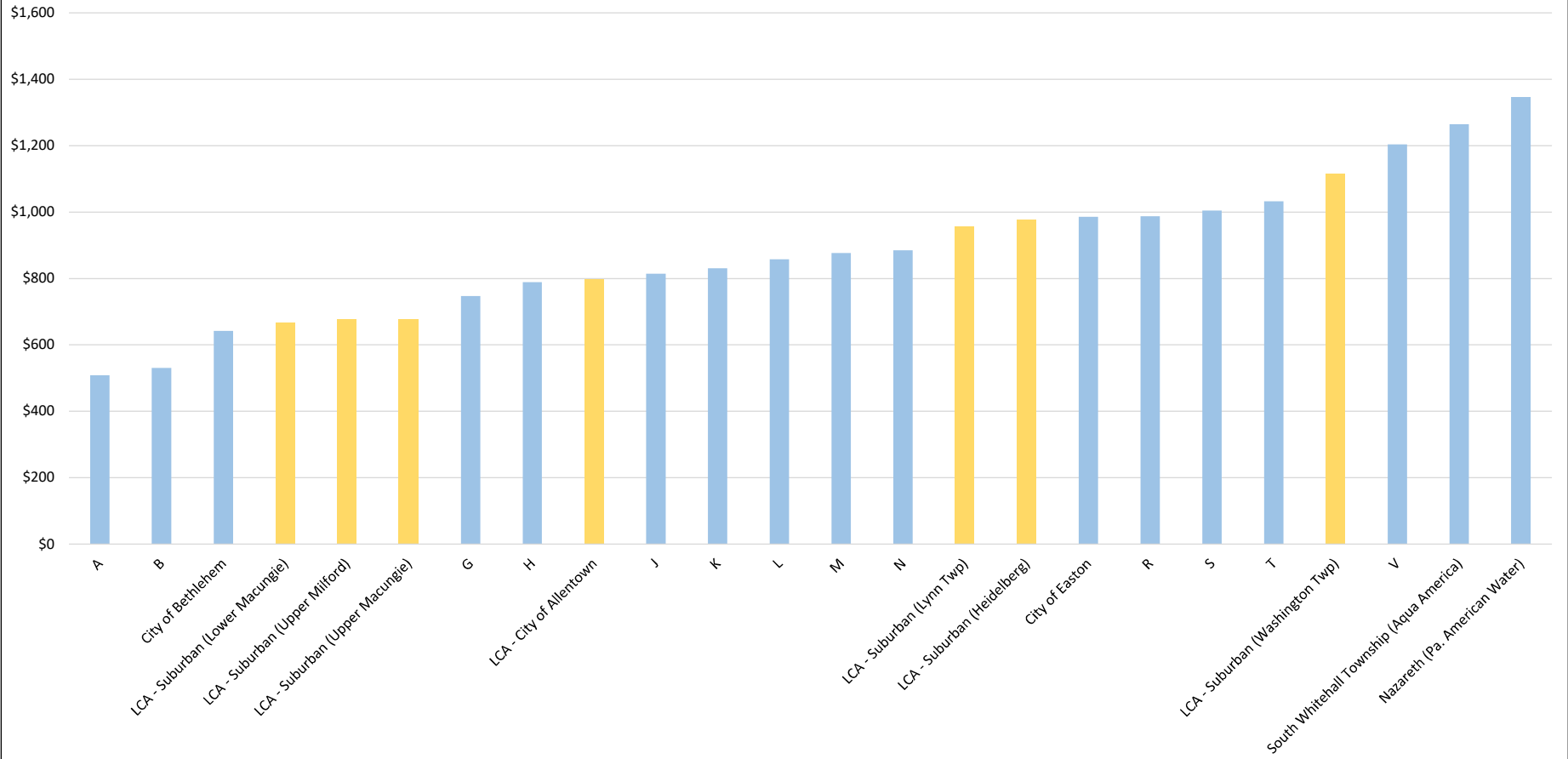
Bill Sample: Average Residential Customer, 15,000 gallons per quarter

	Lower Macungie Twp*	Upper Milford Twp**	Upper Macungie Twp*	Allentown Division	Lynn Twp**	Heidelberg Heights **	Washington Twp **
Water Fixed Charge	\$31.30	\$31.30	\$31.30	\$60.81	\$31.30	\$31.30	\$31.30
Water Volume Charge	\$48.90	\$48.90	\$48.90	\$68.24	\$48.90	\$48.90	\$48.90
Quarterly Water Bill	\$80.20	\$80.20	\$80.20	\$129.05	\$80.20	\$80.20	\$80.20
Sewer Fixed Charge	\$62.50	\$21.00	\$89.00	\$21.13	\$158.98	\$21.00	\$124.00
Sewer Flow Charge	\$24.00	\$67.95	n/a	\$49.44	n/a	\$142.95	\$75.00
Quarterly Sewer Bill	\$86.50	\$88.95	\$89.00	\$70.57	\$158.98	\$163.95	\$199.00
TOTAL QUATERLY BILL	\$166.70	\$169.15	\$169.20	\$199.62	\$239.18	\$244.15	\$279.20
ANNUAL WATER & SEWER BILL	\$666.80	\$676.60	\$676.80	\$798.48	\$956.72	\$976.60	\$1,116.80

* LCA customers in Lower Macungie and Upper Macunige townships receive sewer service and sewer bills directly from the township.
Rate information reflects the township's most recently published rate schedule.

** No rate changes are proposed for sewer service in Upper Milford, Lynn, Heidelberg or Washington townships.

Lehigh Valley Water & Sewer Rate Comparison (Data from 2020-2021, LCA 2022 Proposed Rates)
 24 communities in Lehigh Valley - average annual residential water & sewer bill (5000 gallons per month)



**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES**

**CENTRAL LEHIGH, NORTH WHITEHALL, WASHINGTON TOWNSHIP,
HEIDELBERG HEIGHTS, ARCADIA, PINE LAKES, MILL CREEK, BEVERLY HILLS,
CLEARVIEW FARM ESTATES, UPPER MILFORD CENTRAL, EMMAUS CONSECUTIVE,
AND MADISON PARK NORTH DIVISIONS**

I. Schedule of Water Rates

A. Metered Water Use

**Central Lehigh, North Whitehall, Washington Township, Heidelberg Heights,
Arcadia, Pine Lakes, Mill Creek, Beverly Hills, Emmaus Consecutive,
Madison Park North, Upper Milford Central & Clearview Farm Estates
Divisions**

(adopted 11/8/2021; effective 1/1/2022)

Current Fixed Charges		2022 Fixed Charge
Meter Size	Fixed Charge	
<i>Quarterly</i>		
5/8" & 3/4" *	\$ 20.05	\$31.30
1"	35.54	55.48
<i>Monthly</i>		
1-1/2"	26.93	42.04
2"	37.27	58.18
3"	67.29	105.05
4"	98.64	154.00
6"	184.83	288.54
8"	287.15	448.27
10"	404.23	631.04

*Typical residential.

Current Volume Charges			2022 Rate per 1,000 Gal.
Quarterly Usage (gal.)	Monthly Usage (gal.)	Rate per 1,000 Gal.	
First 120,000	First 0 - 40,000	\$2.76	\$3.26
Next 2,880,000	Next 960,000	\$2.68	\$3.17
Next 24,000,000	Next 8,000,000	\$2.33	\$2.75
Next 147,000,000	Next 49,000,000	\$2.01	\$2.38
Over 174,000,000	Over 58,000,000	\$1.82	\$2.15

Welshtown Road (Washington Township Division)

(adopted 9/19/95; effective 10/1/95)

Volume		Rate per 1,000 Gal.
First 8,000 gal./qtr.		*Minimum Charge/Quarter
All over 8,000 gal./qtr.		\$ 5.50
Meter Size	*Minimum Charge/Quarter	
5/8" & 3/4"	\$ 60.00	
1"	72.00	
1-1/4"	84.00	
1-1/2"	108.00	
2"	133.00	
3"	169.00	
4"	266.00	
6"	459.00	

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

B. Public Fire Protection

(adopted 11/8/2021; effective 1/1/2022)

Each Public Fire Hydrant (O&M Charge)	\$9.88/month
Each Inch-Squared Foot (System Charge)	\$0.00164/year

2022 Rates:
\$10.01/month
\$0.00167/year

C. Private Fire Protection

(adopted 7/12/10; effective 7/12/10)

Fire Line Size	Charge per Month
Single Family Residential	\$ 5.00
2"	13.61
2-1/2"	21.26
3"	30.62
4"	54.43
6"	122.47
8"	217.72
10"	340.18
12"	489.87

Arcadia West Division – Direct Fire Protection Service

(adopted 5/12/03; effective 5/12/03)

	Charge per Sq. Ft. of Building Space
Monthly	\$.00321
Quarterly	.00963

II. Meter Test Fee

(adopted 12/15/14; effective 1/1/15)

Meter Size	Fee
5/8", 3/4", 1"	\$50.00
Larger than 1"	Actual Cost if >\$50

III. Meter Inspection Fee

(adopted 12/15/14; effective 1/1/15)

\$50.00**IV. Service Order / Site Visit Fees**

(adopted 12/15/14; effective 1/1/15)

Business Hours – 7:00 a.m. and 4:45 p.m., Monday through Friday (except holidays)	\$50.00
After Hours	\$150.00
Service Termination & Restoration Charge	\$100.00

V. Site Revisitation Charge

(adopted 12/15/14; effective 1/1/15)

\$100.00

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)**

VI. Lien Administration Fee

(adopted 12/13/04; effective 01/1/05)

\$56.50 + Current Lehigh County Clerk of Court's Filing Fee**VII. Hydrant Security Device Fee****Central Lehigh Division**

(adopted 11/28/16; effective 1/1/17)

\$140.00**VIII. Fire Flow Test Charge**

(adopted 12/07/11; effective 01/01/12)

\$180.00**IX. Use of Easement Preparation Fee**

(adopted 12/07/11; effective 01/01/12)

\$90.00**X. Backflow Prevention Non-compliance Charge**

(adopted 12/07/11; effective 01/01/12)

\$50.00

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

IX. Tapping, Connection and Customer Facilities Fees

Central Lehigh Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,150	\$ 150	\$ 340	*	*
3/4"	1,880	300	605	*	*
1"	3,000	480	1,085	*	*
1-1/2"	4,350	705	2,420	*	*
2"	6,350	1,035	4,280	*	*
3"	10,190	1,690	9,675	*	*
4"	13,940	2,350	17,165	*	*
6"	20,050	3,520	38,695	*	*
8"	26,000	4,750	68,805	*	*
10"	30,700	5,865	107,500	*	*
12"	35,600	N/A	154,790	*	*

(* See Notes on page 8) N/A – Not Available

Washington Township Division – Excluding Welshtown Road

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee		Connection Fees	Customer Facilities Fees
	Distribution	Capacity		
MFR*	\$ 855	\$ 430	*	*
3/4"	1,550	1,000	*	*
1"	2,400	1,800	*	*
1-1/2"	3,470	4,000	*	*
2"	5,100	7,100	*	*
3"	8,320	16,000	*	*
4"	11,580	28,400	*	*
6"	17,350	64,000	*	*
8"	23,420	113,800	*	*
10"	28,930	177,800	*	*
12"	35,075	256,000	*	*

(* See Notes on page 8) N/A – Not Available

Central Lehigh Division – Lehigh Valley South Industrial Park

(adopted 07/25/05; effective 07/1/11)

Special Tapping Fee - \$2,095.37 per equivalent dwelling unit (EDU)

EDU = 220 gallons per day

Central Lehigh Division fees also apply

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

IX. Tapping, Connection and Customer Facilities Fees (cont'd)

North Whitehall Township Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,030	N/A	\$ 295	*	*
3/4"	2,000	N/A	575	*	*
1"	3,200	N/A	1,035	*	*
1-1/2"	4,700	N/A	2,300	*	*
2"	6,900	N/A	4,080	*	*
3"	11,250	N/A	9,200	*	*
4"	15,650	N/A	16,330	*	*
6"	23,450	N/A	36,800	*	*
8"	31,650	N/A	65,435	*	*
10"	39,100	N/A	102,235	*	*
12"	47,400	N/A	147,200	*	*

(* See Notes on page 8) N/A - Not Available (Type 2 Fee has not been established)

Arcadia Division

(adopted 8/27/12; effective 10/1/12)

Tapping Fee		
Part	Amount	Units
Capacity	\$ 1.55	Per Gallon per day
Distribution	0.67	Per Gallon per day
Special Purpose		
Fire Service	0.12	Per Square Foot of Building Space

Mill Creek Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,130	N/A	\$ 109	*	*
3/4"	2,000	N/A	192	*	*
1"	2,360	N/A	N/A	*	*
1-1/2"	3,470	N/A	N/A	*	*
2"	5,100	N/A	N/A	*	*
3"	8,320	N/A	N/A	*	*
4"	11,580	N/A	N/A	*	*
6"	17,350	N/A	N/A	*	*
8"	23,420	N/A	N/A	*	*
10"	28,930	N/A	N/A	*	*
12"	35,075	N/A	N/A	*	*

(* See Notes on page 8) N/A - Not Available (Type 2 Fee has not been established)

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

IX. Tapping, Connection and Customer Facilities Fees (cont'd)

Pine Lakes Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,130	N/A	\$ 109	*	*
3/4"	2,000	N/A	192	*	*
1"	2,360	N/A	N/A	*	*
1-1/2"	3,470	N/A	N/A	*	*
2"	5,100	N/A	N/A	*	*
3"	8,320	N/A	N/A	*	*
4"	11,580	N/A	N/A	*	*
6"	17,350	N/A	N/A	*	*
8"	23,420	N/A	N/A	*	*
10"	28,930	N/A	N/A	*	*
12"	35,075	N/A	N/A	*	*

(* See Notes on page 8) N/A - Not Available (Type 2 Fee has not been established)

Beverly Hills Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,130	N/A	\$ 109	*	*
3/4"	2,000	N/A	192	*	*
1"	2,360	N/A	N/A	*	*
1-1/2"	3,470	N/A	N/A	*	*
2"	5,100	N/A	N/A	*	*
3"	8,320	N/A	N/A	*	*
4"	11,580	N/A	N/A	*	*
6"	17,350	N/A	N/A	*	*
8"	23,420	N/A	N/A	*	*
10"	28,930	N/A	N/A	*	*
12"	35,075	N/A	N/A	*	*

(* See Notes on page 8) N/A - Not Available (Type 2 Fee has not been established)

Heidelberg Heights Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,030	N/A	\$ 364	*	*
3/4"	2,000	N/A	708	*	*
1"	2,360	N/A	1,490	*	*
1-1/2"	3,470	N/A	3,320	*	*
2"	5,100	N/A	5,890	*	*
3"	8,320	N/A	13,280	*	*
4"	11,580	N/A	23,570	*	*
6"	17,350	N/A	53,120	*	*
8"	23,420	N/A	94,950	*	*
10"	28,930	N/A	147,570	*	*
12"	35,075	N/A	N/A	*	*

N/A - Not Available (Type 2 Fee has not been established)

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

IX. Tapping, Connection and Customer Facilities Fees (cont'd)

Emmaus Consecutive Division

(adopted 08/13/07; effective 08/13/07)

Size of Service Line	Tapping Fee			Connection Fee	Customer Facilities Fee
	Distribution		Capacity		
	Type 1	Type 2			
MFR*	\$ 1,000	N/A	\$200	*	*
3/4"	1,480	N/A	400	*	*
1"	2,360	N/A	580	*	*
1-1/2"	3,470	N/A	1,600	*	*
2"	5,100	N/A	2,840	*	*
3"	8,320	N/A	6,400	*	*
4"	11,580	N/A	11,360	*	*
6"	17,350	N/A	25,600	*	*
8"	23,420	N/A	45,520	*	*

N/A - Not Available (Type 2 Fee has not been established)

Upper Milford Central Division

(adopted 8/27/12; effective 10/1/12)

Size of Service Line	Tapping Fee	
	Distribution	Capacity
3/4"	\$ 2,000	\$ 235

Notes:

MFR - Applicable to each dwelling unit in a mobile home park or multi-family dwelling with individual service and individually metered.

Connection Fee is based on actual cost of connecting to the Authority water line, extending the service line to the property line, and inspecting the Customer Service Line.

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

Customer Facilities Fee

(adopted 12/14/2020; effective 1/1/2021)

This fee includes the supply and installation of a water meter and a backflow protection device for residential facilities (meter component). The fee can also include, at the customer's option and based on actual cost, installation of a service line from the property line to the customer's facility by the Authority.

All service lines must have an approved backflow protection device installed. The Authority will furnish a DC (dual check) device for residential facilities.

Meter Size	Meter Fee - With DC Backflow	Meter Fee - With No Backflow
5/8"	\$436	\$402
5/8" Pit	\$501	\$467
3/4"	\$455	\$421
3/4" Pit	\$511	\$477
1"		\$499
1" Pit		\$524
1 1/2" Displacement *		\$720
1 1/2" Turbine *		\$993
1 1/2" Compound *		\$1,349
2" Displacement *		\$935
2" Turbine *		\$1,149
2" Compound *		\$1,536

* LCA will install all meters 1" or smaller. Larger meters may be purchased from LCA at the prices listed above, which includes a \$50 inspection fee. If LCA installation of a larger meter is requested, the customer will pay actual costs, on a time and materials basis.

Notes:

Backflow protection devices for commercial/industrial facilities or other facilities with a 1" or larger meter shall be approved by the Authority, and supplied, installed and tested by the applicant. Meters larger than 2" shall be approved by the Authority, supplied and installed by the applicant, and inspected by the Authority at the applicant's expense.

X. Non-Sufficient Funds (NSF) Fee

All Divisions

(adopted 9/24/01, effective 1/1/02)

\$25.00

XI. Service Initiation Fee

All Divisions

(adopted 9/24/01, effective 1/1/02)

\$15.00

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

CITY OF ALLENTOWN

Adopted 11/8/2021; Effective 1/1/2022

NOTE: Unless expressed specifically in this Schedule of Rates and Charges, customers of the City of Allentown water system are subject to any and all additional charges, fees, penalties and policies stated in Lehigh County Authority's Rules & Regulations for Water Service and its Schedule of Water Rates and Charges duly adopted for its non-City systems.

A. Metered Water Use

Meter Size	2021 Monthly Charge	2022 Monthly Charge	2021 Quarterly Charge	2022 Quarterly Charge
5/8"	n/a	n/a	\$48.34	\$60.81
3/4"	n/a	n/a	\$55.46	\$68.43
1"	n/a	n/a	\$69.88	\$83.98
1 1/2"	\$40.97	\$43.88	n/a	n/a
2"	\$55.34	\$59.27	n/a	n/a
3"	\$93.56	\$100.20	n/a	n/a
4"	\$136.78	\$146.49	n/a	n/a
6"	\$256.47	\$274.67	n/a	n/a
8"	\$400.25	\$428.67	n/a	n/a

Volume	2021 Rate per 1000 Gallons*	2022 Rate per 1000 Gallons*
All Volume	\$3.87478	\$4.15670

* Volume charge includes cost recovery for any Change of Law and cost passed through from the Delaware River Basin Commission as allowed under the Lease Agreement with the City of Allentown.

B. Capital Cost Recovery Charge

\$0.35365 per 1000 gallons

2022 Rate: \$0.39244

C. Private Fire Protection

Each Hydrant	\$385.81 per year (may be billed monthly or quarterly)
---------------------	--

2022 Rate:
\$413.20

D. Tapping Fees

Part 1 – Pre-Concession Rate for Pre-Concession Capital Cost Recovery

\$6.32 per gallon

2022 Rate: \$6.77

Part 2 – Post-Concession Rate for LCA Capital Cost Recovery

Capacity Part	\$0.00851 per gallon
Distribution Part	\$0.02551 per gallon

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

E. Customer Facilities Fees

Adopted 12/14/2020; Effective 1/1/2021

Fees includes the supply and installation of a water meter and associated components.

Meter Size	With LCA Installation*	Without LCA Installation*
5/8"	\$325	
3/4"	\$386	
1"	\$373	
1 1/2"	\$647	
2"	\$814	
3" Compound		\$1,659
3" Turbine		\$1,289
4" Compound		\$2,913
4" Turbine		\$2,313
6" Compound		\$4,897
6" Turbine		\$4,012
8" Compound		\$7,818
8" Turbine		\$6,690
* LCA will install all meters 2" or smaller. Larger meters may be purchased from LCA at the prices listed above, which includes a \$50 inspection fee. If LCA installation of a larger meter is requested, the customer will pay actual costs, on a time and materials basis.		

Other Components	Price
5/8" Meter Horn	\$47.10
3/4" Meter Horn	\$55.13
Curb Box	\$65.00

LEHIGH COUNTY AUTHORITY
SCHEDULE OF WATER RATES AND CHARGES (cont'd)

F. Connection Fee

Adopted 12/14/2020; Effective 1/1/2021

Actual cost of connecting to the Authority water line, completed by Authority personnel. Additional fees may apply for service line inspection, plan review, construction permits and/or capital recovery charges. Please contact the Authority's Capital Works department for more information.

Tap Size	Connection Fee
3/4"	\$448
1"	\$470
1 1/2"	\$686
2"	\$841
4" x 4"	\$2,200
6" x 4"	\$2,232
6" x 6"	\$2,439
8" x 4"	\$2,246
8" x 6"	\$2,441
8" x 8"	\$2,893
12" x 4"	\$2,371
12" x 6"	\$2,576
12" x 8"	\$3,033
12" x 12"	\$4,647

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

**UPPER MILFORD TOWNSHIP, WEISENBERG TOWNSHIP,
HEIDELBERG HEIGHTS, WYNNEWOOD, SAND SPRING, WASHINGTON
TOWNSHIP, LOWHILL TOWNSHIP, LYNN TOWNSHIP, WESTERN LEHIGH
INTERCEPTOR & LITTLE LEHIGH RELIEF INTERCEPTOR SYSTEMS**

I. Schedule of Wastewater Rates

A. Lowhill Township System

(adopted 06/13/16; effective 06/08/16)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	4.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

B. Upper Milford Township System

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	4.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

C. Weisenberg Township System

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	4.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

Western Weisenberg Township System (Arcadia West)

(adopted 12/11/06; effective 01/01/07)

Quarterly Flow Charge	<u>\$/1,000 gals</u> 58.00
Quarterly Fixed Charge	<u>\$/1000 gals of Allocation per day</u> 7.55

C. Heidelberg Heights System

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	9.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

D. Wynnewood System

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	9.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

E. Sand Spring System

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	9.53
Fixed Charge per Quarter	<u>\$ per Equivalent Dwelling Unit (EDU)</u>
- Multi-Family Residential	10.50
- All Other Accounts	21.00

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

F. Wastewater Treatment Plant Direct Customer

(adopted 12/10/12; effective 01/01/13)

Flow Charge	<u>\$/1,000 gals</u>
All Flow	4.53
Fixed Charge per Quarter	\$21.00*

* Per Equivalent Dwelling Unit (EDU)

G. Washington Township System

(adopted by resolution of Washington Township Board of Supervisors 12/2/08; effective 1/1/09 – Administered by Lehigh County Authority per agreement, as operator, approved 4/13/09; effective 1/1/09. Current rate adopted by LCA 12/10/12; effective 01/01/13). All other Authority administrative fees shall apply to these customers, including those set forth in the Metering Fees and Other Charges categories of this schedule.

Fixed Charge	<u>\$/qtr</u>
All customers	\$124.00

Flow Charge	<u>\$/1,000 gals</u>
All flow	\$5.00

H. Lynn Township

(adopted 12/07/11; effective 01/01/12)

Flow Charge	<u>\$/1,000 gals</u>
Commercial accounts, flow in excess of 15,000 gallons per quarter	7.20
Fixed Charge per EDU per Quarter	\$158.98

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

II. Metering Fees

A. Meter Purchase/Installation Fee

(adopted 12/14/2020; effective 1/1/2021)

Meter Size	Purchase & Inspection *
5/8"	\$330
5/8" Pit	\$395
3/4"	\$349
3/4" Pit	\$405
1"	\$427
1" Pit	\$452
1-1/2"	\$720
1-1/2" Pit	\$993
2" Displacement	\$1,349
2" Displacement Pit	\$935
2" Turbine	\$1,149
2" Compound	\$1,536

* Prices include ECR meter with touchpad, radio read unit and installation wire, plus \$50 inspection fee. Plumber shall install all components and call for meter inspection by LCA personnel.

B. Meter Inspection Fee

\$50.00

(adopted 12/15/14; effective 1/1/15)

C. Meter Test Fee

(adopted 12/15/14; effective 1/1/15)

Meter Size	Fee
5/8", 3/4", 1"	\$50.00
Larger than 1"	Actual Cost if >\$50

III. Other Charges

A. Service Order / Site Visit Fee

(adopted 12/15/14; effective 1/1/15)

Business Hours – 7:00 a.m. and 4:45 p.m.,
Monday through Friday (except holidays) **\$50.00**

After Hours **\$150.00**

B. Site Revisitation Charge

\$100.00

(adopted 12/15/14; effective 1/1/15)

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

- C. Lien Administration Fee**
(adopted 12/13/04; effective 01/01/05)

\$56.50 + Current Lehigh County Clerk of Court's Filing Fee

- D. Non-Sufficient Funds (NSF) Fee** **\$25.00**
(adopted 9/24/01, effective 1/01/02)

- E. Service Initiation Fee** **\$15.00**
(adopted 9/24/01, effective 1/01/02)

- F. Sampling and Testing Charges** **\$182.00/day**
(adopted 11/11/19; effective 1/1/20)
(Commercial & Industrial)

Fats-Oils-Greases Analysis **\$43.75/sample**
(adopted 11/9/2020; effective 1/1/2021)

- G. Exceptional Strength Charges**
(adopted 11/8/2021; effective 1/1/2022)

(Commercial & Industrial)	2021 Rates \$ / pound	2022 Rates \$ / pound
BOD	0.36	0.33
TSS	0.29	0.25
TKN	0.47	0.38

- H. Use of Easement Preparation Fee** **\$90.00**
(adopted 12/07/11; effective 01/01/12)

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

IV. Capital Recovery Charges

System	Tapping Fee \$/gallon/day	Tapping Fee \$/EDU	Connection Fee	Customer Facilities Fee
Upper Milford System (adopted 12/14/2020; effective 1/1/2021)				
			Actual Cost Trended*	Actual Cost Trended*
Route 29 Service Area				
Contributed Area (includes Western Lehigh fees plus UMiT Capacity & Planning Parts)	18.55	4,210.60		
LCA-Installed Area (includes Contributed Area fees plus UMiT Collection Part)	27.46	6,305.15		
Lower Macungie Twp. Customer	2.69	642.59		
Other Service Areas				
Contributed Area (includes Western Lehigh fees plus UMiT Capacity Part- Other)	12.85	2,871.79		
Non-Contributed Area (includes Contributed Area fees plus UMiT Collection Part)	21.77	4,966.34		
Western Weisenberg Twp System (adopted 12/14/2020; effective 1/1/2021)				
LCA Planning Fee	2.77	727.75	Historical Cost plus Financing	
LCA Land Fee	4.82	1,264.43	Actual Cost Trended	
Wastewater Treatment Plant	42.44	11,140.14	Actual Cost Trended	
Wynnewood System (adopted 12/14/2020; effective 1/1/2021)				
Capacity	56.26	13,569.29	Actual Cost	Actual Cost
Collection	14.68	3,539.82		
Heidelberg Heights System (adopted 12/14/2020; effective 1/1/2021)				
Capacity	29.02	7,000.44	Actual Cost	Actual Cost
Collection	3.75	904.18		
Sand Spring System (adopted 12/14/2020; effective 1/1/2021)				
Capacity	14.63	3,529.58	Actual Cost	Actual Cost
Collection	3.70	893.01		

*If constructed by Authority; if constructed by property owner, a \$90 inspection fee applies.

The capital recovery fees set forth in this schedule do not apply to the Washington Township sewer system since the Washington Township Board of Supervisors establishes such fees and administers capital recovery fees directly.

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

WESTERN LEHIGH INTERCEPTOR SYSTEM

I. Schedule of Wastewater Rates

(adopted 11/8/2021; effective 1/1/2022)

LCA Signatories	<u>2021 Rates (\$)</u>	<u>2022 Rates (\$)</u>
Flow (per 1,000 gallons)	0.91	1.16
BOD (per pound)	0.36	0.33
TSS (per pound)	0.29	0.25
TKN (per pound)	0.47	0.38
Allocation (per 1,000 gallons per day)	0.22	0.21
Emmaus		
Flow (per 1,000 gallons)	0.38	0.36

II. Tapping Fee

(adopted 12/14/2020; effective 1/1/2021)

<u>System</u>	<u>Tapping Fee \$/gal/day</u>	<u>Tapping Fee \$/EDU</u>	<u>Costing Method</u>
Treatment Allocation	6.43	1,432.90	Historical Trended Cost
Western Lehigh Interceptor	4.22	941.40	

LITTLE LEHIGH RELIEF INTERCEPTOR SYSTEM

I. Schedule of Wastewater Rates

(adopted 11/8/2021; effective 1/1/2022)

	<u>2021 Rate (\$)</u>	<u>2022 Rate (\$)</u>
LCA Signatories – Phase 1	0.23	0.23
Flow (per 1,000 gallons)		
Other Users – Lower Macungie Phase 2 & Brookside Road, Salisbury, and So. Whitehall Townships		
Flow (per 1,000 gallons)	0.21	0.23
LCA Signatories – Phase 2 Flow (per 1,000 gallons)	0.02	0.011

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

II. Tapping Fee

(adopted 12/14/2020; effective 1/1/2021)

<u>System</u>	<u>Tapping Fee \$/gal/day</u>	<u>Tapping Fee \$/EDU</u>	<u>Costing Method</u>
Little Lehigh Relief Interceptor	1.59	355.25	Historical Trended Cost

LINE INSPECTION AND CLEANING SERVICES

(adopted 7/27/09; effective 8/1/09)

<u>Crew Size</u>	<u>TV Inspection (\$/hr)</u>	<u>Sewer Cleaning (\$/hr)</u>	<u>Flow Monitoring (\$/hr)</u>
One Technician			
Regular Rate	\$111	\$116	\$68
Overtime Rate	\$140	\$144	\$96
Two Technicians			
Regular Rate	\$168	\$173	\$125
Overtime Rate	\$226	\$230	\$182
Three Technicians			
Regular Rate	\$226	\$230	N/A
Overtime Rate	\$311	\$316	N/A

LEHIGH COUNTY AUTHORITY SCHEDULE OF WASTEWATER RATES AND CHARGES

CITY OF ALLENTOWN

Adopted 11/8/2021; Effective 1/1/2022

NOTE: Unless expressed specifically in this Schedule of Rates and Charges, customers of the City of Allentown wastewater system are subject to any and all additional charges, fees, penalties and policies stated in Lehigh County Authority's Rules & Regulations for Sewerage Service and its Schedule of Wastewater Rates and Charges duly adopted for its non-City systems.

A. Sewer Usage Charges

Meter Size	2021 Monthly Charge	2022 Monthly Charge	2021 Quarterly Charge	2022 Quarterly Charge
5/8"	n/a	n/a	\$16.79	\$21.13
3/4"	n/a	n/a	\$19.25	\$23.76
1"	n/a	n/a	\$24.17	\$29.03
1 1/2"	\$14.11	\$15.11	n/a	n/a
2"	\$19.02	\$20.37	n/a	n/a
3"	\$32.22	\$34.51	n/a	n/a
4"	\$46.97	\$50.30	n/a	n/a
6"	\$88.02	\$94.27	n/a	n/a
8"	\$161.48	\$172.95	n/a	n/a

Flow Charge	2021 Rate per 1000 Gallons*	2022 Rate per 1000 Gallons*
All flow based on metered water usage**	\$2.78520	\$2.98318

* Flow charge includes cost recovery for any Change of Law and cost passed through from the Delaware River Basin Commission as allowed under the Lease Agreement with the City of Allentown.

** Unmetered residential accounts will be charged for flow based on an average usage of 180 gallons per day.

B. Capital Cost Recovery Charge

\$0.14954 per 1000 gallons

2022 Rate:
\$0.15055

C. Administrative Order Fee

\$0.15305 per 1000 gallons

Administrative Order Fee is collected to reimburse the City of Allentown for expenses associated with complying with the USEPA Administrative Order to correct / eliminate sanitary sewer system overflows.

2022 Rate:
\$0.16241

D. Tapping Fees

Part 1 – Pre-Concession Rate for Pre-Concession Capital Cost Recovery

\$4.82 per gallon

2022 Rate: \$5.16

Part 2 – Post-Concession Rate for LCA Capital Cost Recovery

Capacity Part **\$0.01538 per gallon**

Collection Part **\$0.00052 per gallon**

**LEHIGH COUNTY AUTHORITY
SCHEDULE OF WASTEWATER RATES AND CHARGES**

E. Exceptional Strength Charges

(Commercial & Industrial)	2021 Rate \$ / pound	2022 Rate \$ / pound
BOD	0.314	0.298
TSS	0.277	0.262
TKN	0.415	0.392

F. Industrial Pretreatment Program Fees

Program Charge / Testing Fees	2021 Rate
Issue Initial Two (2) Year Permit	\$1,200.00
Renewal Fee	\$575.00
Review of Monitoring Reports Required by Federal Regulations	\$275.00
Single Occurrence Review	\$350.00
Site Visitations and Inspection	\$130.00
Monitoring Reports Preparation	\$135.00
Placement of Chemical Samplers	\$105.00
Sample Collection and Preparation	\$52.50
Biochemical Oxygen Demand	\$27.50
Cyanide, Total	\$36.00
Oil & Grease	\$43.75
pH	\$12.50
Phenols	\$37.50
Solids, Total Dissolved	\$15.00
Solids, Total Suspended	\$17.50
Solids, Total	\$15.00
Sulfides	\$25.00
Total Kjeldahl Nitrogen (TKN)	\$28.50
Total Petroleum Hydrocarbons	\$50.00
Total Phosphorous as P	\$25.00
Cadmium	\$15.00
Chromium	\$15.00
Copper	\$15.00
Lead	\$15.00
Molybdenum	\$15.00
Nickel	\$15.00
Silver	\$15.00
Selenium	\$15.00
Zinc	\$15.00
Mercury	\$25.00
Cobalt	\$15.00
Lithium	\$15.00
SVOA 625	\$187.50
VOA 1666	\$412.00
VOA 624	\$112.50
Diesel Range Organics	\$75.00
PFAS	\$475.00

MEMORANDUM

Date: November 8, 2021

To: LCA Board of Directors
Liesel Gross, CEO

From: Phil DePoe, Senior Planning Engineer

Subject: Allentown Division – RDII (Rain Derived Inflow and Infiltration) Analysis of 2021 Flow Meter and Rain Gauge Data

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization: RDII Analysis	\$130,000
1A	Professional Services Authorization: Arcadis - RDII Analysis	\$110,000*

**Included in the Capital Project Authorization*

Introduction & Background

NOTE: See February 22, 2021 Board Memo for the introduction and background related to Act 537 Planning efforts.

1A. Allentown Division – RDII Analysis

AUTHORIZATION OVERVIEW:

The main goal of this work is to conduct an Rain Derived Inflow & Infiltration (RDII) analysis, using data from storm events that occurred during the 2021 flow monitoring period, to determine the nature and extent of infiltration and inflow (I&I) leakage in the municipal signatory sewer collection systems, including all City and Western Lehigh signatories. *Authorization of RDII analysis for the City of Allentown sewer system was authorized separately earlier in 2021, but will be conducted simultaneously to this work.*

Using hydrograph interpretation, this will help these specific Signatories (LCA, Emmaus, Salisbury, South Whitehall, Coplay-Whitehall) focus their rehabilitation work through Sanitary Sewer Evaluation Survey (SSES) investigations toward the sources contributing the leakage. Using this analysis, it can be identified where and what type of SSES work should be completed to allow successful targeted I&I source reduction projects. Data from approximately 55 temporary flow meters and multiple rain gauges from the 2021 flow metering program will be used for this analysis.

FINANCIAL:

This project will be funded via the LCA Allentown Division.

CURRENT STATUS:

Pending Board approval of these services.

THIS APPROVAL – RDII ANALYSIS SERVICES:

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide the RDII analysis using 2021 flow meter and rain gauge data. These services will include the following:

Professional Services
<ul style="list-style-type: none"> • Rainfall Derived I&I Analysis
<ul style="list-style-type: none"> • Meet with LCA staff and stakeholders as needed
<ul style="list-style-type: none"> • Deliver final results to LCA staff and stakeholders

CONSULTANT SELECTION PROCESS:

In addition to serving as LCA's engineering consultant for annual ongoing sewer program support services, Arcadis has worked with the City and their signatories since the 2009 Administrative Order. In addition, Arcadis has extensive knowledge of the KISS partners' sewer systems, sewer billing meters, and was instrumental in creating the original KISS sewer model in 2014.

Prior data validation, hydraulic modeling and related work has been completed by Arcadis since 2008, most notably in 2019 (meter QA/QC, RDII analysis, and WLI model development), 2020 (meter QA/QC, WLI model scenario planning), and 2021 (meter QA/QC).

Lastly, the City has directed LCA to utilize Arcadis for their RDII analysis. The Board approved this request at the February 22, 2021 meeting. Arcadis will be used to complete the remaining Signatories' RDII analysis upon approval of this authorization.

SCHEDULE:

Arcadis will start these RDII efforts in late 2021 and will complete these efforts by March of 2022.

FUTURE AUTHORIZATIONS:

None anticipated.

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

Arcadis U.S., Inc.
1600 Market Street
Suite 1810
Philadelphia
Pennsylvania 19103
Tel 215 625 0850
www.arcadis.com

Subject:

Scope and Budget for Inflow and Infiltration Flow Characterization Analysis of 2021 Flow Meter Data for the 1981 Signatories (excluding the City) to Identify and Prioritize Needed Subsequent SSES Work

Date:

October 27, 2021

Dear Mr. DePoe:

Arcadis is pleased to provide LCA with this scope and budget for the flow characterization analysis of Rainfall Derived Inflow and Infiltration (RDII) effects using the 2021 flow and rainfall data gathered from the 55 meters flow meters installed in Signatories sewers to prioritize where and which subsequent SSES methods should be employed to identify smaller specific areas where specific types of leakage are entering the sewers. This will allow source reduction projects to be identified and targeted to the specific assets leaking within the much larger sewer sheds, which are average 12 miles of sewer per meter basin, which is far too large to conduct sewer rehabilitation work.

Contact:

Jim Shelton

Phone:

302.723.1450

Email:

James.Shelton@arcadis.com

OBJECTIVES

The main goal of this work is to help the Signatories focus their rehabilitation work through Sanitary Sewer Evaluation Survey (SSES) investigations toward the sources contributing the leakage. This is done by calculating the amounts of leakage into each of the approximately 50 sewer meter basins (there are multiple meters for some basins, and in many cases Signatory and City meters flow into/from each other) during dry and wet weather periods via an RDII analysis and using hydrograph interpretation to identify the types of the leakage observed. Using this analysis, we will be able to identify where and what types of SSES work should be completed to allow successful targeted source reduction projects.

For the purposes of this scope and budget, we assume that the QAQC'd data from the flow meters installed for the 2021 flow metering program will be used.

SCOPE OF WORK

Task 1 – Rainfall Derived I&I Analysis

Arcadis will define the typical dry day flow pattern for each basin. From this work we will identify the seasonally varying impact of baseline groundwater infiltration (typically expressed as a percentage of the actual sewage flow). We will then conduct rainfall derived removal potential evaluations (RDII analysis) of flow monitoring and rainfall data. The results of the RDII analysis will be used to identify the types and amounts of I&I for each basin and determine the peaking factor for each storm event. The type of RDII impacts will be used to identify the most appropriate SSES activities for locating actual sources in each basin.

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

For each metered location, the data will be analyzed, and hydrographs will be developed and interpreted to identify suspected sources of I&I. Our data analysis software automates much of the analysis of flow and rainfall data, providing efficient and effective review of data quality and statistical summaries, base flow patterns, and magnitude of RDII impacts. Where necessary and possible (based on data quality), upstream flows will be subtracted from downstream flows to represent basin RDII conditions. The hydrographs will be analyzed qualitatively to determine the nature of RDII in each basin.

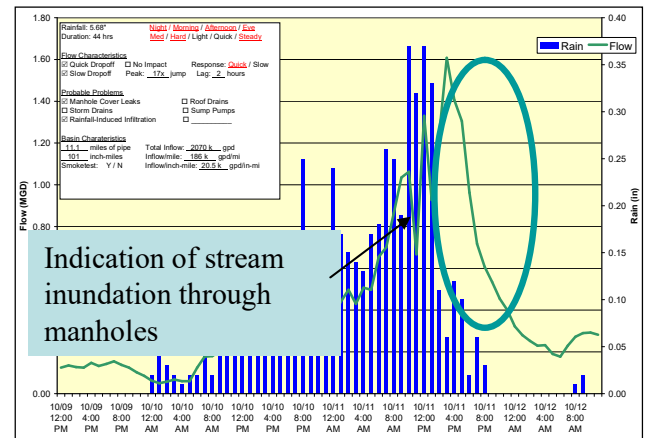
The following data assessments will be prepared for each valid and true meter basin:

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

We will analyze all flow data collected to calculate average daily flows, peak flows, and I&I from each of basin. Wet weather and dry weather flow patterns will be

established and peak, minimum, and average flow rates will be calculated for each basin flow element: base infiltration, base sewage flow, and RDII.

Analysis of the flow hydrographs described above will provide insight into the sources of RDII in each basin. The hydrograph for each basin can be used to select the SSES activities. Different sources of RDII have different flow signatures. For example, high peaks in the hydrograph over a short duration are evidence of sources of inundation or inflow; we would identify SSES activities for these basins to specifically identify inflow and inundation sources as well as cross connections with storm sewer systems as well as illicit storm and/or groundwater connections to the sewer system by private property connections. Conversely, hydrographs illustrating peaks that are sustained over a long duration are evidence of sources of rainfall-induced infiltration; for these, we would recommend night-time weiring or micrometering. Hydrographs often indicate a combination of infiltration and inflow within the same basin, and varying impacts based on antecedent rainfall and storm intensity.



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

DELIVERABLES

Arcadis will deliver the RDII analysis and SSES recommendations in the form of tables, hydrographs, scatter-graphs, and GIS figures and will meet with Signatories and LCA staff and stakeholders as necessary to present the results and recommendations. No written report will be provided. Work including meetings will be completed by March 2022.

BUDGET ESTIMATE

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

Task	Hours	Cost
Task 1 – Rainfall Derived I&I Analysis	775	\$110,000
Total	775	\$110,000

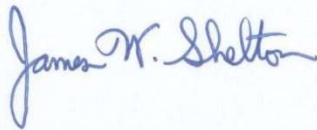
Mr. Philip DePoe
October 27, 2021

We propose to complete these services on a time and materials basis in accordance with the Agreement between LCA and Malcolm Pirnie, Inc., and the current Summary of Standard Charges for Lehigh County Authority. Arcadis will track the costs associated with this work and report them to LCA monthly throughout the project; we will not exceed the authorized budget without written professional services authorization from LCA. Payment for services will be based upon the actual labor and expenses incurred. Invoicing will be completed monthly. The invoice will include the defined contract tasks listing the day-by-day personnel performing the task with hourly rate and hours worked. The invoice will provide total billed for month. Support documents will be provided if there are any expenses incurred.

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

Sincerely,

ARCADIS U.S., Inc.



James W. Shelton, PE
Vice President

Cc: Tony Dill

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	AD-S-12	BUDGET FUND:	Allentown Div\Wastewater\Capital
PROJECT TITLE:	Allentown Division - RDII Analysis of 2021 Flow Meter and Rain Gauge Data		PROJECT TYPE:
THIS AUTHORIZATION:	\$130,000	<input type="checkbox"/>	Construction
TO DATE (W/ ABOVE)	\$130,000	<input checked="" type="checkbox"/>	Engineering Study
		<input type="checkbox"/>	Equipment Purchase
		<input type="checkbox"/>	Amendment

DESCRIPTION AND BENEFITS:

The main goal of this work is to conduct an RDII analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow (I&I) leakage. Using hydrograph interpretation, this will help these Signatories (LCA, Emmaus, Salisbury, South Whitehall, Coplay-Whitehall; note: the City's RDII was approved prior using separate funds) focus their rehabilitation work through Sanitary Sewer Evaluation Survey (SSES) investigations toward the sources contributing the leakage. Using this analysis, it can be identified where and what type of SSES work should be completed to allow successful targeted source reduction projects. Data from approximately 55 temporary flow meters and multiple rain gauges from the 2021 flow metering program will be used for this analysis.

This Authorization: Rain-Derived Inflow & Infiltration (RDII) Analysis. This work will be completed in 2022.

See attached Board Memo for further project details.

Authorization Status:

Requested This Authorization (RDII Analysis)	
<i>Planning Phase</i>	
Staff	\$15,000
Contractor	\$0
Engineering Consultant	\$110,000
Contingency	\$5,000
Total This Authorization	\$130,000

REVIEW AND APPROVALS:

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



Lehigh County Authority

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

PROFESSIONAL SERVICES AUTHORIZATION

Professional: ARCADIS U.S., INC.
1600 Market Street, Suite 1810
Philadelphia, PA 19103

Date: November 8, 2021

Requested By: Phil DePoe

Approvals

Department Head: _____

Chief Executive _____

Officer: _____

Allentown Division - RDII (Rain Derived Inflow and Infiltration) Analysis of 2021 Flow Meter and Rain Gauge Data

The main goal of this work is to conduct an RDII analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow (I&I) leakage. Using hydrograph interpretation, this will help these specific Signatories (LCA, Emmaus, Salisbury, South Whitehall, Coplay-Whitehall; note: the City's RDII was approved prior using separate funds) focus their rehabilitation work through Sanitary Sewer Evaluation Survey (SSES) investigations toward the sources contributing the leakage. Using this analysis, it can be identified where and what type of SSES work should be completed to allow successful targeted source reduction projects. Data from approximately 55 temporary flow meters and multiple rain gauges from the 2021 flow metering program will be used for this analysis. Specific tasks that Arcadis will perform include, but are not limited to, the following:

Professional Services ⁽¹⁾
1. Rainfall Derived I&I Analysis
2. Meet with LCA staff and stakeholders as needed
3. Deliver final results to LCA staff and stakeholders

(1) For RDII Analysis Only

This Proposal: \$110,000

Cost Estimate (not to be exceeded without further authorization): \$110,000

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:** _____

MEMORANDUM

Date: November 8, 2021

To: LCA Board of Directors
Liesel Gross, CEO

From: Phil DePoe, Senior Planning Engineer

Subject: Suburban Division – Western Lehigh Conveyance Engineering and Program Support

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization: Suburban Division – Western Lehigh Conveyance Engineering and Program Support	\$120,000
1A	Professional Services Authorization: Arcadis – Suburban Division - Western Lehigh Conveyance Engineering and Program Support	\$100,000*

**Included in the Capital Project Authorization*

Introduction & Background

NOTE: See February 22, 2021 Board Memo for the introduction and background related to Act 537 Planning efforts.

1A. Suburban Division – Western Lehigh Conveyance Engineering and Program Support

AUTHORIZATION OVERVIEW:

As the municipalities in the Western Lehigh Service Area continue to work on inflow and infiltration source removal as part of the approved Interim Act 537 Plan, Arcadis will provide coordination and on-call services to LCA to facilitate the Western Lehigh signatories' participation and contributions to the regional Act 537 Plan development and management of the sewer conveyance system. These sewer program support services will be for tasks not defined in other project specific authorizations. These services are for the 2022 calendar year only.

FINANCIAL

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

CURRENT STATUS

Pending Board approval for 2022 support services.

THIS APPROVAL – EXTENSION OF ONGOING SUPPORT

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide the ongoing sewer program support services. For 2022, these services may include:

Professional Services
<ul style="list-style-type: none">Meetings with PADEP and other stakeholdersPreparation of responses to regulators regarding the sewer capacity and connection management

<ul style="list-style-type: none"> • Meetings with City of Allentown and other signatories
<ul style="list-style-type: none"> • Status meetings with LCA
<ul style="list-style-type: none"> • Technical evaluations and data reviews
<ul style="list-style-type: none"> • Small modeling, flow assessment, or other conveyance related work
<ul style="list-style-type: none"> • Other related services as requested by LCA

CONSULTANT SELECTION PROCESS

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

SCHEDULE

On-call services as needed.

FUTURE AUTHORIZATIONS

Ongoing support services to continue in 2023 and beyond.

Arcadis U.S., Inc.
1600 Market St., Suite 1810
Philadelphia
Pennsylvania 19103
Tel 215.931.4372
www.arcadis-us.com

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

Subject:
537 Conveyance Engineering and Program Support through 2022

Dear Mr. DePoe:

Arcadis is pleased to offer this scope and budget proposal for 537 Conveyance Engineering and Program Support for Q4 2021 through the end of 2022.

PROPOSED SCOPE OF SERVICES

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

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

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

DELIVERABLES AND SCHEDULE

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

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

Date:
10/4/2021

Contact:
Anthony J. Dill

Phone:
215.931.4372

Email:
Anthony.Dill@arcadis.com

Our ref:
30047126

BUDGET

As this is undefined work, we recommend allocating \$100,000 to cover the work anticipated through the end of 2022. We propose to complete these services on a time and materials basis per the current Summary of Standard Charges for Lehigh County Authority. We will track the costs associated with this work and report them to LCA monthly throughout the program. We will not exceed the authorized budget without written professional services authorization from LCA.

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

Sincerely,

ARCADIS U.S., Inc.

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

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

Cc: Jim Shelton, Arcadis

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	SD-S-3	BUDGET FUND:	Suburban Div\Wastewater\Capital
PROJECT TITLE:	Suburban Division – Western Lehigh Conveyance Engineering and Program Support	PROJECT TYPE:	<input type="checkbox"/> Construction <input checked="" type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment
THIS AUTHORIZATION:	\$120,000		
TO DATE (W/ ABOVE)	\$223,500		

DESCRIPTION AND BENEFITS:

As the municipalities in the Western Lehigh Service Area continue to work on inflow and infiltration source removal as part of the approved Interim Act 537 Plan, Arcadis will provide coordination and on-call services to LCA to facilitate the Western Lehigh signatories' participation and contributions to the regional Act 537 Plan development and management of the sewer conveyance system. These sewer program support services will be for tasks not defined in other project specific authorizations.

Prior Authorization: Conveyance Engineering and Program Support in 2020 and 2021.

This Authorization: Conveyance Engineering and Program Support. This work will run through 2022.

See attached Board Memo for further project details.

Authorization Status:

Requested This Authorization (Western Lehigh Conveyance Engineering and Program Support)	
<i>Design Phase</i>	
Staff	\$15,000
Contractor	\$0
Engineering Consultant	\$100,000
Contingency	\$5,000
Total This Authorization	\$120,000

Prior Authorization (2020)	\$103,500
Subtotal	\$223,500
<i>Future Authorizations (2023-2025)</i>	<i>\$250,000</i>

REVIEW AND APPROVALS:

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



Lehigh County Authority

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

PROFESSIONAL SERVICES AUTHORIZATION

Professional: ARCADIS U.S., INC.
1128 Walnut Street, 4th Floor
Philadelphia, PA 19107

Date: November 8, 2021

Requested By: Phil DePoe

Approvals

Department Head: _____

Chief Executive _____

Officer: _____

Suburban Division – Western Lehigh Conveyance Engineering and Program Support

As the municipalities in the Western Lehigh Service Area continue to work on inflow and infiltration source removal as part of the approved Interim Act 537 Plan, Arcadis will provide coordination and on-call services to LCA to facilitate the Western Lehigh signatories' participation and contributions to the regional Act 537 Plan development and management of the sewer conveyance system. These sewer program support services will be for tasks not defined in other project specific authorizations. These services are for the 2022 calendar year only and may include:

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

Prior Approval:

Amount: \$103,500

This Approval:

Amount: \$100,000

New Amended Amount (not to be exceeded without further authorization): \$203,500

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 ITEMS

1. 2022 Water & Wastewater Rate Schedules – November 8, 2021

Following completion of the 2022 Budget process, a complete package of water and wastewater rate updates is presented to the Board for consideration and adoption. The Suburban Water rates shown in proposed rate schedules are a result of the budget process. The City Division water and sewer rates reflect terms of the Concession Lease Agreement. Board approval for the updated rate schedule is requested at the November 8, 2021 meeting to allow for proper notification to customers prior the January 1, 2022 effective date.

2. 2020 Audit & Financial Statements – Schedule TBD

The 2020 Audited Financial Statements have been delayed due to the delayed completion of the Pennsylvania Municipal Retirement System financial audit. A notice of delay has been sent to the appropriate parties. The LCA statements were completed by **September 30, 2021**. In November, staff will present the financial statements to the Board for review and acceptance.

3. LCA Strategic Plan – Update & Approval – December 13, 2021

Since April 2021, LCA has been working on preparing an updated Strategic Plan and incorporating feedback from employees, key stakeholders, and the Board of Directors. The work has been facilitated by Raftelis and included development of updated mission and vision statements, along with strategic priorities, measures, and implementation plans. Board review and approval of the plan will be requested at the December 13, 2021 meeting.

DISCUSSION ITEMS

INFORMATION ITEMS

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

CERTIFICATES OF DEPOSIT						
28-Oct-21						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
Cons Wtr (2)	Synchrony Bank	Draper, UT	249,000.00	10/15/21	10/16/23	0.400

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

1. Developments

Water system construction is occurring in the following developments:

5420 Crackersport Road, 1 commercial lot, UMT

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

Fields at Indian Creek, Phases 4 & 5, 86 residential units (sfd), water and sewer, UMiIT & Emmaus

Kohler Tract, 123 residential lots (sfa), water and sewer, UMiIT
Lehigh Hills, Lot 5 Phase 2, 240 residential units (sfd.), UMT
Lehigh Hills Townhouses, 24 townhouse units (sfa), UMT
Mountain View Estates, 27 residential units (sfd), LMT
Sauerkraut Lane Extension – Roadway & water line extension, LMT - New
Shepherds Corner, 1 commercial lot, LMT
West Hills Business Center – Lot H, 1 commercial lot, Weisenburg T

Water system plans are being reviewed for the following developments:

749 Route 100, 1 industrial lot with warehouse, UMT
5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT
ABE Doors & Windows Redevelopment, 1 commercial lot, LMT
ATAS International, 1 industrial lot, UMT
Estates at Maple Ridge, 30 residential units (sfd), UMiIT
Glenlivet Drive West Extension & Subdivision, 52 residential units (sfd), UMT
Green Hills Commerce Center III, 1 commercial lot, UMT
Laurel Field, Phase 5, 25 townhouses, UMT
Madison Village at Penn's View, 66 manufactured homes, 1 lot, water and sewer, LynnT
Mertztown Residential Subdivision, 264 sf units & 136 townhouse units, LMT
Mosser Road Subdivision, 10 sf units, UMT
Parkland Crossing (formerly 1224 Weilers Rd Twins), 144 townhouse units, UMT
Readington Farms – 1 industrial lot, UMT
Ridings at Parkland – Phase 2, 38 residential units (sfd), NWT
Self-Storage Facility – Cedarbrook Road – 1 Commercial Lot, LMT
Schoeneck Road, Lot 1, 1 lot, warehouse, LMT
Sheetz – Cetronia Road, 1 commercial lot, UMT
Spring Creek Properties, Lot 12, 1 lot, warehouse, LMT
The Annex at Fields at Indian Creek, 22 S.F. residential units, Emmaus Borough
Towneplace Suites by Marriott, 91-room hotel, UMT
Towns At Schaefer Run, 128 townhouse unit (sfd), UMT

Sewage Facilities Planning Modules Reviewed in Prior Month:

1933 Harold Avenue Project, SWT, 446 gpd.
Kratzer Elementary School Addition, SWT, 850 gpd.
395 Mickley Road, Whitehall, 215 gpd.
19 South Second Street Apartments, Coplay, 430 gpd.
118 North Second Street Land Development, Emmaus, 560 gpd.
Proposed Daycare & Self Storage Facility, LMT, 853 gpd.

WATER

ACTION ITEMS

DISCUSSION ITEMS

INFORMATION ITEMS

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

The High Service Pumping System (HSPS) at the WFP is the primary means of conveying treated water into the distribution system. The HSPS has experienced regular failures from aging electrical components in recent years. 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 to the constant speed pump. Design phase was completed in late 2020. LCA submitted a funding application and supporting documentation to PennVEST in early November 2020, which was approved in January 2021. Construction phase of the project was approved at the 3/22/2021 Board meeting. In May 2021, PennVEST granted consent to proceed with construction prior to closing on the loan, which will follow completion of construction in 2022. Notices to Proceed have been issued for both contracts and construction phase is in progress.

(No Change)

2. **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. As of April 2021, construction is more than 96% complete. The contractors are addressing the remaining punch list items. The station went on-line on 11/19/20. **(No Change)**

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

The project involves construction of 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. Project update meetings with SSM and USGS will be conducted periodically. **(No Change)**

4. **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 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 95% complete. Equipment delivery delays from the pre-cast building manufacturer have slowed the progress of this project. The new station, the finished water reservoir and both the Gary and Laurie wells are online. The contractors were issued Certificates of Substantial Completion in September. Demolition of the original Gary station, final grading, landscaping, and punch list items are being addressed. **(No Change)**

5. **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 was performed on December 14-15, 2020. Final report was received. Exploratory excavations and one pipe segment replacement were done on the 36" line (10/18/2021) and the 30" line (10/19/2021). Both segments are currently being analyzed by Pure Technologies. Report due ASAP.

6. Suburban Division – Fixed Base Meter Reading Stations

The project focuses on securing land development and zoning approvals to construct eight fixed base water meter reading stations located throughout the Suburban Division water service area. The land development and zoning approvals will allow for the future construction of the stations as part a program to transition to a centralized advanced metering infrastructure system which will provide more consistent, timely and accurate billing to the customers. LCA will conduct additional investigatory work to refine construction costs and identify all zoning restrictions and limitations with the prospective tower sites, and present that information to the Board at a future date. A temporary base station will be erected in the Central Lehigh Division in November as a pilot study to demonstrate the capabilities of Advanced Metering Infrastructure. **(No Change)**

7. Allentown Division – Water Main Replacement Program Cycle 5

The project is for the annual replacement of aged and/or failing cast iron water mains 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 in 2019 following City Compliance office acceptance of the Cycle 5 main replacement prioritization, pending available funding. LCA restarted Cycle 5 design phase for construction in 2021 of a water main replacement project. As of November 2020, LCA began the process of negotiations for cost sharing agreement with the City for road surface restoration. In December 2020 LCA formally submitted the substantially complete plans and specifications to the City for approval, and City comments were reviewed on January 19, 2021. The project was advertised for bid on March 1, 2021, pre-bid meeting was held on March 17, 2021, and bids opened on March 31, 2021. The Board authorized the construction phase of this project at the April 12, 2021 LCA Board meeting. Construction work commenced with anticipated completion by mid November 2021. **(No Change)**

8. Allentown Division – Water Filtration Plant: 2021 Indenture Upgrades – Construction Phase

As a condition of the financing of LCA's up-front concession payment to the City, LCA entered into a Trust Indenture with the Manufacturers and Traders Trust Company that requires the preparation of an annual Consulting Engineer's Report (Report). The Report, which is prepared each year by Arcadis, documents the condition of the water and wastewater facilities (KIWWTP and WFP) based on physical inspections by the engineer, identifies repairs and upgrades required, and reflects progress made in addressing deficiencies. This project consists of addressing structural deficiencies at the Water Filtration Plant, with work located at various concrete structures in exterior areas. D'Huy Engineering completed design in February 2021, the project was advertised for bid in late March 2021, and bids were opened on April 22, 2021. Award of bids and construction phase authorization was granted at the May 10, 2021 LCA Board meeting. Construction has commenced and will be completed by the end of 2021. **(No Change)**

9. Suburban Division – Arcadia West Water Storage Tank Replacement - Construction Phase

The Arcadia West water storage tank has had several leaks in recent years and the coating system has reached the end of its useful life. A condition assessment study was done in 2019

which determined that the most cost-effective solution is to replace the aging tank with a new concrete tank. This project is for the replacement of the existing steel tank with a new tank of the same size, demolition of the existing tank, and miscellaneous yard piping and site work. Entech Engineering completed design in March 2021, the project was advertised for bid in late March 2021, and bids were opened on April 22, 2021. A Notice of Award was issued to the contractor following approval at the May 10, 2021 LCA Board meeting and the Notice to Proceed was issued in June 2021. Construction began in mid-August and is approximately 60% complete.

10. Suburban Division – Upper System Pump Station and Main Extension Design - Phase

Based on current and future demand for water service in the Upper System portion of the Central Lehigh Division, LCA's water system engineer, Gannett Fleming, has run various scenarios in the hydraulic model to simulate the impacts of this expected growth. The preferred alternative to increase water capacity and system resiliency in the Upper System is a system extension under Interstate-78 just west of Fogelsville and a new water booster station, which will supplement existing well supplies and pumping capacity in this area of the water system. Due to the near-term requirements of an industrial development slated to be constructed within the next two years in this area, the project will need to move forward immediately. A Request for Proposals was issued to three pre-qualified engineering firms for design of the Upper System pump station and main extension. Capital Works reviewed the proposals and board approval of design phase was granted at the 7/26/21 board meeting. Design phase is in progress. **(No Change)**

11. Allentown Division – Water Filtration Plant & System Master Plan

This project involves the preparation of a Master Plan for the Allentown Water Filtration Plant, water storage tanks, water storage reservoirs, pressure booster stations, raw water springs, and surface water intakes. The Master Plan will involve several key sections including, but not limited to: full-scale condition assessments, treatment process optimization, and development of short term/long term capital plans. The Master Plan is a requirement included within the City of Allentown lease, and it also needs to be updated every 5 years throughout the life of the lease. The first Master Plan was prepared in 2017. Board authorization will be requested in November or December of 2021 – as the next Master Plan is due in 2022. The project will be funded by the LCA Allentown Division.

12. Suburban Division – Suburban Water Supply Study

This project involves the preparation of a preliminary water supply study for the Suburban Water systems in 2022. The study will review supply capacity requirements to meet current and future demands, and evaluate existing water sources, storage, and interconnections to ensure long-term supply needs can be met. This study will be completed by the end of 2022, and Board authorization will be requested in the near future. From this study, additional engineering work will be initiated to develop water supply projects that enhance the region's water system resiliency and redundancy. This water supply study will serve as the backbone for future development of a Master Plan for the entire LCA Suburban Water System. The project will be funded by the LCA Suburban Division.

WASTEWATER

ACTION ITEMS

1. **Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning: Rain Derived Inflow and Infiltration (RDII) Analysis – November 8, 2021**

The main goal of this work (Signatory Systems only) is to conduct an RDII analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow (I&I) leakage. Using hydrograph interpretation, this will help Signatories focus their rehabilitation work through Sanitary Sewer Evaluation Survey (SSES) investigations toward the sources contributing the leakage. Using this analysis, it can be identified where and what type of SSES work should be completed to allow successful targeted source reduction projects. Data from approximately 53 temporary flow meters and multiple rain gauges from the 2021 flow metering program will be used for this analysis. The analysis itself will begin in late 2021 and will be concluded by March of 2022. Board authorization for this Signatory RDII Analysis will be requested at the November 8, 2021. The Board authorization of the City's RDII analysis was previously approved on February 22, 2021.

2. **Suburban Division – Western Lehigh Service Area – Engineering & Program Support – November 8, 2021**

The municipalities in the Western Lehigh Service Area will continue to work on inflow and infiltration source removal as part of the approved Interim Act 537 Plan. Ongoing engineering support is required to facilitate continued progress and coordination among the Western Lehigh municipalities. In addition, LCA and its Western Lehigh municipalities will be participating in the Regional Act 537 Plan development and will require engineering support to compile data on current and future sewer flows and assess conveyance system requirements. This is an extension of ongoing engineering and program support that Arcadis has provided for many years. LCA will seek approval of a Professional Services Authorization for program support in 2022 at the November 8, 2021 Board meeting.

DISCUSSION ITEMS

INFORMATION ITEMS

1. **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. The Board approved professional services authorizations for this work in August 2020. Internal presentations occurred in August 2021 and a summary of results was provided to the Board in September 2021. A preliminary report was delivered in October 2021.

2. **Suburban Division – Western Lehigh Service Area: Revenue Planning Tool**

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. Authorization for Phase 2 (development of the actual revenue planning tool) was approved at the 12/14/2020 Board Meeting. Final tool delivery occurred in July 2021 with additional staff evaluation of the results occurring in August. A summary of this work was provided to the Board in September. Different scenarios are now being modeled.

3. **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 retained and full authorization was granted at the 5/11/2020 Board meeting. A presentation was presented to the Board at the 8/10/20 Board Meeting. Various modeling alternatives are still ongoing and the full model results are now available. The project is funded by the LCA Suburban Division. **(No Change)**

4. **Suburban Division – Western Lehigh Manhole Rehabilitation Project – Phase 2 Construction Phase**

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 in close proximity to the floodway, which experience floodwater inundation. The purpose of the project is to eliminate floodwater inflow into the system. The project scope for Phase 1 included 50 manholes that were rehabilitated in 2020 as part of a phased manhole rehabilitation program. The Phase 1 project construction was completed in early 2021. Phase 2 of the WLI Manhole Rehabilitation Project, which includes a similar scope with manholes moving downstream in the WLI drainage basin, was advertised for bid in June 2021, with the construction phase authorized at the 7/26/21 Board meeting. Construction will begin in fall 2021 and conclude by the end of the year. **(No Change)**

5. **Suburban Division - Trexlertown Area Capacity Solution Alternative**

As part of the Interim Act 537 Plan that was approved by DEP in June 2021, 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. An alternative concept also studied to focus on providing storage capacity in the system for this area, due to concerns about downstream hydraulic impacts. These two alternatives were studied by HDR as authorized by the Board in 2019, with results indicating downstream impacts and long construction timelines due to location in environmentally sensitive areas. A third alternative has been developed which includes bypass pumping from a location at the Industrial Pretreatment Plant to a location in the Upper Macungie Township interceptor which has capacity for the additional flows, thereby relieving this bottleneck. This third alternative has been modeled successfully by Arcadis showing minimal downstream impact and a significant reduction of overflows in the Trexlertown area. An overview of these alternatives was provided to the Board in June 2021. Upon successful Special Act 537 Planning completion, a Part 2 permit will be submitted to DEP. Board authorization requests for planning, permitting, and design services are forthcoming. **(No Change)**

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

The Park Pump Station and Force Main line were constructed in 1980 to provide wet weather relief to the Little Lehigh Creek Interceptor, which conveys wastewater from ten municipalities

from outlying areas to the Kline's Island Wastewater Treatment Plant (KIWWTP). The force main consists of 8,715 linear feet of prestressed concrete cylinder pipe (PCCP) of various sizes (2,615' of 24"; 2,695' of 30"; and 3,405' of 36") and connects with the 54" sanitary sewer interceptor that runs to KIWWTP. PCCP is particularly sensitive to deterioration due to hydrogen sulfide gas from wastewater, and corrosion of exposed reinforcing steel can result in structural degradation and pipe failure. An internal investigation of the pipe is required to assess the condition of the PCCP pipe and identify damage areas, in order to determine the locations and extent of rehabilitation needed to restore the level of service, prolong service life, and mitigate the risk of failure. On April 10, 2021, LCA conducted a limited manned inspection of the force main pipe at 3 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. On October 23, 2021, a second manned entry was performed at two (2) additional air valves. A report on this evaluation will be provided by the consultant.

7. Suburban Division – Park Pump Station Phase 2 Upgrade - Design Phase

The Park Pump Station Phase 1 Upgrade was completed in early 2020, and consisted of new pumps, new pump control center with variable frequency drives, new automatic transfer switch, new wet well level control system, upgraded HVAC system, roof replacement, new pump removal access hatch, new pump hoist system, and associated mechanical and instrumentation equipment. The existing 40-year old generator does not have the capacity to handle the full loads of the upgraded station at 100% design flow and is at the end of its useful life. The Phase 2 Upgrade project consists of replacement of the original station backup generator system. The designer of record for the Phase 1 Upgrade was Whitman, Requardt & Associates, LLP (WRA). As WRA is already very familiar with the power systems and controls at the station, Capital Works requested a design phase proposal from the firm for the Phase 2 project. Authorization for design phase was granted at the 3/22/21 Board meeting. Design is anticipated to be completed by the end of 2021. **(No Change)**

8. 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 project includes replacement of the existing deteriorating 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 occurred in May 2021 and the project will be closed out by the end of the year. **(No Change)**

9. Suburban Division - Lynn Township Corrective Action Plan

Excessive inflow and infiltration (I&I) and high wet-weather flows into the Lynn Township sewer system has been ongoing and increasingly challenging to address. As noted in LCA's monthly operations reports, treatment plant bypasses and sanitary sewer overflows have occurred in this system and must be addressed. A meeting was held at Lynn Township with DEP and township representatives in June 2019 to discuss the Lynn Township Corrective Action Plan 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)**

10. Suburban Division - Heidelberg Heights Consent Order & Agreement

On 2/11/19, DEP submitted a notice of violation to LCA regarding bypasses and permit exceedances at the Heidelberg Heights wastewater treatment plant. The 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 developed a Corrective Action Plan (CAP) which was submitted DEP in April 2019. The Heidelberg Township Board of Supervisors adopted an updated sewer system rules and regulations ordinance in October 2019, which gives LCA the authority to inspect private laterals and facilities for unauthorized connections and perform follow-up enforcement. A Consent Order & Agreement (CO&A) was approved by DEP and LCA in June 2020, which incorporates the projects and schedule outlined in LCA's CAP. The first annual report was submitted to DEP per the CO&A requirements in late March 2021. A public outreach program was initiated in October 2021 regarding upcoming inspections of private side sewer facilities, to commence in 2022. **(No Change)**

11. Suburban Division – Heidelberg Heights 2021 and 2022 Sanitary Sewer Replacement Project

In accordance with the Consent Order and Agreement (CO&A) executed by LCA and DEP, LCA is required to complete annual inflow and infiltration mitigation projects to eliminate hydraulic overloads and bypass events at the Heidelberg Heights wastewater treatment plant. The CO&A requires that all original vitrified clay sewer main and lateral pipe be replaced within five years. The 2021 sewer replacement project bids were opened on 3/31/2021. Only two bids were received, both of which significantly exceeded the engineer's estimate. The Board approved rejection of bids at the 4/26/2021 Board meeting. The project scope was expanded to include the 2022 required sewer main replacement (Phase 2), in order to gain economy of scale and attract more bidders. The expanded project was advertised for bid on 8/24/2021, and bids were opened on 9/15/2021. Construction phase authorization was granted at the 9/27/2021 Board meeting. Phase 1 of the project will be completed by the end of 2021, and Phase 2 will be completed in Spring 2022. **(No Change)**

12. 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 were implemented in 2020 for these sewage billing meters. Without this meter development program, the data cannot be used from these billing meters. A consulting engineer's professional service proposal was granted at the April 27, 2020 Board meeting. Costs associated with the development of the QA/QC 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. As of late October 2021, the flow metering program continues to utilize 22 existing sewer billing meters.

13. **Kline's Island Sewer System – Regional Sewer Capacity & Wet-Weather Planning: 2021 Model Expansion and Calibration**

The prior KISS sewer model from 2014 included only the City of Allentown and LCA/Western Lehigh municipalities. The primary goal of this work is to expand the sanitary sewer model into the surrounding Signatories (Coplay, Whitehall, North Whitehall, Hanover, South Whitehall, Salisbury, and Emmaus). Calibration of this expanded model to current flow characteristics will aid in the identification and evaluation of regional alternatives for solutions to both treatment and conveyance through the year 2050 Act 537 planning horizon (the LCA/Western Lehigh portion of this model calibration work was completed in 2019 and 2020). The end result of this proposed work will provide one comprehensive, calibrated sewer model for the entire KISS system using 2021 temporary meter flow data and rainfall data. On February 22, 2021, Board approval was granted for this next phase of Act 537 planning efforts. The model is anticipated to be complete by June 2022. **(No Change)**

14. **Allentown Division – Sanitary Sewer Collection System: Rain Derived Inflow and Infiltration (RDII) Analysis**

The main goal of this work (City System only) is to conduct an RDII analysis of storm events during the flow monitoring period to determine the nature and extent of infiltration and inflow (I&I) leakage, and to use hydrograph interpretation to help the City focus their rehabilitation work (both secondary Sanitary Sewer Evaluation Survey (SSES) investigations and rehabilitation efforts) toward the sources contributing the leakage. It will also be determined where the flow meters should be installed for the next monitoring period and where SSES future work should be completed. Data from approximately 43 temporary flow meters and five rain gauges from the 2021 flow metering program will be used for this analysis. The analysis itself will begin in late 2021 and will be concluded by March of 2022. On February 22, 2021, Board approval was granted for this project. Board authorization of a RDII analysis for the remaining 1981 Signatories will be requested in November 2021.

15. **Kline's Island Sewer System – Act 537 Planning: 2021 Flow Data QA/QC**

As part of the Interim Act 537 Plan, the municipalities served by the Kline's Island Sewer System have committed to completing a sewage flow metering and modeling project beginning in 2021. The flow metering data will be used to prepare sewer modeling and identify the capital improvements needed to meet the future sewage capacity needs of the region through 2050. The flow metering program will include a mix of temporary meters (~63), existing sewage billing meters (~24), and various permanent, non-billing Signatory meters (~11). Flow metering services will be provided by Flow Assessment Services, as previously authorized in 2020. To ensure the data collected from the nine-month monitoring period are accurate and to ensure the validity of the resulting hydraulic model, a rigorous quality assurance and quality control program must be implemented. Approval of a consulting engineer's proposal for this work was granted at the January 25, 2021 Board meeting. Costs associated with these services 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. The 2021 flow characterization program will conclude on October 29, 2021. The third round of QA/QC was recently completed and only the fourth round remains.

16. **Allentown Division – Sanitary Sewer Collection System: I&I Source Reduction Program Plan (Year 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 completed in 2020 and the last project finishing in 2024. Board approval for the construction phase was granted at the March 22, 2021 Meeting. Construction began in May 2021 and will be completed by November 2021. This project is considered an AO expense under terms of the Lease and is City funded. **(No Change)**

17. 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)**

18. 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 was then resubmitted in late January 2021. Upon receipt of the Interim 537 Plan approval on 6/25/21, the permit submission was slightly modified to correspond with a 44.6 MGD hydraulic re-rate. As of late October 2021, the Part II Permit has not been received. This project is considered an AO expense under terms of the Lease and is City funded.

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

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, construction phase was authorized at the 6/8/2020 meeting and the contractor mobilized in late summer 2020. The project is anticipated to be completed by the end of 2021. The project is funded by the LCA Allentown Division. **(No Change)**

20. Allentown Division – Kline's Island WWTP: 2021 Indenture Upgrades - Construction Phase

As a condition of the financing of LCA's up-front concession payment to the City, LCA entered into a Trust Indenture with the Manufacturers and Traders Trust Company that requires the preparation of an annual Consulting Engineer's Report (Report). The Report, which is prepared each year by Arcadis, documents the condition of the water and wastewater facilities (KIWWTP and WFP) based on physical inspections by the engineer, identifies repairs and upgrades required, and reflects progress made in addressing deficiencies. This project consists of addressing structural deficiencies at KIWWTP, with work located at the Main Pump Station, Auxiliary Pump Station, Effluent Pump Station, and Plastic Media Tricking Filters. Work includes masonry repointing and restoration, door and window lintel replacement, concrete crack repair and resurfacing, and pipe painting. D'Huy Engineering completed design in February 2021, the project was advertised for bid in mid-March 2021, and bids were opened on April 19, 2021. Award of bids and construction phase authorization was approved at the May 10, 2021 LCA Board meeting. Construction is anticipated to be completed by the end of 2021. **(No Change)**

21. **Allentown Division – Kline’s Island WWTP: Solids Process Boiler and HVAC System Upgrade Project - Design Phase**

The solids process boiler system is more than 25 years old and provides critical heat to the anaerobic digesters and solids dewatering and processing buildings. The equipment has reached the end of its service life, and replacement of the equipment is identified as a near-term (0 – 5 years) project priority in the KIWWT Master Plan. This project includes replacement of the boilers and associated solids processing HVAC equipment. A preliminary engineering Basis of Design Report was prepared by GHD Engineering and submitted to the City Office of Compliance in January 2021. The City granted approval of the report in a letter dated 3/22/21 and the project is classified as a Major Capital Improvement. Approval of design phase engineering was granted at the 5/24/21 LCA Board meeting and design is proceeding. **(No Change)**

22. **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 late 2021. **(No Change)**

23. **Suburban Division – Industrial Pretreatment Plant Master Plan**

This project involves the preparation of a Master Plan for the LCA Industrial Pretreatment Plant, the first of its kind for this facility. The Master Plan will involve several key sections including, but not limited to: full-scale condition assessments, treatment process optimization, and development of short term/long term capital plans. The Master Plan will be incorporated into the ongoing Act 537 Plan that is due to DEP by March 2025. As part of the Act 537 Plan that is currently underway, a detailed upgrade analysis was recently completed by the Plant operator (Jacobs). This analysis will also be incorporated into this proposed Master Plan. Board authorization will be requested on December 13, 2021. The project will be funded by the LCA Suburban Division.