



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 12, 2018

1. Call to Order

- NOTICE OF MEETING RECORDINGS

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

- *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

3. Approval of Minutes

- *October 22, 2018 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2019 Water & Wastewater Rate Schedules (Approval) (pink)*
- *Suburban Division Water & Wastewater Tapping Fees, Connection Fees & Customer Facilities Fees (Resolution No. 11-2018-1) (blue)*

WATER

WASTEWATER

- *2019 SCARP Program Management (Approval) (green)*

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

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

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

9. Staff Comments

10. Solicitor's Comments

11. Public Comments / Other Comments

12. Executive Sessions

13. Adjournment

UPCOMING BOARD MEETINGS

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

November 26, 2018

December 10, 2018

January 14, 2019

PUBLIC PARTICIPATION POLICY

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. During the Public Comment portions of the meeting, members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.

REGULAR MEETING MINUTES

October 22, 2018

The Regular Meeting of the Lehigh County Authority was called to order at 12:00 p.m. on Monday, October 22, 2018, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Jeff Morgan, Richard Bohner, Norma Cusick, and Scott Bieber. Ted Lyons was on the conference phone for the duration of the meeting. Authority Staff present were Liesel Gross, Ed Klein, Pat Mandes, Brad Landon, Chuck Volk, John Parsons, Chris Moughan and Susan Sampson.

REVIEW OF AGENDA

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

Liesel Gross noted no changes to the agenda and said there would be an Executive Session at the end of the meeting to discuss matters of potential litigation.

APPROVAL OF MINUTES

October 8, 2018 Regular Meeting Minutes

Richard Bohner offered one grammatical correction to the minutes. On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the Minutes of October 8, 2018 meeting as corrected (7-0).

PUBLIC COMMENTS

None.

Kevin Baker entered the meeting at 12:20 p.m.

ACTION AND DISCUSSION ITEMS

2019 Budget

Liesel Gross reviewed the Executive Summary of the 2019 Proposed Budget that was prepared and distributed to the Board prior to the meeting. She highlighted the revised planning schedule which will begin next year with an updated five-year capital plan that will be used to forecast future rate requirements in advance of the annual budget process.

Ed Klein offered a brief summary of the 2019 Proposed Budget, which included no changes from the October 8, 2018 detailed presentation to the Board. He highlighted that the budget proposal includes adequate revenues to achieve required debt service coverage ratios, and that the measure for days of operating cash on hand is achieved in Suburban Water, but not in the Suburban Wastewater or City Division budgets, although they are improving over prior years. He also highlighted rate increases that are included in the budget projections including a 5 percent increase in the Suburban Water rates and a 5.1 percent increase in City Division rates. All funds are providing some operating revenue to support the capital improvements, with reserves or prior borrowing used to fund the remainder of the capital budget.

Liesel Gross reviewed comments provided prior to the meeting by Deana Zosky, who was unable to attend the Board meeting. Ms. Zosky's comments focused primarily on the Authority's need to address revenue shortfalls that would be required to cover system improvements and enhance financial sustainability, and reduce reliance on debt to fund capital improvements. Ms. Zosky would also like the Authority's financial system be more integrated between capital planning, budgeting, rate design and financial reporting.

Board discussion followed regarding revenue adequacy and how decisions are made to fund capital improvements from operating revenues versus debt. Jeff Morgan highlighted the large cash balances held in each operating budget and whether additional rate increases would be justified. Scott Bieber inquired about constraints within the lease agreement with Allentown and the municipal service agreements that constrain how the Authority can raise revenue. Liesel Gross responded to these questions and stated that the Suburban Water fund is the only area where the Authority has greater flexibility to raise rates on its own and to change its capital financing strategy because of agreements with the Suburban wastewater signatories and with the City Division, the concession agreement, all of which define the respective rate structures for those systems.

Brian Nagle stated that the 2019 Budget proposal does not include funding for all projects that may be required in the City Division under the terms of the lease agreement. Ed Klein agreed and stated the City Division budget only includes projects that the Authority can fund through current revenues or reserves.

Ted Lyons asked what the industry best practices are for utility rate setting and capital financing. Liesel Gross referred to the guidance manual prepared by the American Water Works Association and stated that the Authority uses the "cash needs basis" for rate making, in which all operating expenses minus depreciation are included in the rates along with debt service and any pay-as-you-go capital projects, which are typically projects focused on repairing and replacing existing assets. She suggested that additional discussion on capital financing strategy and rate impact could be conducted during the upcoming five-year capital plan development.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the 2019 Budget. (8-0).

Suburban Division – Mechanical Asset Management Upgrade Project

Chuck Volk described the project as outlined in the Board agenda materials. The project will include various mechanical upgrades to Suburban Water and Wastewater assets such as repair and replacement of various pumps, valves, electrical equipment and other upgrades necessary to restore full working condition of the systems. He explained that this project is a continuation of the asset management condition assessment work that was completed two years ago, and that updated risk ratings would be assigned to these facilities at the completion of this project, for purposes of updating the Authority's key performance indicators for its Infrastructure Stability strategic goals.

Chuck Volk asked for approval of the Capital Project Authorization for the Construction Phase in the amount of \$431,427.00 which includes the Professional Services Authorization to D'Huy Engineering in the amount of \$29,800.00, the General Contract Award to Blooming Glen Contractors in the amount of \$221,299.00, and the Electrical Contract Award to Diefenderfer Electrical Contractors in the amount of \$125,328.00.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$431,427.00 which includes the Professional Services Authorization to D'Huy Engineering in the amount of \$29,800.00, the General

Contract Award to Blooming Glen Contractors in the amount of \$221,299.00, and the Electrical Contract Award to Diefenderfer Electrical Contractors in the amount of \$125,328.00. (8-0).

Suburban Division – Wynnewood WWTP Upgrade Project

Chuck Volk described the project as outlined in the Board agenda materials. The project will include replacement of the circa-1980s wastewater treatment plant in the Wynnewood Terrace development in North Whitehall Township with a new sequencing batch reactor package plant. He noted that the bids were favorable as compared to the engineer's estimate and the new treatment technology will be an improvement for the community as it will be designed to meet all current treatment requirements as well as have capability to meet future potential treatment requirements that may be more stringent than the current permit. He noted that this project is already included in the 2019 Budget the Board approved earlier in the meeting and makes up a large portion of the Suburban Wastewater capital budget for next year.

Scott Bieber asked about treatment capacity of the new plant as compared to average flows. Mr. Volk explained the new plant will not increase capacity in the system and that the plant will be designed to treat 60,000 gallons per day. Average flows are 45,000 gallons per day. No significant growth is anticipated in this area of the township that would require additional capacity. The new treatment technology will be adequate to address peak wet-weather flows in this system.

Chuck Volk asked for approval of the Capital Project Authorization for the Construction Phase in the amount of \$4,025,570.00 which includes the Professional Services Authorization to Entech Engineering in the amount of \$262,500.00, the General Contract Award to Walabax Construction Services, Inc. in the amount of \$2,755,862.00, the Electrical Contract Award to Blooming Glen Contractors in the amount of \$637,861.00, and the HVAC/Plumbing Contract Award to Rogers Mechanical in the amount of \$94,347.00.

On a motion by Norma Cusick, seconded by Jeff Morgan, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$4,025,570.00 which includes the Professional Services Authorization to Entech Engineering in the amount of \$262,500.00, the General Contract Award to Walabax Construction Services, Inc. in the amount of \$2,755,862.00, the Electrical Contract Award to Blooming Glen Contractors in the amount of \$637,861.00, and the HVAC/Plumbing Contract Award to Rogers Mechanical in the amount of \$94,347.00. (8-0).

MONTHLY FINANCIAL REVIEW

Ed Klein gave an overview of the September 2018 financial report that was sent out with the Board packet. He explained positive variances in the year-to-date income statement compared to the forecast as resulting from timing of expenses which will be reconciled in the following month. In addition, reductions in capital spending as compared to forecast are driving cash flow results. Both variances are expected to be address in the October 2018 report, which will include an updated fourth quarter forecast.

MONTHLY SYSTEM OPERATIONS OVERVIEW

John Parsons reviewed the Monthly System Operations Overview report for September 2018. Brian Nagle asked for discussion on the continued bypasses that occur in the Heidelberg Heights wastewater system. Chuck Volk described prior work and planned future work to repair the collection system, and explained that additional work is needed to address the privately owned portion of the sewer system including homeowner service connections and sump pumps. Following Board discussion, Liesel Gross recommended the staff prepare a report of planned work in this area to address ongoing concerns about treatment plant bypasses during wet-weather events. Mr. Nagle

also reviewed the history of how the Heidelberg Heights and Wynnewood Terrace systems came to be part of the Authority's system after the developer-built systems were no longer being maintained under private ownership.

STAFF COMMENTS

Liesel Gross provided a brief update on the Executive Secretary's absence from the meeting due to medical reasons. The Board asked that their best wishes be conveyed for a speedy recovery.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 1:00 p.m. The meeting reconvened at 1:05 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:05 p.m. to discuss potential litigation. The Executive Session ended at 1:38 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 1:38 p.m.

Richard H. Bohner
Secretary



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MEMORANDUM

TO: LCA Board of Directors
FROM: Liesel Gross, CEO
DATE: November 5, 2018
RE: 2019 Water & Sewer Rates

Attached: Sample Residential Bill Calculation for Allentown and Suburban Water (historical rates)
Suburban Water Rate Study (with proposed rates through 2022)
Proposed 2019 Water & Sewer Rate Schedules

The 2019 water and sewer rates are presented in the attached schedules for the Board of Director's consideration for adoption on November 12, 2018. They will be 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 any questions or comments about these rates prior to their effective date of January 1, 2019, 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.

In addition, it is important to note that these rates were discussed, reviewed and preliminarily approved as part of the 2019 budget process that began in August and was concluded in October. This submission represents formal adoption of the rates that were generated based 2019 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.

Note on Suburban Water Rates: Excerpts of the key calculations that were conducted as part of the Suburban Water Rate Study are included in this packet for Board review. The calculations and tables included in this submission show sequentially:

Exhibit 1 (Page 1)	Estimated Operating Budgets
Exhibit 2 (Pages 2-6)	Allocation of Operating Expenses into Cost Centers (which drive different rate components)
Exhibit 3 (Page 7)	Estimated Debt Service Requirements (will be adjusted further following development of the 2019-2023 Capital Plan)
Table 1 (Page 8-9)	Projected Revenues Based on Current Rates, with Deficit / Debt Service Coverage calculated
Appendix B (Page 10)	Growth Projections
Table 4 (Page 11)	Proposed User Charges, based on all prior calculations
Table 5 (Pages 12-13)	Projected Revenues Based on Proposed Rates, with Deficit / Debt Service Coverage calculated

Every drop matters. Every customer counts.

The 2019 proposed rates provided through this study are included in the Schedule of Water Rates for Board consideration and adopted, along with other rates as outlined below.

Water Rates

Rate	Page #	Description / Discussion
Suburban Water Volume Charges	1	Proposed changes in the volume rates were calculated via the water rate study conducted by Keystone Alliance Consulting in 2017 and 2018.
Public Fire Protection	2	Fire hydrant and system charges for public fire service provided by the Authority were evaluated as part of the water rate study described above.
Allentown Water Rates	9	The 2019 rates reflect increases based on the terms of the Concession Agreement with the City of Allentown. Such increases include an overall 5.1% increase in general rates, 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 2018. 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 2018. Rates are calculated by formula in compliance with municipal agreements.
Allentown Sewer Rates	9	The 2019 rates reflect increases based on the terms of the Concession Agreement with the City of Allentown. Such increases include an overall 5.1% increase in general rates, 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.

2019 Tapping Fees / Customer Facilities Fees

Throughout both the water and wastewater rate schedules, several items are marked with a notation that the rate is "Subject to Tapping Fee Resolution No. 11-2018-1." These rates are presented in more detail along with the required Resolution of the Board for adoption of such fees, as required by law. Upon approval of the Resolution, the rate schedules will be updated and posted on the Authority's website as a complete package of all current rates.

Lehigh County Authority - Suburban Water Division - Preliminary 2019 Rates

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

	<u>2000</u>	<u>2001</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Water Fixed Charge	\$11.70	\$11.70	\$11.70	\$11.70	\$11.70	\$11.70	\$12.78	\$12.78
Water Volume Charge	\$26.55	\$28.80	\$31.05	\$32.55	\$33.75	\$35.85	\$36.45	\$39.15
Quarterly Bill	\$38.25	\$40.50	\$42.75	\$44.25	\$45.45	\$47.55	\$49.23	\$51.93
Annual Cost	\$153.00	\$162.00	\$171.00	\$177.00	\$181.80	\$190.20	\$196.92	\$207.72
Total Annual Cost Increase (\$)		\$9.00	\$9.00	\$6.00	\$4.80	\$8.40	\$6.72	\$10.80
Total Cost Increase (%)		5.9%	5.6%	3.5%	2.7%	4.6%	3.5%	5.5%
Water Volume Charge per 1000 Gallons	\$ 1.77	\$ 1.92	\$ 2.07	\$ 2.17	\$ 2.25	\$ 2.39	\$ 2.43	\$ 2.61



LCA ALLENTOWN DIVISION

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January – March 2019 Newsletter

LCA Customer Notice – 2019 Water / Sewer Rates!

Rates listed below are effective on January 1, 2019 and reflect the terms of the lease agreement between LCA and the City of Allentown. Additional fees and charges may apply according to Lehigh County Authority's standard schedule of rates and charges, which is available for download at www.lehighcountyauthority.org.

FIXED CHARGES (5.1% Increase)

<u>Meter Size</u>	<u>WATER FIXED CHARGES</u>		<u>SEWER FIXED CHARGES</u>	
	<u>Quarterly Charge</u>	<u>Monthly Charge</u>	<u>Quarterly Charge</u>	<u>Monthly Charge</u>
5/8"	\$29.27	\$20.21	\$10.16	\$7.03
3/4"	\$35.89	\$22.42	\$12.45	\$7.79
1"	\$49.12	\$26.95	\$17.01	\$9.31
1 1/2"	\$82.59	\$38.10	\$28.44	\$13.12
2"	\$122.67	\$51.46	\$42.15	\$17.69
3"	\$229.66	\$87.00	\$78.72	\$29.97
4"	\$349.90	\$127.20	\$120.12	\$43.68
6"	\$684.12	\$238.49	\$234.65	\$81.86
8"	\$1,084.89	\$372.20	\$370.27	\$150.16

VOLUME & FLOW CHARGES (5.1% Increase plus Change of Law & DRBC Charge*)

Water Volume Charge: \$3.59528 per 1000 gallons

Sewer Flow Charge: \$2.59004 per 1000 gallons

* Volume & flow charges also include cost recovery for any Change of Law and cost passed through from the Delaware River Basin Commission (DRBC) as allowed under the lease agreement with Allentown.

- Disinfectant Residual Rule → \$21,010 = \$0.00587 per 1000 gallons (included in rates listed above)
- DRBC Charges → \$1,791 = \$0.00056 per 1000 gallons (included in rates listed above)

PROJECT CHARGES (see "Special Message" on your bill for description of new projects added)

Water Capital Cost Recovery Charge: \$0.27945 per 1000 gallons

Sewer Capital Cost Recovery Charge: \$0.08427 per 1000 gallons

Sewer Administrative Order Fee: \$0.03546 per 1000 gallons

BILLING EXAMPLES: Typical residential customer using 5,000 gallons of water per month, 5/8" meter.

If you are billed....	Quarterly	Monthly
Fixed Charge – Water	\$29.27	\$20.21
Water Volume Charge	\$53.93	\$17.98
Water Capital Cost Recovery Charge	\$4.19	\$1.40
Fixed Charge – Sewer	\$10.16	\$7.03
Sewer Flow Charge	\$38.85	\$12.95
Sewer Capital Cost Recovery Charge	\$1.26	\$0.42
Administrative Order Fee	\$0.53	\$0.18
Total Bill	\$138.19	\$60.17

EXHIBIT 1
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES (1)

BUDGET LINE ITEM	2017 BASE YEAR	2018	2019	2020	2021	2022	TOTAL
PERSONNEL							
PERMANENT	\$861,508	\$1,034,000	\$907,056	\$934,270	\$962,300	\$991,170	\$5,690,304
OVERTIME	81,123	68,000	113,884	113,880	113,880	113,880	604,647
EMPLOYEE BENEFITS	297,803	501,050	382,119	401,220	421,280	442,340	2,445,812
SUBTOTAL	\$1,240,434	\$1,603,050	\$1,403,059	\$1,449,370	\$1,497,460	\$1,547,390	\$8,740,763
PURCHASE OF SERVICES							
INTERNAL SERVICES - OVERHEAD & SUPPORT	\$765,840	\$802,000	\$1,017,840	\$1,048,380	\$1,079,830	\$1,112,220	\$5,826,110
UTILITIES	493,000	457,000	592,750	605,000	617,000	629,000	3,393,750
ENGINEERING	48,000	57,000	39,000	40,170	41,380	42,620	268,170
ANALYSES - EXTERNAL	51,785	191,000	198,300	100,000	40,000	100,000	681,085
CONTRACT OPERATING SERVICES	38,270	38,000	38,270	39,420	19,710	20,300	193,970
COMPLIANCE EXPENSE	0	42,000	41,805	41,900	42,020	42,140	209,865
MAINTENANCE SERVICES	534,380	150,000	365,100	372,400	379,850	387,450	2,189,180
FLEET MANAGEMENT SERVICES	30,000	29,000	25,000	25,750	26,520	27,320	163,590
EXTRAORDINARY EXPENDITURES	100,000	0	0	0	0	0	100,000
INDUSTRIAL METER TESTING & REPAIR	8,600	9,000	8,600	10,000	10,000	10,000	56,200
MISCELLANEOUS SERVICES	94,310	46,000	62,350	63,600	64,870	66,170	397,300
WATER PURCHASES	1,923,000	2,099,000	2,124,400	2,166,890	2,210,230	2,254,430	12,777,950
SUBTOTAL	\$4,087,185	\$3,920,000	\$4,513,415	\$4,513,510	\$4,531,410	\$4,691,650	\$26,257,170
MAINTENANCE & SUPPLIES							
PUMP SUPPLIES	\$67,300	\$17,000	\$38,500	\$39,270	\$40,060	\$40,860	\$242,990
PURIFICATION SUPPLIES	101,450	51,000	113,100	116,490	119,980	123,580	625,600
DISTRIBUTION & TRANSMISSION SUPPLIES	102,750	80,000	79,330	80,920	82,540	84,190	509,730
FLEET MANAGEMENT SERVICES	2,500	3,000	2,500	2,580	2,660	2,740	15,980
MISCELLANEOUS MATERIAL & SUPPLIES	60,695	51,000	54,600	55,690	56,800	57,940	336,725
FUEL & MILEAGE	65,100	66,000	66,150	68,130	70,170	72,280	407,830
SUBTOTAL	\$399,795	\$268,000	\$354,180	\$363,080	\$372,210	\$381,590	\$2,138,855
EQUIPMENT	\$137,000	\$103,000	\$150,400	\$150,400	\$150,400	\$150,400	\$841,600
TOTAL	\$5,864,414	\$5,894,050	\$6,421,054	\$6,476,360	\$6,551,480	\$6,771,030	\$37,978,388

(1) OPERATING EXPENSES HAVE BEEN INFLATED AT 3 PERCENT ANNUALLY. DEVIATIONS FROM THIS INFLATION RATE HAVE BEEN MADE TO ADJUST FOR CHANGES IN OPERATING PROCEDURES AS REQUIRED.

2018 PROJECTED

**EXHIBIT 2
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

BUDGET LINE ITEM	SUPPLY	PUMPING	TREATMENT	STORAGE	TRANS. & & DIST.	FIRE HYD.	MAINT. / SERVICE	METER READING	ADMIN.	CUSTOMER SERVICE	TOTAL
PERSONNEL											
PERMANENT	\$7,195	\$159,675	\$130,466	\$6,721	\$138,282	\$20,981	\$23,647	\$91,850	\$296,078	\$159,106	\$1,034,000
OVERTIME	473	10,501	8,580	442	9,094	1,380	1,555	6,040	19,471	10,463	68,000
EMPLOYEE BENEFITS	3,487	77,375	63,220	3,257	67,008	10,167	11,459	44,508	143,472	77,098	501,050
SUBTOTAL	\$11,155	\$247,551	\$202,266	\$10,420	\$214,383	\$32,527	\$36,661	\$142,398	\$459,021	\$246,667	\$1,603,050
PURCHASE OF SERVICES											
INTERNAL SERVICES - OVI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$802,000	\$0	\$802,000
UTILITIES	0	457,000	0	0	0	0	0	0	0	0	457,000
ENGINEERING	52,760	1,884	1,884	0	471	0	0	0	0	0	57,000
ANALYSES - EXTERNAL	0	0	191,000	0	0	0	0	0	0	0	191,000
CONTRACT OPERATING SE	264	5,868	4,795	247	5,082	771	869	3,376	10,881	5,847	38,000
COMPLIANCE EXPENSE	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	42,000
MAINTENANCE SERVICES	2,894	52,572	4,070	25,061	40,998	4,629	17,846	966	0	966	150,000
FLEET MANAGEMENT SER	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	29,000
EXTRAORDINARY EXPENI	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTI	0	0	0	0	0	0	9,000	0	0	0	9,000
MISCELLANEOUS SERVICE	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	46,000
WATER PURCHASES	2,099,000	0	0	0	0	0	0	0	0	0	2,099,000
SUBTOTAL	\$2,166,618	\$529,024	\$213,448	\$37,008	\$58,251	\$17,100	\$39,415	\$16,042	\$824,581	\$18,513	\$3,920,000
MAINTENANCE & SUPPLIES											
PUMP SUPPLIES	\$0	\$17,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,000
PURIFICATION SUPPLIES	0	0	51,000	0	0	0	0	0	0	0	51,000
DISTRIBUTION & TRANSM	0	0	0	0	80,000	0	0	0	0	0	80,000
FLEET MANAGEMENT SER	300	300	300	300	300	300	300	300	300	300	3,000
MISCELLANEOUS MATERI	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	51,000
FUEL & MILEAGE	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	66,000
SUBTOTAL	\$12,000	\$29,000	\$63,000	\$12,000	\$92,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$268,000
EQUIPMENT	\$980	\$16,262	\$50,256	\$980	\$8,033	\$8,817	\$15,714	\$1,959	\$0	\$0	\$103,000
TOTAL	\$2,190,753	\$821,837	\$528,970	\$60,407	\$372,667	\$70,444	\$103,789	\$172,399	\$1,295,602	\$277,181	\$5,894,050

2019 PROJECTED

**EXHIBIT 2
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

BUDGET LINE ITEM	SUPPLY	PUMPING	TREATMENT	STORAGE	TRANS. & & DIST.	FIRE HYD.	MAINT. / SERVICE	METER READING	ADMIN.	CUSTOMER SERVICE	TOTAL
PERSONNEL											
PERMANENT	\$6,312	\$140,072	\$114,448	\$5,896	\$121,305	\$18,405	\$20,744	\$80,573	\$259,728	\$139,572	\$907,056
OVERTIME	792	17,587	14,369	740	15,230	2,311	2,604	10,116	32,610	17,524	113,884
EMPLOYEE BENEFITS	2,659	59,009	48,214	2,484	51,103	7,754	8,739	33,943	109,417	58,798	382,119
SUBTOTAL	\$9,764	\$216,667	\$177,032	\$9,120	\$187,638	\$28,469	\$32,088	\$124,633	\$401,755	\$215,894	\$1,403,059
PURCHASE OF SERVICES											
INTERNAL SERVICES - OVI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,017,840	\$0	\$1,017,840
UTILITIES	0	592,750	0	0	0	0	0	0	0	0	592,750
ENGINEERING	36,099	1,289	1,289	0	322	0	0	0	0	0	39,000
ANALYSES - EXTERNAL	0	0	198,300	0	0	0	0	0	0	0	198,300
CONTRACT OPERATING SE	266	5,910	4,829	249	5,118	777	875	3,399	10,958	5,889	38,270
COMPLIANCE EXPENSE	4,181	4,181	4,181	4,181	4,181	4,181	4,181	4,181	4,181	4,181	41,805
MAINTENANCE SERVICES	7,043	127,960	9,905	60,997	99,789	11,267	43,436	2,351	0	2,351	365,100
FLEET MANAGEMENT SER	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	25,000
EXTRAORDINARY EXPENI	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTI	0	0	0	0	0	0	8,600	0	0	0	8,600
MISCELLANEOUS SERVICE	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235	62,350
WATER PURCHASES	2,124,400	0	0	0	0	0	0	0	0	0	2,124,400
SUBTOTAL	\$2,180,724	\$740,825	\$227,239	\$74,162	\$118,145	\$24,959	\$65,827	\$18,666	\$1,041,714	\$21,155	\$4,513,415
MAINTENANCE & SUPPLIES											
PUMP SUPPLIES	\$0	\$38,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$38,500
PURIFICATION SUPPLIES	0	0	113,100	0	0	0	0	0	0	0	113,100
DISTRIBUTION & TRANSM	0	0	0	0	79,330	0	0	0	0	0	79,330
FLEET MANAGEMENT SER	250	250	250	250	250	250	250	250	250	250	2,500
MISCELLANEOUS MATERI	5,460	5,460	5,460	5,460	5,460	5,460	5,460	5,460	5,460	5,460	54,600
FUEL & MILEAGE	6,615	6,615	6,615	6,615	6,615	6,615	6,615	6,615	6,615	6,615	66,150
SUBTOTAL	\$12,325	\$50,825	\$125,425	\$12,325	\$91,655	\$12,325	\$12,325	\$12,325	\$12,325	\$12,325	\$354,180
EQUIPMENT	\$1,430	\$23,746	\$73,383	\$1,430	\$11,730	\$12,874	\$22,945	\$2,861	\$0	\$0	\$150,400
TOTAL	\$2,204,243	\$1,032,063	\$603,079	\$97,037	\$409,167	\$78,628	\$133,184	\$158,485	\$1,455,794	\$249,375	\$6,421,054

2020 PROJECTED

**EXHIBIT 2
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

BUDGET LINE ITEM	SUPPLY	PUMPING	TREATMENT	STORAGE	TRANS. & & DIST.	FIRE HYD.	MAINT. / SERVICE	METER READING	ADMIN.	CUSTOMER SERVICE	TOTAL
PERSONNEL											
PERMANENT	\$6,501	\$144,274	\$117,882	\$6,073	\$124,944	\$18,957	\$21,366	\$82,991	\$267,521	\$143,760	\$934,270
OVERTIME	792	17,586	14,369	740	15,230	2,311	2,604	10,116	32,609	17,523	113,880
EMPLOYEE BENEFITS	2,792	61,958	50,624	2,608	53,657	8,141	9,176	35,640	114,886	61,737	401,220
SUBTOTAL	\$10,086	\$223,819	\$182,875	\$9,421	\$193,831	\$29,409	\$33,147	\$128,747	\$415,016	\$223,020	\$1,449,370
PURCHASE OF SERVICES											
INTERNAL SERVICES - OVI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,048,380	\$0	\$1,048,380
UTILITIES	0	605,000	0	0	0	0	0	0	0	0	605,000
ENGINEERING	37,182	1,328	1,328	0	332	0	0	0	0	0	40,170
ANALYSES - EXTERNAL	0	0	100,000	0	0	0	0	0	0	0	100,000
CONTRACT OPERATING SE	274	6,087	4,974	256	5,272	800	902	3,502	11,288	6,066	39,420
COMPLIANCE EXPENSE	4,190	4,190	4,190	4,190	4,190	4,190	4,190	4,190	4,190	4,190	41,900
MAINTENANCE SERVICES	7,184	130,519	10,103	62,217	101,784	11,492	44,304	2,398	0	2,398	372,400
FLEET MANAGEMENT SER	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	25,750
EXTRAORDINARY EXPENI	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTI	0	0	0	0	0	0	10,000	0	0	0	10,000
MISCELLANEOUS SERVICE	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	63,600
WATER PURCHASES	2,166,890	0	0	0	0	0	0	0	0	0	2,166,890
SUBTOTAL	\$2,224,655	\$756,059	\$129,530	\$75,598	\$120,513	\$25,417	\$68,331	\$19,025	\$1,072,793	\$21,589	\$4,513,510
MAINTENANCE & SUPPLIES											
PUMP SUPPLIES	\$0	\$39,270	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,270
PURIFICATION SUPPLIES	0	0	116,490	0	0	0	0	0	0	0	116,490
DISTRIBUTION & TRANSM	0	0	0	0	80,920	0	0	0	0	0	80,920
FLEET MANAGEMENT SER	258	258	258	258	258	258	258	258	258	258	2,580
MISCELLANEOUS MATERI	5,569	5,569	5,569	5,569	5,569	5,569	5,569	5,569	5,569	5,569	55,690
FUEL & MILEAGE	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	68,130
SUBTOTAL	\$12,640	\$51,910	\$129,130	\$12,640	\$93,560	\$12,640	\$12,640	\$12,640	\$12,640	\$12,640	\$363,080
EQUIPMENT	\$1,430	\$23,746	\$73,383	\$1,430	\$11,730	\$12,874	\$22,945	\$2,861	\$0	\$0	\$150,400
TOTAL	\$2,248,811	\$1,055,534	\$514,918	\$99,090	\$419,634	\$80,340	\$137,062	\$163,272	\$1,500,448	\$257,249	\$6,476,360

2021 PROJECTED

**EXHIBIT 2
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

BUDGET LINE ITEM	SUPPLY	PUMPING	TREATMENT	STORAGE	TRANS. & & DIST.	FIRE HYD.	MAINT. / SERVICE	METER READING	ADMIN.	CUSTOMER SERVICE	TOTAL
PERSONNEL											
PERMANENT	\$6,696	\$148,603	\$121,419	\$6,255	\$128,693	\$19,526	\$22,007	\$85,480	\$275,547	\$148,073	\$962,300
OVERTIME	792	17,586	14,369	740	15,230	2,311	2,604	10,116	32,609	17,523	113,880
EMPLOYEE BENEFITS	2,932	65,056	53,155	2,738	56,340	8,548	9,635	37,422	120,630	64,824	421,280
SUBTOTAL	\$10,420	\$231,245	\$188,943	\$9,734	\$200,262	\$30,385	\$34,246	\$133,018	\$428,786	\$230,420	\$1,497,460
PURCHASE OF SERVICES											
INTERNAL SERVICES - OVI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,079,830	\$0	\$1,079,830
UTILITIES	0	617,000	0	0	0	0	0	0	0	0	617,000
ENGINEERING	38,302	1,368	1,368	0	342	0	0	0	0	0	41,380
ANALYSES - EXTERNAL	0	0	40,000	0	0	0	0	0	0	0	40,000
CONTRACT OPERATING SE	137	3,044	2,487	128	2,636	400	451	1,751	5,644	3,033	19,710
COMPLIANCE EXPENSE	4,202	4,202	4,202	4,202	4,202	4,202	4,202	4,202	4,202	4,202	42,020
MAINTENANCE SERVICES	7,327	133,130	10,305	63,462	103,821	11,722	45,191	2,446	0	2,446	379,850
FLEET MANAGEMENT SER	2,652	2,652	2,652	2,652	2,652	2,652	2,652	2,652	2,652	2,652	26,520
EXTRAORDINARY EXPENI	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTI	0	0	0	0	0	0	10,000	0	0	0	10,000
MISCELLANEOUS SERVICE	6,487	6,487	6,487	6,487	6,487	6,487	6,487	6,487	6,487	6,487	64,870
WATER PURCHASES	2,210,230	0	0	0	0	0	0	0	0	0	2,210,230
SUBTOTAL	\$2,269,338	\$767,882	\$67,501	\$76,931	\$120,139	\$25,463	\$68,983	\$17,538	\$1,098,815	\$18,820	\$4,531,410
MAINTENANCE & SUPPLIES											
PUMP SUPPLIES	\$0	\$40,060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,060
PURIFICATION SUPPLIES	0	0	119,980	0	0	0	0	0	0	0	119,980
DISTRIBUTION & TRANSM	0	0	0	0	82,540	0	0	0	0	0	82,540
FLEET MANAGEMENT SER	266	266	266	266	266	266	266	266	266	266	2,660
MISCELLANEOUS MATERI	5,680	5,680	5,680	5,680	5,680	5,680	5,680	5,680	5,680	5,680	56,800
FUEL & MILEAGE	7,017	7,017	7,017	7,017	7,017	7,017	7,017	7,017	7,017	7,017	70,170
SUBTOTAL	\$12,963	\$53,023	\$132,943	\$12,963	\$95,503	\$12,963	\$12,963	\$12,963	\$12,963	\$12,963	\$372,210
EQUIPMENT	\$1,430	\$23,746	\$73,383	\$1,430	\$11,730	\$12,874	\$22,945	\$2,861	\$0	\$0	\$150,400
TOTAL	\$2,294,152	\$1,075,896	\$462,770	\$101,058	\$427,635	\$81,685	\$139,137	\$166,380	\$1,540,564	\$262,203	\$6,551,480

EXHIBIT 2
LEHIGH COUNTY AUTHORITY
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY

2022 PROJECTED

BUDGET LINE ITEM	SUPPLY	PUMPING	TREATMENT	STORAGE	TRANS. & & DIST.	FIRE HYD.	MAINT. / SERVICE	METER READING	ADMIN.	CUSTOMER SERVICE	TOTAL
PERSONNEL											
PERMANENT	\$6,897	\$153,061	\$125,061	\$6,443	\$132,554	\$20,112	\$22,668	\$88,045	\$283,814	\$152,515	\$991,170
OVERTIME	792	17,586	14,369	740	15,230	2,311	2,604	10,116	32,609	17,523	113,880
EMPLOYEE BENEFITS	3,078	68,308	55,812	2,875	59,156	8,976	10,116	39,293	126,661	68,065	442,340
SUBTOTAL	\$10,768	\$238,955	\$195,243	\$10,058	\$206,940	\$31,398	\$35,388	\$137,454	\$443,083	\$238,103	\$1,547,390
PURCHASE OF SERVICES											
INTERNAL SERVICES - OVI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,112,220	\$0	\$1,112,220
UTILITIES	0	629,000	0	0	0	0	0	0	0	0	629,000
ENGINEERING	39,450	1,409	1,409	0	352	0	0	0	0	0	42,620
ANALYSES - EXTERNAL	0	0	100,000	0	0	0	0	0	0	0	100,000
CONTRACT OPERATING SE	141	3,135	2,561	132	2,715	412	464	1,803	5,813	3,124	20,300
COMPLIANCE EXPENSE	4,214	4,214	4,214	4,214	4,214	4,214	4,214	4,214	4,214	4,214	42,140
MAINTENANCE SERVICES	7,474	135,793	10,512	64,731	105,898	11,957	46,095	2,495	0	2,495	387,450
FLEET MANAGEMENT SER	2,732	2,732	2,732	2,732	2,732	2,732	2,732	2,732	2,732	2,732	27,320
EXTRAORDINARY EXPENI	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TEST	0	0	0	0	0	0	10,000	0	0	0	10,000
MISCELLANEOUS SERVICE	6,617	6,617	6,617	6,617	6,617	6,617	6,617	6,617	6,617	6,617	66,170
WATER PURCHASES	2,254,430	0	0	0	0	0	0	0	0	0	2,254,430
SUBTOTAL	\$2,315,058	\$782,900	\$128,045	\$78,426	\$122,528	\$25,932	\$70,122	\$17,861	\$1,131,596	\$19,182	\$4,691,650
MAINTENANCE & SUPPLIES											
PUMP SUPPLIES	\$0	\$40,860	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,860
PURIFICATION SUPPLIES	0	0	123,580	0	0	0	0	0	0	0	123,580
DISTRIBUTION & TRANSM	0	0	0	0	84,190	0	0	0	0	0	84,190
FLEET MANAGEMENT SER	274	274	274	274	274	274	274	274	274	274	2,740
MISCELLANEOUS MATERI	5,794	5,794	5,794	5,794	5,794	5,794	5,794	5,794	5,794	5,794	57,940
FUEL & MILEAGE	7,228	7,228	7,228	7,228	7,228	7,228	7,228	7,228	7,228	7,228	72,280
SUBTOTAL	\$13,296	\$54,156	\$136,876	\$13,296	\$97,486	\$13,296	\$13,296	\$13,296	\$13,296	\$13,296	\$381,590
EQUIPMENT	\$1,430	\$23,746	\$73,383	\$1,430	\$11,730	\$12,874	\$22,945	\$2,861	\$0	\$0	\$150,400
TOTAL	\$2,340,552	\$1,099,757	\$533,547	\$103,211	\$438,683	\$83,500	\$141,751	\$171,472	\$1,587,975	\$270,581	\$6,771,030

EXHIBIT 3
LEHIGH COUNTY AUTHORITY
PROJECTED DEBT SERVICE REQUIREMENTS

	2017	PROJECTED				
	BASE YEAR	2018	2019	2020	2021	2022
PRINCIPAL REDUCTIONS - EXISTING DEBT						
2015 Bonds	\$1,021,120	\$1,038,960	\$1,051,180	\$1,072,850	\$1,088,705	
2010 A Bonds	0	0	0	0	0	\$0
2015 A Bonds	297,200	299,400	311,400	318,100	304,500	1,475,100
2011 Bonds	104,415	115,313	\$118,525	121,825	125,218	74,644
2017 Bonds	226,857	591,800	\$591,800	591,800	577,050	570,850
Pennworks	165,931	169,279	172,696	176,181	179,737	183,365
PV - Mtr Backflow Upg	71,182	70,051	71,116	72,197	73,295	74,410
EXISTING DEBT - PRINCIPAL REDUCTION	<u>\$1,886,705</u>	<u>\$2,284,803</u>	<u>\$2,316,717</u>	<u>\$2,352,953</u>	<u>\$2,348,505</u>	<u>\$2,378,369</u>
INTEREST EXPENSE - EXISTING DEBT						
2015 Bonds	\$84,365	\$68,027	\$51,404	\$34,585	\$24,496	
2010 A Bonds	649,230	649,230	649,230	649,230	649,230	\$649,230
2015 A Bonds	215,536	208,373	201,158	193,653	185,987	178,648
2011 Bonds	16,955	13,831	10,619	7,319	3,925	686
2017 Bonds	0	0	0	295,000	310,000	315,000
Pennworks	38,224	34,875	31,458	27,973	24,417	20,789
PV - Mtr Backflow Upg	13,348	16,860	15,795	14,713	13,616	12,501
EXISTING DEBT - INTEREST EXPENSE	<u>\$1,017,658</u>	<u>\$991,196</u>	<u>\$959,664</u>	<u>\$1,222,473</u>	<u>\$1,211,671</u>	<u>\$1,176,854</u>
FUTURE DEBT						
Interest Expense					\$220,500	\$216,229
Principal Reductions					122,039	126,311
TOTAL FUTURE DEBT EXPENSE	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$342,539</u>	<u>\$342,539</u>
LESS: DEBT SERVICE REDUCTIONS						
DSRF Interest Income	\$100,000	\$125,000	\$100,000	\$100,000	\$75,000	\$50,000
BAB Subsidy	105,775	105,775	105,775	105,775	105,775	105,775
TOTAL DEBT SERVICE REDUCTIONS	<u>\$205,775</u>	<u>\$230,775</u>	<u>\$205,775</u>	<u>\$205,775</u>	<u>\$180,775</u>	<u>\$155,775</u>
ADDITIONAL DEBT REQUIREMENTS						
FINANCING FEES	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
DEBT COVERAGE AT 115 PERCENT	435,654	491,400	491,457	536,314	585,407	584,664
TOTAL ADDITIONAL REQUIREMENTS	<u>\$443,154</u>	<u>\$498,900</u>	<u>\$498,957</u>	<u>\$543,814</u>	<u>\$592,907</u>	<u>\$592,164</u>
TOTAL DEBT SERVICE REQUIREMENT	<u>\$3,141,742</u>	<u>\$3,544,124</u>	<u>\$3,569,563</u>	<u>\$3,913,465</u>	<u>\$4,314,848</u>	<u>\$4,334,152</u>

COMMON RATE DIVISION

TABLE 1
LEHIGH COUNTY AUTHORITY
PROJECTED REVENUE REQUIREMENT UNDER PRESENT RATES

	2017 BASE YEAR	PROJECTED				
		2018	2019	2020	2021	2022
OPERATING EXPENSES						
PERSONNEL	\$1,240,434	\$1,603,050	\$1,403,059	\$1,449,370	\$1,497,460	\$1,547,390
PURCHASE OF SERVICES	4,087,185	3,920,000	4,513,415	4,513,510	4,531,410	4,691,650
MAINTENANCE & SUPPLIES	399,795	268,000	354,180	363,080	372,210	381,590
EQUIPMENT	137,000	103,000	150,400	150,400	150,400	150,400
TOTAL OPERATING EXPENSES	\$5,864,414	\$5,894,050	\$6,421,054	\$6,476,360	\$6,551,480	\$6,771,030
RENEWAL & REPLACEMENT FUND		\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
FUTURE DEBT	\$0	\$0	\$0	\$0	\$342,539	\$342,539
FINANCING FEES	7,500	7,500	7,500	7,500	7,500	7,500
DEBT RETIREMENT	1,886,705	2,284,803	2,316,717	2,352,953	2,348,505	2,378,369
INTEREST EXPENSE	1,017,658	991,196	959,664	1,222,473	1,211,671	1,176,854
COVERAGE	435,654	491,400	491,457	536,314	585,407	584,664
LESS: DEBT SERVICE REDUCTIONS	(205,775)	(230,775)	(205,775)	(205,775)	(180,775)	(155,775)
TOTAL DEBT SERVICE	\$3,141,742	\$3,544,124	\$3,569,563	\$3,913,465	\$4,314,848	\$4,334,152
TOTAL REVENUE REQUIREMENT	\$9,006,156	\$9,438,174	\$9,990,617	\$10,389,825	\$10,866,328	\$11,105,182
NON-OPERATING REVENUES						
BUSS ACRES USER CHARGES	\$41,101					
MADISON NORTH USER CHARGES	41,880					
SITE VISIT TURN-ON CHARGES	8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000
PENALITES	70,897	70,897	70,897	70,897	70,897	70,897
LIEN FEES	400	400	400	400	400	400
REIMBURSEMENT OF LAB COSTS	0	0	0	0	0	0
OTHER WATER SALES	45,891	45,891	45,891	45,891	45,891	45,891
ARCADIA PRIVATE FIRE SERVICE REVENUE	161,145	161,145	161,145	161,145	161,145	161,145
TOTAL NON-OPERATING REVENUES	\$369,314	\$286,333	\$286,333	\$286,333	\$286,333	\$286,333
NET REVENUE REQUIREMENT	\$8,636,842	\$9,151,841	\$9,704,284	\$10,103,492	\$10,579,995	\$10,818,849

COMMON RATE DIVISION

TABLE 1
LEHIGH COUNTY AUTHORITY
PROJECTED REVENUE REQUIREMENT UNDER PRESENT RATES

	2017 BASE YEAR	PROJECTED				
		2018	2019	2020	2021	2022
OPERATING REVENUES						
RESIDENTIAL	\$3,474,476	\$3,678,212	\$3,717,946	\$3,757,609	\$3,797,172	\$3,836,418
COMMERCIAL	1,026,814	1,055,611	1,059,545	1,063,026	1,065,599	1,067,717
INDUSTRIAL	2,007,997	2,126,288	2,126,288	2,126,288	2,126,288	2,126,288
INSTITUTIONAL	76,241	78,261	78,445	78,618	78,764	78,853
LARGE INDUSTRIAL	1,136,425	1,238,090	1,238,090	1,238,090	1,238,090	1,238,090
PRIVATE - FIRE PROTECTION	632,759	635,944	637,658	642,965	644,680	644,680
PUBLIC - FIRE PROTECTION	374,052	368,433	368,433	368,433	368,433	368,433
TOTAL OPERATING REVENUES	\$8,728,764	\$9,180,839	\$9,226,405	\$9,275,029	\$9,319,026	\$9,360,479
SURPLUS / (DEFICIT)	\$91,922	\$28,998	(\$477,879)	(\$828,463)	(\$1,260,969)	(\$1,458,370)
DEFICIT AS A PERCENT OF OPERATING REVENUES			5.18%	8.93%	13.53%	15.58%
DEBT SERVICE COVERAGE	119.83%	117.34%	100.69%	91.55%	82.05%	76.85%

**APPENDIX B
LEHIGH COUNTY AUTHORITY
COMMON RATE DIVISION**

PROJECTED SYSTEM GROWTH

**RESIDENTIAL
(QUARTERLY BILLED 5/8" METERS)**

	2018	2019	2020	2021	2022
	ADDITIONAL METERS				
ADDITIONAL METERS	226	212	225	211	222
ADDITIONAL METERS BILLED	223	219	219	218	216
ADDITIONAL BILLS	892	876	874	872	865
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	12,120,196	11,368,442	12,078,192	11,309,850	11,890,324
ADDITIONAL USAGE BILLED	11,959,178	11,744,319	11,723,317	11,694,021	11,600,087

**COMMERCIAL
(QUARTERLY BILLED 5/8" METERS)**

	2018	2019	2020	2021	2022
	ADDITIONAL METERS				
ADDITIONAL METERS	13	13	10	7	7
ADDITIONAL METERS BILLED	14	13	12	9	7
ADDITIONAL BILLS	56	52	46	34	28
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	1,345,656	1,345,656	1,035,120	724,584	724,584
ADDITIONAL USAGE BILLED	1,449,168	1,345,656	1,190,388	879,852	724,584

**INSTITUTIONAL
(QUARTERLY BILLED 5/8" METERS)**

	2018	2019	2020	2021	2022
	ADDITIONAL METERS				
ADDITIONAL METERS	1	1	1	0	1
ADDITIONAL METERS BILLED	2	1	1	1	0
ADDITIONAL BILLS	8	4	3	3	2
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	77,962	35,430	71,568	18,250	36,682
ADDITIONAL USAGE BILLED	133,481	56,696	53,499	44,909	27,466

COMMON RATE DIVISION

**TABLE 4
LEHIGH COUNTY AUTHORITY
PROPOSED USER CHARGES**

	CURRENT RATES	PROPOSED RATES					
		2017	2018	2019	2020	2021	2022
FIXED CHARGES:							
MINIMUM CHARGES							
QUARTERLY							
5/8"	\$11.70	\$11.70	\$12.78	\$12.78	\$12.78	\$13.05	\$13.05
3/4"	11.70	11.70	12.78	12.78	12.78	13.05	13.05
1"	21.60	21.60	21.93	21.93	22.50	23.13	23.13
MONTHLY							
1-1/2"	14.10	14.10	16.85	16.85	17.07	17.53	17.53
2"	21.00	21.00	22.95	22.95	23.58	24.26	24.26
3"	43.80	43.80	43.80	43.80	43.80	43.80	43.80
4"	64.20	64.20	64.20	64.20	64.20	64.20	64.20
6"	120.30	120.30	120.30	120.30	120.30	120.30	120.30
8"	186.90	186.90	186.90	186.90	186.90	186.90	186.90
10"	263.10	263.10	263.10	263.10	263.10	263.10	263.10
12"							

VOLUMETRIC CHARGES:

USAGE RATE BLOCKS (GALS.)			RATES PER 1,000 GALLONS					
	QUARTER	MONTH						
FIRST	120,000	40,000	\$2.39	\$2.39	\$2.43	\$2.61	\$2.70	\$2.81
NEXT	2,880,000	960,000	2.19	2.19	2.21	2.36	2.44	2.55
NEXT	24,000,000	8,000,000	1.79	1.79	1.87	2.00	2.12	2.24
NEXT	147,000,000	49,000,000	1.51	1.51	1.65	1.76	1.83	1.93
OVER	174,000,000	58,000,000	1.26	1.26	1.53	1.62	1.67	1.73

PRIVATE FIRE PROTECTION

SERVICE SIZE		CHARGE PER MONTH					
RSS		\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
2"		13.61	13.61	13.61	13.61	13.61	13.61
2-1/2"		21.26	21.26	21.26	21.26	21.26	21.26
3"		30.62	30.62	30.62	30.62	30.62	30.62
4"		54.43	54.43	54.43	54.43	54.43	54.43
6"		122.47	122.47	122.47	122.47	122.47	122.47
8"		217.72	217.72	217.72	217.72	217.72	217.72
10"		340.18	340.18	340.18	340.18	340.18	340.18
12"		489.87	489.87	489.87	489.87	489.87	489.87

PUBLIC FIRE PROTECTION

ANNUAL CHARGES							
DIRECT FIRE COSTS							
PER HYDRANT		\$94.44	\$94.44	\$98.88	\$105.96	\$112.08	\$118.56
INDIRECT FIRE COSTS							
PER INCH-SQUARED FOOT		\$0.00152	\$0.00152	\$0.00132	\$0.00138	\$0.00150	\$0.00164

COMMON RATE DIVISION

TABLE 5
LEHIGH COUNTY AUTHORITY
PROJECTED REVENUE REQUIREMENT UNDER PROPOSED RATES

	2017 BASE YEAR	PROJECTED				
		2018	2019	2020	2021	2022
OPERATING EXPENSES						
PERSONNEL	\$1,240,434	\$1,603,050	\$1,403,059	\$1,449,370	\$1,497,460	\$1,547,390
PURCHASE OF SERVICES	4,087,185	3,920,000	4,513,415	4,513,510	4,531,410	4,691,650
MAINTENANCE & SUPPLIES	399,795	268,000	354,180	363,080	372,210	381,590
EQUIPMENT	137,000	103,000	150,400	150,400	150,400	150,400
TOTAL OPERATING EXPENSES	\$5,864,414	\$5,894,050	\$6,421,054	\$6,476,360	\$6,551,480	\$6,771,030
RENEWAL & REPLACEMENT FUND		\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
FUTURE DEBT	\$0	\$0	\$0	\$0	\$342,539	\$342,539
FINANCING FEES	7,500	7,500	7,500	7,500	7,500	7,500
DEBT RETIREMENT	1,886,705	2,284,803	2,316,717	2,352,953	2,348,505	2,378,369
INTEREST EXPENSE	1,017,658	991,196	959,664	1,222,473	1,211,671	1,176,854
COVERAGE	435,654	491,400	491,457	536,314	585,407	584,664
LESS: DEBT SERVICE REDUCTIONS	(205,775)	(230,775)	(205,775)	(205,775)	(180,775)	(155,775)
TOTAL DEBT SERVICE	\$3,141,742	\$3,544,124	\$3,569,563	\$3,913,465	\$4,314,848	\$4,334,152
TOTAL REVENUE REQUIREMENT	\$9,006,156	\$9,438,174	\$9,990,617	\$10,389,825	\$10,866,328	\$11,105,182
NON-OPERATING REVENUES						
BUSS ACRES USER CHARGES	\$41,101					
MADISON NORTH USER CHARGES	41,880					
SITE VISIT TURN-ON CHARGES	8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000
PENALITES	70,897	70,897	70,897	70,897	70,897	70,897
LIEN FEES	400	400	400	400	400	400
REIMBURSEMENT OF LAB COSTS	0	0	0	0	0	0
OTHER WATER SALES	45,891	45,891	45,891	45,891	45,891	45,891
ARCADIA PRIVATE FIRE SERVICE REVENUE	161,145	161,145	161,145	161,145	161,145	161,145
TOTAL NON-OPERATING REVENUES	\$369,314	\$286,333	\$286,333	\$286,333	\$286,333	\$286,333
NET REVENUE REQUIREMENT	\$8,636,842	\$9,151,841	\$9,704,284	\$10,103,492	\$10,579,995	\$10,818,849

COMMON RATE DIVISION

TABLE 5
LEHIGH COUNTY AUTHORITY
PROJECTED REVENUE REQUIREMENT UNDER PROPOSED RATES

	2017 BASE YEAR	PROJECTED				
		2018	2019	2020	2021	2022
OPERATING REVENUES						
RESIDENTIAL	\$3,474,476	\$3,678,212	\$3,917,634	\$4,060,640	\$4,250,043	\$4,373,861
COMMERCIAL	1,026,814	1,055,611	1,125,130	1,169,518	1,222,426	1,248,612
INDUSTRIAL	2,007,997	2,126,288	2,269,948	2,381,200	2,510,331	2,558,697
INSTITUTIONAL	76,241	78,261	83,000	85,663	89,095	90,827
LARGE INDUSTRIAL	1,136,425	1,238,090	1,320,253	1,375,583	1,449,088	1,473,266
PRIVATE - FIRE PROTECTION	632,759	635,944	637,658	642,965	644,680	644,680
PUBLIC - FIRE PROTECTION	368,433	347,615	367,656	394,552	424,849	431,622
TOTAL OPERATING REVENUES	\$8,723,145	\$9,160,022	\$9,721,280	\$10,110,122	\$10,590,512	\$10,821,564
SURPLUS / (DEFICIT)	\$86,302	\$8,181	\$16,996	\$6,630	\$10,517	\$2,716
DEFICIT AS A PERCENT OF OPERATING REVENUES						
DEBT SERVICE COVERAGE	119.34%	116.41%	116.56%	116.11%	116.01%	115.70%

**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 11/12/18; effective 1/1/19)

Current Fixed Charges	
Meter Size	Fixed Charge
<i>Quarterly</i>	
5/8" & 3/4" *	\$ 12.78
1"	21.93
<i>Monthly</i>	
1-1/2"	16.85
2"	22.95
3"	43.80
4"	64.20
6"	120.30
8"	186.90
10"	263.10

*Typical residential.

Current Volume Charges		
Quarterly Usage (gal.)	Monthly Usage (gal.)	Rate per 1,000 Gal.
First 120,000	First 0 - 40,000	\$2.43
Next 2,880,000	Next 960,000	\$2.21
Next 24,000,000	Next 8,000,000	\$1.87
Next 147,000,000	Next 49,000,000	\$1.65
Over 174,000,000	Over 58,000,000	\$1.53

2019 Volume Charges		
Quarterly Usage (gal.)	Monthly Usage (gal.)	Rate per 1,000 Gal.
First 120,000	First 0 - 40,000	\$2.61
Next 2,880,000	Next 960,000	\$2.36
Next 24,000,000	Next 8,000,000	\$2.00
Next 147,000,000	Next 49,000,000	\$1.76
Over 174,000,000	Over 58,000,000	\$1.62

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

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

B. Public Fire Protection

(adopted 11/12/18; effective 1/1/19)

Each Public Fire Hydrant (O&M Charge)	\$8.24/month
Each Inch-Squared Foot (System Charge)	\$0.00132/year

2019 Rates:
 \$8.83/month
 \$0.00138/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

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

III. <u>Meter Inspection Fee</u>	
(adopted 12/15/14; effective 1/1/15)	\$50.00
IV. <u>Service Order / Site Visit Fees</u>	
(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. <u>Site Revisitation Charge</u>	
(adopted 12/15/14; effective 1/1/15)	\$100.00
VI. <u>Lien Administration Fee</u>	
(adopted 12/13/04; effective 01/1/05)	
\$56.50 + Current Lehigh County Clerk of Court's Filing Fee	
VII. <u>Hydrant Security Device Fee</u>	
<u>Central Lehigh Division</u>	\$140.00
(adopted 11/28/16; effective 1/1/17)	
VIII. <u>Fire Flow Test Charge</u>	
(adopted 12/07/11; effective 01/01/12)	\$180.00
IX. <u>Use of Easement Preparation Fee</u>	
(adopted 12/07/11; effective 01/01/12)	\$90.00
X. <u>Backflow Prevention Non-compliance Charge</u>	
(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 12/11/17; effective 1/1/18)

Subject to Tapping Fee Resolution No. 11-2018-1

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"	\$375	\$344
5/8" Pit	\$430	\$399
3/4"	\$393	\$362
3/4" Pit	\$440	\$409
1"		\$436
1" Pit		\$473
1 1/2" Displacement *		\$681
1 1/2" Turbine *		\$914
1 1/2" Compound *		\$1,246
2" Displacement *		\$880
2" Turbine *		\$1,087
2" Compound *		\$1,460

* 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 11/12/18; Effective 1/1/19

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	Current Monthly Charge	2019 Monthly Charge	Current Quarterly Charge	2019 Quarterly Charge
5/8"	\$19.23	\$20.21	\$27.85	\$29.27
3/4"	\$21.33	\$22.42	\$34.15	\$35.89
1"	\$25.64	\$26.95	\$46.73	\$49.12
1 1/2"	\$36.25	\$38.10	\$78.59	\$82.59
2"	\$48.96	\$51.46	\$116.72	\$122.67
3"	\$82.78	\$87.00	\$218.51	\$229.66
4"	\$121.03	\$127.20	\$332.92	\$349.90
6"	\$226.92	\$238.49	\$650.92	\$684.12
8"	\$354.14	\$372.20	\$1,032.24	\$1,084.89

Volume	Current Rate per 1000 Gallons*	2019 Rate per 1000 Gallons*
All Volume	\$3.42003	\$3.59528

* 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

\$0.21834 per 1000 gallons

2019 Rate: \$0.27945

C. Private Fire Protection

Each Hydrant	\$341.37 per year (may be billed monthly or quarterly)
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2019 Rate:
\$358.77

D. Tapping Fees

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

\$5.59 per gallon

2019 Rate: \$5.88

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
Subject to Tapping Fee Resolution No. 11-2018-1

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

Meter Size	With LCA Installation*	Without LCA Installation*
5/8"	\$272	
3/4"	\$329	
1"	\$321	
1 1/2"	\$517	
2"	\$636	
3" Compound		\$1,618
3" Turbine		\$1,180
4" Compound		\$2,687
4" Turbine		\$2,133
6" Compound		\$4,518
6" Turbine		\$3,700
8" Compound		\$7,221
8" Turbine		\$6,181
* 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	\$41.00
3/4" Meter Horn	\$59.00
Curb Box	\$67.84

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

F. Connection Fee
Subject to Tapping Fee Resolution No. 11-2018-1

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"	\$338
1"	\$357
1 1/2"	\$499
2"	\$609
4" x 4"	\$1,797
6" x 4"	\$1,803
6" x 6"	\$1,964
8" x 4"	\$1,816
8" x 6"	\$1,969
8" x 8"	\$2,404
12" x 4"	\$1,923
12" x 6"	\$2,082
12" x 8"	\$2,501
12" x 12"	\$3,870

**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 12/11/17; effective 1/1/18)

Subject to Tapping Fee Resolution No. 11-2018-1

Meter Size	Purchase & Inspection *
5/8"	\$302
5/8" Pit	\$357
3/4"	\$320
3/4" Pit	\$367
1"	\$394
1" Pit	\$431
1-1/2"	\$681
1-1/2" Pit	\$914
2" Displacement	\$1,246
2" Displacement Pit	\$880
2" Turbine	\$1,087
2" Compound	\$1,460

* 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., **\$50.00**
Monday through Friday (except holidays)

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** **\$170.00/day**
(adopted 12/18/00; effective 1/1/01)
(Commercial & Industrial)

Fats-Oils-Greases Analysis **\$36.00/sample**
(adopted 7/27/09; effective 8/1/09)

- G. Exceptional Strength Charges**
(adopted 11/12/18; effective 1/1/19)

(Commercial & Industrial)	Current Rates \$ / pound	2019 Rates \$ / pound
BOD	0.29	0.28
TSS	0.25	0.25
TKN	0.37	0.43

- 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

Subject to Tapping Fee Resolution No. 11-2018-1

System	Tapping Fee \$/gallon/day	Tapping Fee \$/EDU	Connection Fee	Customer Facilities Fee
Upper Milford System (adopted 8/28/17; effective 9/1/17)				
Route 29 Service Area			Actual Cost Trended*	Actual Cost Trended*
Contributed Area (includes Western Lehigh fees plus UMiT Capacity Part)	16.98	3,857.83		
LCA-Installed Area (includes Contributed Area fees plus UMiT Collection Part)	24.72	5,674.00		
Lower Macungie Twp. Customer	2.56	611.52		
Other Service Areas				
Contributed Area (includes Western Lehigh fees plus UMiT Capacity Part- Other)	11.66	2,607.97		
Non-Contributed Area (includes Contributed Area fees plus UMiT Collection Part)	19.40	4,424.15		
Western Weisenberg Twp System (adopted 6/27/16; effective 7/1/16)				
LCA Planning Fee	2.52	661.50	Historical Cost plus Financing	
LCA Land Fee	3.96	1,040.25	Historical Cost plus Financing	
Wastewater Treatment Plant	38.51	10,108.10	Actual Cost Trended	
Wynnewood System (adopted 8/28/17; effective 9/1/17)				
Capacity	10.64	2,567.32	Actual Cost	Actual Cost
Collection	11.56	2,788.31		
Heidelberg Heights System (adopted 8/28/17; effective 9/1/17)				
Capacity	22.34	5,388.26	Actual Cost	Actual Cost
Collection	3.49	842.74		
Sand Spring System (adopted 8/28/17; effective 9/1/17)				
Capacity	5.97	1,441.01	Actual Cost	Actual Cost
Collection	3.52	849.83		

*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 11/12/18; effective 1/1/19)

LCA Signatories	<u>Current Rates (\$)</u>	<u>2019 Rates (\$)</u>
Flow (per 1,000 gallons)	0.98	0.89
BOD (per pound)	0.29	0.28
TSS (per pound)	0.25	0.25
TKN (per pound)	0.37	0.43
Allocation (per 1,000 gallons per day)	0.18	0.29
Emmaus		
Flow (per 1,000 gallons)	0.23	0.30

II. Tapping Fee

(adopted 8/28/17; effective 9/1/17)

Subject to Tapping Fee Resolution No. 11-2018-1

<u>System</u>	<u>Tapping Fee \$/gal/day</u>	<u>Tapping Fee \$/EDU</u>	<u>Costing Method</u>
Treatment Allocation	6.11	1,363.61	Historical Trended Cost
Western Lehigh Interceptor	3.87	863.34	

LITTLE LEHIGH RELIEF INTERCEPTOR SYSTEM

I. Schedule of Wastewater Rates

(adopted 11/12/18; effective 1/1/19)

	<u>Current Rate (\$)</u>	<u>2019 Rate (\$)</u>
LCA Signatories – Phase 1	0.27	0.22
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	0.19
LCA Signatories – Phase 2 Flow (per 1,000 gallons)	0.03	0.03

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

II. Tapping Fee

(adopted 8/27/17; effective 9/1/17)

Subject to Tapping Fee Resolution No. 11-2018-1

<u>System</u>	<u>Tapping Fee \$/gal/day</u>	<u>Tapping Fee \$/EDU</u>	<u>Costing Method</u>
Little Lehigh Relief Interceptor	1.10	245.66	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 11/12/18; Effective 1/1/19

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	Current Monthly Charge	2019 Monthly Charge	Current Quarterly Charge	2019 Quarterly Charge
5/8"	\$6.69	\$7.03	\$9.66	\$10.16
3/4"	\$7.41	\$7.79	\$11.84	\$12.45
1"	\$8.86	\$9.31	\$16.19	\$17.01
1 1/2"	\$12.48	\$13.12	\$27.06	\$28.44
2"	\$16.83	\$17.69	\$40.11	\$42.15
3"	\$28.51	\$29.97	\$74.90	\$78.72
4"	\$41.56	\$43.68	\$114.29	\$120.12
6"	\$77.88	\$81.86	\$223.26	\$234.65
8"	\$142.88	\$150.16	\$352.30	\$370.27

Flow Charge	Current Rate per 1000 Gallons*	2019 Rate per 1000 Gallons*
All flow based on metered water usage***	\$2.46425	\$2.59004

* 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

\$0.04895 per 1000 gallons

2019 Rate: \$0.08427

C. Administrative Order Fee

\$0.03084 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.

2019 Rate: \$0.03546

D. Tapping Fees

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

\$4.26 per gallon

2019 Rate: \$4.48

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)	Current Rate \$ / pound	2019 Rate \$ / pound
BOD	0.265	0.234
TSS	0.220	0.197
TKN	0.371	0.323

F. Industrial Pretreatment Program Fees

Program Charge / Testing Fees	Current 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	\$43.00
Oil & Grease	\$48.50
pH	\$12.00
Phenols	\$42.50
Solids, Total Dissolved	\$14.50
Solids, Total Suspended	\$17.50
Solids, Total	\$14.50
Sulfides	\$25.50
Total Kjeldahl Nitrogen (TKN)	\$28.50
Total Petroleum Hydrocarbons – 2019 Fee: \$51.00	\$40.00
Total Phosphorous as P	\$21.00
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	\$23.00
Cobalt	\$15.00
Lithium	\$15.00
SVOA 625	\$225.00
VOA 1666 – New Fee / Test in 2019	\$412.00
VOA 624 – New Fee / Test in 2019	\$88.00
Diesel Range Organics	\$75.00

RESOLUTION No. 11-2018-1

(Duly adopted 12 November 2018)

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

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

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

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

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

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

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

1. The capital recovery fees for wastewater and water service in various of the Authority's wastewater and water systems as indicated and shown on Attachment A, *LCA Customer Facilities Fees and Connection Fees, Allentown and Suburban Divisions - Water and Wastewater* and Attachment B, *Lehigh County Authority Sewer System Tapping Fee Calculations for Suburban Division, November 2018*, attached hereto and made a part hereof, are adopted effective 1 January 2019.

2. The Authority's Schedules of Rates and Charges shall be amended to reflect the fees hereby adopted, which fees shall be effective as of 1 January 2019.

On motion of _____, seconded by _____, this Resolution was adopted the 12th day of November 2018.

2019 TAPPING FEE RESOLUTION - ATTACHMENT A
LCA CUSTOMER FACILITIES FEES AND CONNECTION FEES
ALLENTOWN AND SUBURBAN DIVISIONS - WATER AND WASTEWATER

Suburban Division - Water System - Customer Facilities Fees

Meter Component - With DC Backflow

<u>Meter Size</u>	<u>2019 Supply Cost</u>	<u>2019 Labor Cost</u>	<u>2019 Rate</u>
5/8"	\$275	\$93	\$368
5/8" Pit	\$330	\$93	\$423
3/4"	\$293	\$93	\$386
3/4" Pit	\$340	\$93	\$433

Meter Component - With No Backflow

<u>Meter Size</u>	<u>2019 Supply Cost</u>	<u>2019 Labor Cost</u>	<u>2019 Rate</u>
5/8"	\$242	\$93	\$335
5/8" Pit	\$297	\$93	\$390
3/4"	\$260	\$93	\$353
3/4" Pit	\$307	\$93	\$400
1"	\$336	\$93	\$429
1" Pit	\$362	\$93	\$455
1 1/2" Displacement	\$645	\$50	\$695
1 1/2" Turbine	\$878	\$50	\$928
1 1/2" Compound	\$1,210	\$50	\$1,260
2" Displacement	\$851	\$50	\$901
2" Turbine	\$1,058	\$50	\$1,108
2" Compound	\$1,431	\$50	\$1,481

Suburban Division - Wastewater System - Customer Facilities Fees

Meter Purchase Only (Plumber Install)

<u>Meter Size</u>	<u>2019 Supply Cost</u>	<u>2019 Inspection Fee</u>	<u>2019 Rate</u>
5/8"	\$242	\$50	\$292
5/8" Pit	\$297	\$50	\$347
3/4"	\$260	\$50	\$310
3/4" Pit	\$307	\$50	\$357
1"	\$336	\$50	\$386
1" Pit	\$362	\$50	\$412
1 1/2" Displacement	\$645	\$50	\$695
1 1/2" Turbine	\$878	\$50	\$928
1 1/2" Compound	\$1,210	\$50	\$1,260
2" Displacement	\$851	\$50	\$901
2" Turbine	\$1,058	\$50	\$1,108
2" Compound	\$1,431	\$50	\$1,481

Allentown Division - Water System - Customer Facilities Fees

<u>Meter Size</u>	<u>2019 Meter Price</u>	<u>Components</u>	<u>2019 Labor Cost</u>	<u>2019 Rate</u>
5/8"	\$83	\$118	\$89	\$290
3/4"	\$141	\$118	\$89	\$348
1"	\$130	\$132	\$89	\$351
1 1/2"	\$281	\$221	\$89	\$591
2"	\$366	\$280	\$89	\$734
3" Compound	\$1,423	\$96	\$50	\$1,569
3" Turbine	\$985	\$96	\$50	\$1,131
4" Compound	\$2,472	\$96	\$50	\$2,618
4" Turbine	\$1,918	\$96	\$50	\$2,064
6" Compound	\$4,270	\$96	\$50	\$4,416
6" Turbine	\$3,452	\$96	\$50	\$3,598
8" Compound	\$6,898	\$96	\$50	\$7,044
8" Turbine	\$5,858	\$96	\$50	\$6,004

<u>Other Components</u>	<u>2019 Price</u>
5/8" Meter Horn	\$43.50
3/4" Meter Horn	\$50.92
Curb Box - Metal	\$57.80

Allentown Division - Water System - Water Connection Fees

Water Taps 3/4 inch - 2 inch

	<u>Corporation</u>	<u>Tail Piece</u>	<u>Saddle Clamp</u>	<u>Employee Wages</u>	<u>Equipment</u>	<u>2019 Rate</u>
Size 3/4 "	\$25	\$20	\$0	\$239	\$67	\$352
Size 1 "	\$38	\$29	\$0	\$239	\$67	\$373
Size 1 1/2"	\$115	\$77	\$35	\$239	\$67	\$535
Size 2 "	\$197	\$124	\$35	\$239	\$67	\$662

Water Sleeve and Valve Connectors

	<u>Valve</u>	<u>Casing</u>	<u>Tapping Fitting</u>	<u>Employee Wages</u>	<u>Equipment</u>	<u>2019 Rate</u>
Size 4"x 4"	\$466	\$110	\$360	\$706	\$221	\$1,863
Size 6"x 4"	\$466	\$110	\$444	\$706	\$221	\$1,946
Size 6" x 6"	\$594	\$110	\$505	\$706	\$221	\$2,136
Size 8"x 4"	\$466	\$110	\$470	\$706	\$221	\$1,972
Size 8"x 6"	\$594	\$110	\$547	\$706	\$221	\$2,178
Size 8"x 8"	\$849	\$110	\$698	\$706	\$221	\$2,584
Size 12"x 4"	\$466	\$110	\$584	\$706	\$221	\$2,087
Size 12"x 6"	\$594	\$110	\$643	\$706	\$221	\$2,274
Size 12"x 8"	\$849	\$110	\$782	\$706	\$221	\$2,668
Size 12"x 12"	\$1,840	\$110	\$1,545	\$706	\$221	\$4,422

Attachment B



LEHIGH COUNTY AUTHORITY SEWER SYSTEM TAPPING FEE CALCULATIONS FOR CENTRAL LEHIGH DIVISION

November 2018

Keystone Alliance Consulting, Inc.



**LEHIGH COUNTY AUTHORITY – CENTRAL LEHIGH DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

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**LEHIGH COUNTY AUTHORITY – CENTRAL LEHIGH DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

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

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

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

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

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

**LEHIGH COUNTY AUTHORITY – CENTRAL LEHIGH DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

SCHEDULE A

CONNECTION FEE COMPONENT

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

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

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

**LEHIGH COUNTY AUTHORITY – CENTRAL LEHIGH DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

SCHEDULE B

CUSTOMER FACILITY FEE COMPONENT

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

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

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

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

**LEHIGH COUNTY AUTHORITY – CENTRAL LEHIGH DIVISION
SEWER SYSTEM TAPPING FEE CALCULATIONS**

SCHEDULE C

TAPPING FEE COMPONENT

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 1
LEHIGH COUNTY AUTHORITY
SUMMARY OF WASTEWATER FUND CAPITAL RECOVERY FEES
Updated as of 1/1/2018

		Per Gallon			Per EDU			(1)	(2)	
		Existing Charge	Maximum Charge	New Charge	Existing Charge	Maximum Charge	New Charge	Gallons	Change	
Exhibit	Charge	8/23/2017			8/23/2017			per EDU	%	Costing Method
Interceptor System:										
A	Wastewater Capacity	\$6.11	\$6.14	\$6.14	\$1,363.61	\$1,368.20	\$1,368.20	223.0	0.34%	Historical Trended Cost
B	Western Lehigh Interceptor	3.87	3.91	3.91	863.34	872.68	872.68	223.0	1.08%	Historical Trended Cost
C	Little Lehigh Relief Interceptor	1.10	1.13	1.13	245.66	252.30	252.30	223.0	2.70%	Historical Trended Cost
Total Western Lehigh Service Area		11.09	11.18	11.18	2,472.62	2,493.17	2,493.17			
Upper Milford System										
D1	Capacity	\$5.32	\$5.35	\$5.35	\$1,249.85	\$1,257.86	\$1,257.86	234.9	0.64%	Historical Trended Cost
D1	Collection	7.73	7.87	7.87	1,816.17	1,848.20	1,848.20	234.9	1.76%	Historical Trended Cost
D1	Planning Costs Capacity	0.58	0.58	0.58	135.36	135.81	135.81	234.9	0.34%	Historical Trended Cost
Lower Macungie										
D2	Capacity	\$2.56	\$2.57	\$2.57	\$611.52	\$613.58	\$613.58	238.5	0.34%	Historical Trended Cost
	MFR Charge	1.54	1.54	1.54	366.91	368.15	368.15		0.34%	
Heidelberg Heights Wastewater System										
E	Capacity	\$22.34	\$24.29	\$24.29	\$5,388.26	\$5,859.74	\$5,859.74	241.2	8.75%	Historical Trended Cost
E	Collection	3.49	3.58	3.58	842.74	863.35	863.35	241.2	2.45%	Historical Trended Cost
Wynnewood Terrace Wastewater System										
F	Capacity	\$10.64	\$11.70	\$11.70	\$2,567.32	\$2,822.24	\$2,822.24	241.2	9.93%	Historical Trended Cost
F	Collection	11.56	12.27	12.27	2,788.31	2,959.96	2,959.96	241.2	6.16%	Historical Trended Cost
Sand Springs Wastewater System										
G	Capacity	\$5.97	\$7.93	\$7.93	\$1,441.01	\$1,912.20	\$1,912.20	241.2	32.70%	Historical Trended Cost
	MFR Charge	3.88	5.15	5.15	936.66	1,242.93	1,242.93		32.70%	
G	Collection	3.52	3.54	3.54	849.83	852.69	852.69	241.2	0.34%	Historical Trended Cost
	MFR Charge	2.29	2.30	2.30	552.39	554.25	554.25		0.34%	
Arcadia West, Western Weisenberg:										
H	Reimbursement Fee - Collection Part	\$50.02	\$55.15	\$55.15	\$13,130.32	\$14,476.18	\$14,476.18	262.5	10.25%	Historical Trended Cost
H	Reimbursement Fee - Capacity Part	33.06	36.45	36.45	8,678.82	\$9,568.40	9,568.40	262.5	10.25%	Historical Trended Cost
H	LCA Land Fee	3.96	4.37	4.37	1,040.25	\$1,146.87	1,146.87	262.5	10.25%	Historical Trended Cost
H	LCA Planning	2.52	2.65	2.65	661.50	\$694.89	694.89	262.5	5.05%	Historical plus Financing Costs
I	W Weisenberg Treatment Plant	38.51	40.52	40.52	10,108.10	\$10,637.12	10,637.12	262.5	5.23%	Historical Trended Cost

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

(2) Based on Charge Per EDU

Resulting Charges

Upper Milford System

Rt 29, Ramer Heights and Vera Cruz	\$ 24.72	\$ 24.98	\$24.98	\$ 5,674.00	\$ 5,735.04	\$5,735.04	1.08%	ABC + D1-Cap + D1-Coll + D1-Plan
MFR Charge	14.83	14.99	14.99	3,404.40	3,441.03	3,441.03	1.08%	
Other UMiT Areas	11.66	11.76	11.76	2,607.97	2,628.98	2,628.98	0.81%	ABC + D1-Plan
MFR Charge	7.00	7.05	7.05	1,564.78	1,577.39	1,577.39	0.81%	

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

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
General Pool	\$1,152,500	\$1,461,519
Salisbury Portion	600,000	685,877
	<u>\$1,752,500</u>	<u>\$2,147,396</u>
Less: Contributions	-	-
Net Capital	<u>\$1,752,500</u>	<u>\$2,147,396</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$1,752,500</u>	<u>\$2,147,396</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$1,752,500</u>	<u>\$2,147,396</u>
Total Capacity	350,000	350,000
Capacity Tapping Fee per Gallon	\$5.01	\$6.14
Gallon per EDU for Capacity Part (1)	223.0	223.0
Capacity Tapping Fee per EDU	\$1,116.59	\$1,368.20
(1) Total Gallons Per Day Per EDU Per Agreements	223	

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

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Original Interceptor	B - 1	\$5,215,326	\$32,363,017
Phase II, Stage 1	B - 1	884,097	2,003,169
Phase II, Stage 2	B - 1	6,069,549	11,243,827
Phase II, Stage 4	B - 1	3,315,228	4,753,020
Flow Equaliz. Basin	B - 1	5,495,586	6,677,448
Iron Run PS & Force Main	B - 1	5,470	5,964
Wastewater Treatment Capacity	B - 1	601,763	693,589
WLI - WW Capacity Prg Dev	B - 1	660,592	748,878
Interceptor Conn	B - 1	1,823	2,052
Flow Monitoring Network	B - 1	419	472
Spring Creek PS Improvements	B - 1	126,319	132,485
Meter Stat. No. 5 Improvements	B - 1	172,176	187,639
		<hr/>	<hr/>
		\$22,548,347	\$58,811,557
Less: Contributions		2,536,420	15,739,419
Net Capital		<hr/>	<hr/>
		\$20,011,927	\$43,072,138
 Financing Costs for Capacity Part		 -	 -
Total Cost of Capacity Part		<hr/>	<hr/>
		\$20,011,927	\$43,072,138
 Plus: Interest Paid On Debt		 4,911,674	 n/a
Less: Outstanding Debt		n/a	3,692,164
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$24,923,601	\$39,379,974
 Total Capacity		 10,063,000	 10,063,000
 Capacity Tapping Fee per Gallon		 \$2.48	 \$3.91
 Gallon per EDU for Capacity Part (1)		 223.0	 223.0
 Capacity Tapping Fee per EDU		 \$552.32	 \$872.68
 (1) Total Gallons Per Day Per EDU		 223	
Per Agreements			

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

<u>Expenditure</u>	<u>Placed in Service</u>		<u>Original Cost</u>	<u>Cost Index</u> <u>Original Current</u>		<u>Trended Current Replacement Cost</u>
Original Interceptor						
Interceptor	Jan	1972	\$5,215,326	1753	10878	\$32,363,017
Phase II, Stage 1						
Interceptor	May	1991	\$884,097	4801	10878	\$2,003,169
Phase II, Stage 2						
Interceptor	Jan	1998	\$2,449,063	5852	10878	\$4,552,449
PS Structure	Jan	1998	2,044,224	5852	10878	3,799,913
Pump & Elect	Jan	1998	1,506,462	5852	10878	2,800,292
Land	Jan	1998	44,915			44,915
Metering	Jan	1998	24,885	5852	10878	46,258
Phase II, Stage 4						
Interceptor	Sep	2005	\$3,247,728	7540	10878	\$4,685,520
Land	Sep	2005	67,500			67,500
Flow Equaliz. Basin						
	Dec	2010	\$5,488,588	8952	10878	\$6,669,152
	Jan	2012	6,998	9176	10878	8,296
Iron Run PS & Force Main						
	Prior to	Jan 2012	\$1,086,546	Excluded - Previously counted		
		Jan 2012	1,782	9176	10878	\$2,113
		Jan 2013	200	9437	10878	231
		Jan 2014	106	9664	10878	119
		Jan 2015	209	9972	10878	228
		Jan 2017	3,172	10542	10878	3,274
Wastewater Treatment Capacity						
		Jan 2012	\$350	9176	10878	\$415
		Jan 2013	600,369	9437	10878	692,024
		Jan 2014	298	9664	10878	335
		Jan 2015	747	9972	10878	815
WLI - WW Capacity Prg Dev						
	Prior to	Jan 2012	\$546,637	Excluded - Previously counted		
		Jan 2012	66,774	9176	10878	\$79,159
		Jan 2013	246,735	9437	10878	284,403
		Jan 2014	213,732	9664	10878	240,582
		Jan 2015	91,472	9972	10878	99,783
		Jan 2016	41,663	10133	10878	44,729
		Jan 2017	216	10542	10878	223
Signatory I&I Program						
	Prior to	Jan 2012	\$2,291,652	Excluded - Repairs		
		Jan 2012	438,574	Excluded - Repairs		
		Jan 2013	400,188	Excluded - Repairs		
		Jan 2014	467,300	Excluded - Repairs		
		Jan 2015	324,637	Excluded - Repairs		
		Jan 2016	296,267	Excluded - Repairs		
		Jan 2017	491,531	Excluded - Repairs		

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

<u>Expenditure</u>	<u>Placed in Service</u>		<u>Original Cost</u>	<u>Cost Index</u> <u>Original Current</u>		<u>Trended Current Replacement Cost</u>
Interceptor Conn	Jan	2014	\$1,823	9664	10878	\$2,052
Flow Monitoring Network	Jan	2014	\$419	9664	10878	\$472
Spring Creek PS Improvements	Jan	2014	\$528	9664	10878	\$594
	Jan	2015	413	9972	10878	451
	Jan	2016	49,537	10133	10878	53,182
	Jan	2017	75,841	10542	10878	78,258
Meter Stat. No. 5 Improvements	Jan	2015	\$161,709	9972	10878	\$176,402
	Jan	2016	10,466	10133	10878	11,236
Test & Seal - Cycle 1	Jan	2016	\$534,283	Excluded - Repairs		
	Jan	2017	\$498,251	Excluded - Repairs		
Spring Creek Force Main AARV Rep	Jan	2017	\$12,751	Excluded - Repairs		
			\$22,548,347			\$58,811,557

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

A. Capacity Part

	<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs - Dec. 1986	\$4,750,332	\$11,876,387
Park PS Improvements Ph1 - Prior to 2012	34,670	41,100
Park PS Improvements Ph1 - 2012	102,160	121,109
Park PS SCADA Gen - Prior to 2012	34,421	40,806
Park PS SCADA Gen - 2012	11,326	13,427
Park PS Improvements Ph1 - 2013	21,619	24,919
Park PS SCADA Gen - 2013	6,189	7,134
Park PS Improvements Ph1 - 2014	74	84
Park PS SCADA Gen - 2014	140,634	158,301
Park PS Improvements Ph1 - 2015	973	1,062
Park PS SCADA Gen - 2015	72,378	78,954
Park PS Improvements Ph1 - 2016	98,867	106,141
Park PS Force Main Upgrade - 2016	101	109
Park PS Improvements Ph1 - 2017	283,576	292,614
Park PS Force Main Upgrade - 2017	2,402	2,479
Park PS Force Main Extension - 2017	7,087	7,313
	<u>\$5,566,812</u>	<u>\$12,771,940</u>
Less: Contributions	583,221	1,458,121
Net Capital	<u>\$4,983,591</u>	<u>\$11,313,819</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$4,983,591</u>	<u>\$11,313,819</u>
Plus: Interest Paid On Debt	4,890,657	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$9,874,248</u>	<u>\$11,313,819</u>
Total Capacity	10,000,000	10,000,000
Capacity Tapping Fee per Gallon	\$0.99	\$1.13
Gallon per EDU for Capacity Part (1)	223.0	223.0
Capacity Tapping Fee per EDU	\$220.20	\$252.30
(1) Total Gallons Per Day Per EDU Per Agreements	223	

Exhibit D1
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township - Rt. 29 Area

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost & Capitalized Interest	D1 - 1	\$987,650	\$2,326,476
		\$987,650	\$2,326,476
Less: Contributions		-	-
Net Capital		\$987,650	\$2,326,476
Financing Costs for Capacity Part		-	-
Total Cost of Capacity Part		\$987,650	\$2,326,476
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	255,919
Eligible Cost for Capacity Part		\$987,650	\$2,070,557
Total Capacity		386,669	386,669
Capacity Tapping Fee per Gallon		\$2.55	\$5.35
Gallon per EDU for Capacity Part (1)		234.9	234.9
Capacity Tapping Fee per EDU		\$599.99	\$1,257.86

Exhibit D1
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township - Rt. 29 Area

B. <u>Collection Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost & Capitalized Interest	D1 - 1	\$658,434	\$1,550,986
South 7th Street - Ph - 1	D1 - 1	204,222	259,858
South 7th Street - Ph - 2	D1 - 1	233,261	284,446
Ramer Heights Project & Capitalized Interest	D1 - 1	148,811	319,978
Vera Cruz Project	D1 - 1	4,284,326	5,077,970
Additional Project Costs	D1 - 1	58,302	63,438
		<hr/>	<hr/>
		\$5,587,356	\$7,556,676
Less: Contributions	D1 - 2	2,688,249	3,140,207
Net Capital		<hr/>	<hr/>
		\$2,899,107	\$4,416,469
 Financing Costs for Collection Part		 -	 -
Total Cost of Collection Part		<hr/>	<hr/>
		\$2,899,107	\$4,416,469
 Plus: Interest Paid On Debt		 -	 n/a
 Less: Outstanding Debt		 n/a	 1,374,139
Eligible Cost for Capacity Part		<hr/>	<hr/>
		\$2,899,107	\$3,042,330
 Total Capacity		 386,669	 386,669
 Collection Tapping Fee per Gallon		 \$7.50	 \$7.87
 Gallon per EDU for Capacity Part (1)		 234.9	 234.9
 Collection Tapping Fee per EDU		 \$1,761.20	 \$1,848.20

Exhibit D1
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Upper Milford Township - Rt. 29 Area

C. <u>Capacity Part - Planning Costs</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Planning Costs		\$186,279	\$220,927
		\$186,279	\$220,927
Less: Contributions		-	-
Net Capital		\$186,279	\$220,927
Financing Costs for Capacity Part		1,184	2,634
Total Cost of Capacity Part		\$187,463	\$223,562
Plus: Interest Paid On Debt		29,122	n/a
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		\$216,585	\$223,562
Total Capacity		386,669	386,669
Capacity Tapping Fee per Gallon		\$0.56	\$0.58
Gallon per EDU for Capacity Part (1)		234.9	234.9
Capacity Tapping Fee per EDU		\$131.57	\$135.81
(1) Average Household Size Per 2010 Census for Upper Milford		2.61	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		90	
Total Gallons Per Day Per EDU		234.9	

Exhibit D1 - 1
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Upper Milford Township - Rt. 29 Area

Capacity Assets

<u>Expenditure</u>	<u>Placed in Service</u>		<u>Original Cost</u>	<u>Cost Index</u> <u>Original Current</u>		<u>Trended Current Replacement Cost</u>
Rt. 29 Project Cost & Capitalized Interest						
Interceptor	Aug	1989	\$987,650	4618	10878.01	\$2,326,476
			\$987,650			\$2,326,476

Collection Assets

Expenditure	Placed in Service			Original Cost	Cost Index		Trended Current Replacement Cost
					Original	Current	
Rt. 29 Project Cost & Capitalized Interest							
Collector	Aug	1989	\$658,434	4618	10878.01	\$1,550,986	
Ramer Heights Project & Capitalized Interest							
Collector	Dec	1992	\$148,811	5059	10878.01	\$319,978	
South 7th Street - Ph - 1							
Collector	Jan	2009	\$204,222	8549	10878.01	\$259,858	
South 7th Street - Ph - 2							
Collector	Oct	2010	\$233,261	8921	10878.01	\$284,446	
Vera Cruz Project							
	Prior to	Jan	2012	\$2,495,282	9176	10878.01	\$2,958,119
		Jan	2012	1,765,192	9176	10878.01	2,092,609
		Jan	2013	18,891	9437	10878.01	21,774
		Jan	2014	1,572	9664	10878.01	1,769
		Jan	2015	3,390	9972	10878.01	3,698
Additional Project Costs							
South 7th Street Extension	Jan	2012	\$458	9176	10878.01	\$543	
South 7th Street Extension - Ph - 2	Jan	2012	2,701	9176	10878.01	3,202	
Weaver - 4751 Mill Road	Jan	2012	1,650	9176	10878.01	1,956	
Weaver - 4751 Mill Road	Jan	2013	8,555	9437	10878.01	9,861	
Fields at Indian Creek	Jan	2014	2,048	9664	10878.01	2,306	
Weaver - 4751 Mill Road	Jan	2015	150	9972	10878.01	164	
Fields at Indian Creek	Jan	2015	4,433	9972	10878.01	4,836	
Fields at Indian Creek	Jan	2016	25,037	10133	10878.01	26,879	
Fields at Indian Creek	Jan	2017	12,829	10542	10878.01	13,238	
Kohler Tract - Sewer	Jan	2017	442	10542	10878.01	456	
New Tripoli Bank - Buckeye	Jan	2017	809	10542	10878.01	835	

Exhibit D1 - 2
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Upper Milford Township - Rt. 29 Area

<u>Expenditure</u>	Contributions - Collection		Cost Index		Trended Current Replacement Cost
	Placed in Service	Original Cost	Original	Current	
South 7th Street - Ph - 1					
Federal Grant	Jan 2009	\$172,100	8549	10878.01	\$218,985
South 7th Street - Ph - 2					
Federal Grant	Oct 2010	\$206,649	8921	10878.01	\$251,995
Vera Cruz Project Costs thru 4/30/14					
Federal Grant	Dec 2012	\$1,309,500	9412	10878.01	\$1,513,467
State Grant	Dec 2012	1,000,000	9412	10878.01	1,155,760
		\$2,688,249			\$3,140,207

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

A. <u>Capacity Part</u>		<u>Original Cost</u>	<u>Trended Cost</u>
Rt. 29 Project Cost	\$1,646,084		
% of Project applicable to LMT Interceptor	24.79%	\$408,064	\$961,223
		<u>\$408,064</u>	<u>\$961,223</u>
Less: Contributions		-	-
Net Capital		<u>\$408,064</u>	<u>\$961,223</u>
Financing Costs for Capacity Part		-	-
Total Cost of Capacity Part		<u>\$408,064</u>	<u>\$961,223</u>
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		<u>\$408,064</u>	<u>\$961,223</u>
Total Capacity		373,632	373,632
Capacity Tapping Fee per Gallon		\$1.09	\$2.57
Gallon per EDU for Capacity Part (1)		238.5	238.5
Capacity Tapping Fee per EDU		\$260.48	\$613.58
(1) Average Household Size Per 2010 Census for Lower Macungie Twp		2.65	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		<u>90</u>	
Total Gallons Per Day Per EDU		238.5	

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

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs	\$785,141	\$1,369,152
WWTP Upgrades - 2017	85,762	88,496
	<u>\$870,903</u>	<u>\$1,457,648</u>
Less: Contributions	-	-
Net Capital	<u>\$870,903</u>	<u>\$1,457,648</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$870,903</u>	<u>\$1,457,648</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$870,903</u>	<u>\$1,457,648</u>
Total Capacity	60,000	60,000
Capacity Tapping Fee per Gallon	\$14.52	\$24.29
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$3,501.03	\$5,859.74

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

B. <u>Collection Part</u>		<u>Original Cost</u>	<u>Trended Cost</u>
Project Costs		\$123,157	\$214,765
I&I Removal Project - 2016	Excluded - Repairs	57,099	
I&I Removal Project - 2017	Excluded - Repairs	1,729	
		\$123,157	\$214,765
Less: Contributions		-	-
Net Capital		\$123,157	\$214,765
Financing Costs for Collection Part		-	-
Total Cost of Collection Part		\$123,157	\$214,765
Plus: Interest Paid On Debt		-	n/a
Less: Outstanding Debt		n/a	-
Eligible Cost for Capacity Part		\$123,157	\$214,765
Total Capacity		60,000	60,000
Collection Tapping Fee per Gallon		\$2.05	\$3.58
Gallon per EDU for Capacity Part (1)		241.2	241.2
Collection Tapping Fee per EDU		\$495.09	\$863.35
(1) Average Household Size Per 2010 Census for Heidelberg Township		2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003		90	
Total Gallons Per Day Per EDU		241.2	

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

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$247,393	\$401,963
System Improvements - Prior to 2012	3,990	4,730
System Improvements - 2012	32,645	38,701
System Improvements - 2013	55,264	63,700
System Improvements - 2014	67,642	76,139
WWTP Improvements - 2015	21,241	23,171
WWTP Improvements - 2016	5,080	5,454
WWTP Improvements - 2017	85,467	88,191
	<u>\$518,722</u>	<u>\$702,050</u>
Less: Contributions	-	-
Net Capital	<u>\$518,722</u>	<u>\$702,050</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$518,722</u>	<u>\$702,050</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$518,722</u>	<u>\$702,050</u>
Total Capacity	60,000	60,000
Capacity Tapping Fee per Gallon	\$8.65	\$11.70
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$2,085.26	\$2,822.24

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

B. <u>Collection Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$406,318	\$660,184
Riverside Prof Cntr Additions - 2012	132	157
Riverside Prof Cntr Additions - 2013	1,476	1,701
Wynnewood I&I Project - 2013	Excluded - Repairs ———— 24,096	
Wynnewood I&I Project - 2014	Excluded - Repairs ———— 17,020	
Main, PS & Force Main - 2015	645,390	704,030
Main, PS & Force Main - 2016	102,876	110,445
Main, PS & Force Main - 2017	691	713
	<u>\$1,156,883</u>	<u>\$1,477,230</u>
Less: Contributions	-	-
Net Capital	<u>\$1,156,883</u>	<u>\$1,477,230</u>
Financing Costs for Collection Part	-	-
Total Cost of Collection Part	<u>\$1,156,883</u>	<u>\$1,477,230</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	740,922
Eligible Cost for Capacity Part	<u>\$1,156,883</u>	<u>\$736,308</u>
Total Capacity	60,000	60,000
Collection Tapping Fee per Gallon	\$19.28	\$12.27
Gallon per EDU for Capacity Part (1)	241.2	241.2
Collection Tapping Fee per EDU	\$4,650.67	\$2,959.96
(1) Average Household Size Per 2010 Census for North Whitehall Township	2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003	90	
Total Gallons Per Day Per EDU	<u>241.2</u>	

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

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$88,048	\$131,258
System Improvements - 2005	6,358	9,403
WWTP Improvements - 2015	20,683	22,563
WWTP Improvements - 2016	14,546	15,616
WWTP Improvements - 2017	95,588	98,634
	<u>\$225,224</u>	<u>\$277,475</u>
Less: Contributions	-	-
Net Capital	<u>\$225,224</u>	<u>\$277,475</u>
Financing Costs for Capacity Part	-	-
Total Cost of Capacity Part	<u>\$225,224</u>	<u>\$277,475</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$225,224</u>	<u>\$277,475</u>
Total Capacity	35,000	35,000
Capacity Tapping Fee per Gallon	\$6.43	\$7.93
Gallon per EDU for Capacity Part (1)	241.2	241.2
Capacity Tapping Fee per EDU	\$1,552.11	\$1,912.20

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

B. <u>Collection Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Acquisition Costs	\$58,452	\$87,138
System Improvements - 2010	5,980	7,512
System Improvements - 2012	3,256	3,860
System Improvements - 2013	21,882	25,223
	<u>\$89,570</u>	<u>\$123,732</u>
Less: Contributions	-	-
Net Capital	<u>\$89,570</u>	<u>\$123,732</u>
Financing Costs for Collection Part	-	-
Total Cost of Collection Part	<u>\$89,570</u>	<u>\$123,732</u>
Plus: Interest Paid On Debt	-	n/a
Less: Outstanding Debt	n/a	-
Eligible Cost for Capacity Part	<u>\$89,570</u>	<u>\$123,732</u>
Total Capacity	35,000	35,000
Collection Tapping Fee per Gallon	\$2.56	\$3.54
Gallon per EDU for Capacity Part (1)	241.2	241.2
Collection Tapping Fee per EDU	\$617.27	\$852.69
(1) Average Household Size Per 2010 Census for North Whitehall Township	2.68	
Gallons Per Capita Per Day Allowed Per Act 57 of 2003	<u>90</u>	
Total Gallons Per Day Per EDU	241.2	

Exhibit H
Lehigh County Authority - Central Lehigh Division Lehigh
County, Pennsylvania
Calculation of Sewer Tapping Fee
Arcadia West (Western Weisenberg) Wastewater System

A. <u>Land (4)</u>	<u>Original Cost</u>	<u>Inflation Factor (5)</u>	<u>Trended Cost</u>
LCA Costs for Arcadia System	\$82,800	1.477455	\$122,333
Less: Contributions			-
Net Capital			\$122,333
Financing Costs for Capacity Part			-
Total Cost of Capacity Part			\$122,333
Plus: Interest Paid On Debt			n/a
Less: Outstanding Debt			-
Eligible Cost for Capacity Part			\$122,333
Prorated Share of Design Capacity			28,000
Capacity Tapping Fee per Gallon			\$4.37
Gallon per EDU for Capacity Part (3)			262.5
Capacity Tapping Fee per EDU			\$1,146.87
B. <u>Collection Part</u>	<u>Original Cost</u>	<u>Trending Factor (6)</u>	<u>Trended Cost</u>
LCA Costs for Arcadia System	\$19,548	1.625039	\$31,766
Less: Contributions			-
Net Capital			\$31,766
Financing Costs for Collection Part			-
Total Cost of Collection Part			\$31,766
Plus: Interest Paid On Debt			n/a
Less: Outstanding Debt			-
Eligible Cost for Capacity Part			\$31,766
Prorated Share of Design Capacity			12,000
Collection Tapping Fee per Gallon			\$2.65
Gallon per EDU for Capacity Part (3)			262.5
Collection Tapping Fee per EDU			\$694.89

(3) By agreement with Arcadia West, an EDU is equal to 262.5 gallons.

(4) The Land fee was established in 2010 and replaced the Reimbursement Fees after in June 2018 by agreement.

(5) LCA Land fee is inflated by 5% beginning in 2010.

(6) LCA Collection system is inflated by the ENR index.	ENR Index 6/1/03	6,694
	ENR Index 1/1/18	10,878

Exhibit I
Lehigh County Authority - Central Lehigh Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
Arcadia West (Western Weisenberg) Treatment Plant

A. <u>Capacity Part</u>	<u>Original Cost</u>	<u>Trended Cost</u>
W. Weisenberg Treatment Plant Estimated Cost	\$3,247,214	
Portion attributable to New Customers	43.7%	
 Total Attributable to New Customers	 \$1,417,652	 \$1,595,741
 Less: Contributions		 -
Net Capital		<u>\$1,595,741</u>
 Financing Costs for Capacity Part		 -
Total Cost of Capacity Part		<u>\$1,595,741</u>
 Plus: Interest Paid On Debt		 n/a
 Less: Outstanding Debt		 -
Eligible Cost for Capacity Part		<u>\$1,595,741</u>
 Prorated Share of Design Capacity		 17,463
Capacity Tapping Fee per Gallon		\$91.38
 2014 Original Fee		 \$36.00
2015 Existing Fee		\$37.40
2018 Recommended fee per gallon (A)		\$40.52

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

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

Note: These fees exclude existing Arcadia West customers and the West Hills Business Center, which is constructing the plant and contributing towards the plant.

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



Lehigh County Authority

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

PROFESSIONAL SERVICES AUTHORIZATION

AMENDMENT NUMBER 30

Professional:

Arcadis

Jim Shelton

1128 Walnut St.

Philadelphia, PA 19107

Date: 11/01/18

Requested By: Pat Mandes

Approvals

Department Head:

Chief Executive

Officer:

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

This is an amendment to the current Arcadis authorization for the WLI Infiltration and Inflow (I&I) Project: The work covered by this amendment includes Program Management for 2019.

Program Management includes consulting work that is not defined by other specifically approved tasks. The work will include on-call services, EPA semi-annual report, annual DEP report, attending meetings with DEP and EPA, attend meetings with Partners, attend meetings with the City, prepare cost estimates for AO Capital Improvements Plan (CIP), I&I Engineering Committee participation, technical evaluations as needed and other coordination or services as needed. The total "Not to Exceed" cost is \$70,000 for the period ending December 2019.

The scope of work is described in more detail in the proposal dated October 10, 2018.

Cost Estimate (not to be exceeded without further authorization): This amendment is not to exceed \$70,000 for Program Management.

Time Table and Completion Deadline:

2019.

(For Authority Use Only)

Authorization Completion:

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

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

Arcadis U.S., Inc.
1128 Walnut St., 4th Floor
Philadelphia
Pennsylvania 19107
Tel 215.931.4372
www.arcadis-us.com

Ms. Pat Mandes
Chief Compliance Officer
Lehigh County Authority
P.O. Box 3348
Allentown, PA 18106

Subject:

Sewer Capacity Assurance and Rehabilitation Program
Scope and Budget for SCARP Program Management through 2019

Dear Ms. Mandes:

Date:
10/10/2018

Arcadis is pleased to offer this scope and budget proposal for program management services related to the Sewer Capacity Assurance and Rehabilitation Program (SCARP).

Contact:
Anthony J. Dill

PROPOSED SCOPE OF SERVICES

Phone:
215.931.4372

ARCADIS will provide coordination and on-call services to LCA and the Western Lehigh SCARP Partnership (Partnership) to facilitate regulatory approval and WLSP implementation of the SCARP in 2019. These program management services will be for tasks not defined in other project specific authorizations. These services include:

Email:
Anthony.Dill@arcadis.com

- Meetings with PADEP and USEPA
- Preparation of responses to regulators regarding the SCARP implementation and schedule
- Preparation of regulatory reports to PADEP and EPA
- Meetings with Partnership Engineering team and Partnership Municipal Leaders
- 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

Our ref:
66000247.0089

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.

DELIVERABLES AND SCHEDULE

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

BUDGET

As this is undefined work, we recommend allocating \$70,000 to cover the work anticipated through the end of 2019. 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. We will track the costs associated with this work and report them to LCA monthly throughout the program. We will not exceed the authorized budget without written professional services authorization from LCA.

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

Sincerely,

ARCADIS U.S., Inc.



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

Cc: Jim Shelton, Arcadis

FINANCE & ADMINISTRATION

ACTION ITEMS

1. 2019 Water & Wastewater Rate Schedules – November 12, 2018

Following completion of the 2019 budget process, a complete package of water and wastewater rate updates is presented to the Board for consideration and adoption. The rates shown in proposed rate schedules are a result of the budget process and the Suburban Water Division water rate study. Board approval for the updated rate schedule is requested at the November 12, 2018 meeting to allow for proper notification to customers prior to bills being issued with the new rates.

2. Suburban Division Wastewater Tapping Fees – November 12, 2018

Staff is working with the Authority's rate consultant on developing updated tapping fees for the Suburban Wastewater Division. New fees will be presented to the Board for adoption by resolution at the November 12, 2018 meeting. In addition to presenting the Suburban Wastewater tapping fees, staff will present an overview of the tapping fee methodology and legislated requirements.

DISCUSSION ITEMS

INFORMATION ITEMS

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

CERTIFICATES OF DEPOSIT						
27-Jun-18						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	Eaglebank	Bethesda, MD	245,000.00	5/31/18	3/31/20	2.60
LLRI CR	BMO Harris Bank National Assn	Chicago, IL	245,000.00	5/31/18	6/1/20	2.80
LLRI CR	UBS Bank USA	Salt Lake City, UT	200,000.00	6/13/18	6/15/20	2.80

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

2. Developments

Water system construction is occurring in the following developments:

67 Werley Road, 112 apartments & clubhouse, UMT – No Change

5354 Hamilton Blvd., 1 commercial lot, LMT – No Change

Above & Beyond (personal care facility), 2 commercial lots, UMT – No Change

CVS, 1 commercial lot, LMT – No Change

Fields at Indian Creek, Phase 3, 57 residential units (sfd), UMiIT/Emmaus, water & sewer – No Change

Kohler Tract, 123 residential lots (sfa), UMiIT, water and sewer – No Change

Lehigh Hills, Lot 2 Pad Sites, 1 commercial lot with medical office building & restaurant, UMT
Lower Macungie Township Community Center Expansion, 1 institutional lot, LMT
Spring Creek Properties Settlement Subdivision, Lot 1, 1 commercial lot, LMT
– No Change
Spring View (Bortz Tract), 14 commercial units, UMT – No Change
Trexler Business Center, 1 lot with 6 commercial buildings, LMT – No Change
Trexler Fields, Phase 1B/8/9, 100 residential lots (sfa), UMT – No Change

Water system plans are being reviewed for the following developments:

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

Sewage Planning Modules Reviewed in Prior Month:

Woodmont Ridge, Phase II, UMT, 3900 gpd

WATER**ACTION ITEMS**

DISCUSSION ITEMS

INFORMATION ITEMS

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

As part of the Pennsylvania Rapid Bridge Replacement Program, the replacement of the Cedar Creek Bridge on Hamilton Street has required the relocation of approximately 500 linear feet of water main. The construction phase was approved at the December 2016 Board meeting and the construction phase at the January 2018 meeting. As of February 22, 2018, the contractor has completed a majority of the relocation work for LCA's facilities; however, they were pulled off the site due to construction conflicts. It is anticipated at this time the contractor will return by late November to finish all of the LCA line relocation. It is anticipated that this work will be reimbursed 100% by the state and that the construction related activities will be incorporated within the state's work.

2. Allentown Division – Water Main Replacement Program Cycle 4

The project is the replacement of 0.97-mile of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with our prioritization protocol. We propose to utilize the 1.1 mile credit of excess water main replacement length accumulated from previous years in order to satisfy the 2.0 miles of annual pipe replacement as outlined in the lease. This Project is required under the Operating Standards in the Concession Agreement and will be funded by the LCA Allentown Division. The reduced-scale project was re-bid following rejection of the bids for the original 2.2 mile project. The project was authorized by the Board on 9/10/18 and will be completed by December 2018. As of October 30, 2018 contractor Doli Construction corp has begun water main installation and is progressing. Water main construction is to be completed by December 3, 2018 with paving completion by late April 2019.

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

The project consists of various replacements at the Kline's Island Wastewater Treatment Plant, Water Filtration Plant, and miscellaneous gatehouses and pump stations. Phase I of the project was completed in mid-2016. Phase II of the project was advertised on 3/6/2018 and bids were received on 3/27/2018. Board approval for the construction phase of the project was granted at the 4/23/2018 Meeting. Construction was completed in late August and minor punch list items remain. This project was funded by LCA Allentown Division. **(No Change)**

4. Allentown Division – Water Filtration Plant: SCADA System Replacement

The project consists of the replacement of the existing SCADA System at the Water Filtration Plant. The purchase and installation of new servers, new control panel cabinets, new cabling, and new programming software will encompass this project. Board approval to purchase this equipment was granted at the August 27, 2018 Board Meeting. Replacement will be completed by late 2019. This project will be funded by LCA Allentown Division. **(No Change)**

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

The project consists of the addition of a carbon dioxide feed system at the Allentown Water Plant. With the present conversion from alum to polyaluminum chloride (PACl) as the plant's primary coagulant, proper treatment requires the raw water to be kept within a very small pH range for optimum treatment. The acid feed system will control pH within tight parameters to achieve treatment goals. A Major Permit Application has been submitted to PaDEP. This project has been delayed several times mostly due to the permitting process, and the goal for Installation and

startup is now in the Q4 timeframe. Approval for the construction phase was granted at the October 8, 2018 Board meeting. Construction will begin in November. This project will be funded by the LCA Allentown Division.

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

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

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

This next phase of Asset Management upgrade work focuses on mechanical components, along with some HVAC and electrical system improvements at ten locations in the Suburban Division. The upgrade locations were determined from asset management data collected from internal interviews conducted by Capital Works with senior Operations staff, and based on risk rating. Also as part of the design phase of this project is the condition assessment of seven (7) hydropneumatic tanks that were placed into service in the 1970s and are reaching the end of their service lives. Design phase was authorized in April 2018, the project was advertised for bid in September and bids will be opened on October 11, 2018. Award of bids was authorized at the October 22, 2018 Board meeting.

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

The project will feature the installation of a new booster pumping station and water main extension to interconnect the Central Lehigh Division (CLD) with the Upper Milford Division (UMD) allowing the abandonment of the UMD water supply facilities, and to provide water service to the proposed 123-lot Kohler Tract subdivision in Upper Milford Township. Design of the pump station is under way. The Public Water Supply (PWS) permit has been issued by DEP. One property owner has granted us a water line easement. We are investigating an alternate site for the pumping station. **(No Change)**

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

The project consists of installation of a new booster pumping station with SCADA and water main extension to pump water from the Lower Pressure System to the Upper Pressure System. The LCA Suburban Division will fund the project. Bids for the project were received on 6/29/18. Board approval for the construction phase of the project was granted at the 7/23/18 meeting. A preconstruction meeting was held on August 28th and construction should be completed by late Spring 2019. **(No Change)**

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

The project consists of the consolidation and replacement of two well stations with a single new pump station and a new water storage tank to replace two antiquated hydropneumatic pump stations. The new station will be a variable frequency drive controlled double pumping system with full SCADA control. The design will accommodate the future addition of radon removal equipment to be implemented upon DEP's mandate of a regulatory limit. Design phase was authorized at the 8/28/17 Board meeting. The Public Water Supply Permit was submitted to DEP at the end of July and bid phase is expected to occur in the last quarter of 2018. **(No Change)**

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

The project will include setting up a surface water flow-monitoring network for the Little Lehigh Creek. The work is in response to the Watershed Monitoring Plan that was developed and reported to LCA by AI Guiseppe (SSM, Inc.) in 2017. Flow monitoring in 2018 will focus on the Little Lehigh Creek only. In 2019, LCA will develop plans to add new monitoring wells to

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

12. Suburban Division – Water Meter Replacement Project

The project consists of the replacement of approximately 2000 residential meters and 430 commercial meters as well as replacing “non-read” meters with new transceiver units. Residential meters which are 20 years and older and commercial meters 15 years and older will be replaced. All meters will be upgraded to the most current radio read capability. The project was approved at the September 25, 2017 Board meeting. The Notice to Proceed was issued in November. Replacement of meters began the second week of January 2018 and the project is substantially complete. The contractor installed additional transceiver units on “non-read” meters as part of an approved change order. The project is now substantially complete.

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

This Project addresses the needs of three satellite water systems that currently are operating on one source of supply and have no redundant water supply. The Madison Park North system has only one well, and an additional well is planned to be developed and constructed. The Clear View Farms and Mill Creek systems have one operating well each, but have at least one other existing well that has water supply or quality issues and cannot be presently utilized. An engineer has been retained to assist with the development of a second well for Madison Park North and the rehabilitation of an existing well at Clear View Farms. An agreement is in place with an adjoining property owner to Madison Park North to drill a test well on their property, in coordination with DEP guidelines. The exploratory well will be drilled by the end of 2018, which will provide adequate data to determine the feasibility for a permanent well on the site.

WASTEWATER**ACTION ITEMS**

1. 2019 SCARP Program Management (Approval)

A Professional Services Authorization is being presented to the Board for consideration for Arcadis for work related to the I & I SCARP Program. The work includes Program Management for 2019. Attached is a Professional Services Authorization and Arcadis Scope of Work.

DISCUSSION ITEMS

INFORMATION ITEMS

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

In December 2016, the drive unit on Final Clarifier #5 at Kline’s Island WWTP experienced a complete failure. The drive was the original unit that was installed during construction of the clarifier in 1968. An emergency declaration was declared to reduce the installation time by several weeks. A request for a retroactive emergency declaration was requested and approved at the January 9, 2017 Board meeting. The drive was installed in April 2017 and is now fully operational. The remaining mechanisms of Final Clarifier #5, and the drive unit and similar mechanisms of Final Clarifier #6 have also reached the end of their useful life and will be replaced in early 2018. Construction approval was granted at the August 28, 2017 Board meeting. Construction was completed at the end of August 2018 and minor punch list items remain. This capital project will be funded by the LCA Allentown Division. **(No Change)**

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

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

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

This project involves the development of a Master Plan that is required as part of the lease with the City of Allentown. The Master Plan is similar in scope to what was done previously for the Allentown Water System in 2017, and will include Condition Assessments, Process Optimizations, and both short-term and long-term Capital Improvement Plans. The city lease requirements dictate that the Master Plans must be updated every 5 years for the duration of the lease, and 2018 is the first year that a Master Plan is to be prepared for the wastewater system. A Request for Proposal (RFP) was released to five (5) qualified firms on 12/15/2017 and the proposal due date was 1/26/2018. Authorization for the award of the contract was approved at the 3/12/2018 Board meeting. A kickoff meeting was held on May 24, 2018. Data collection and site assessments have been completed. Condition Assessment and Process Optimization Workshops have been conducted. The project is to be finished by the end of 2018. This project will be funded by LCA Allentown Division. **(No Change)**

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

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

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

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

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

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

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

This project involves the following upgrades to the existing pumping station: Install a comminutor to reduce buildup of debris on the bar screens, replace the manually operated weir gates with new motorized weir gates, and upgrades to the SCADA system. Design of the project is complete. The Notice to Proceed was issued on December 12, 2017. The project is currently under construction. High flows to the pump station due to wet weather events have delayed work on the project so completion is expected to be pushed back to the Fall of 2018. **(No Change)**

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

The Park Pump Station and Force Main line were constructed in 1980 to provide wet weather relief to the Little Lehigh Creek Interceptor, which conveys wastewater from ten municipalities from outlying areas to the Kline’s Island Wastewater Treatment Plant (KIWWTP). The force main consists of 8,715 linear feet of prestressed concrete cylinder pipe (PCCP) of various sizes (2,615’ of 24”; 2,695’ of 30”; and 3,405’ of 36”), and connects with the 54” sanitary sewer interceptor that runs to KIWWTP. PCCP is particularly sensitive to deterioration due to hydrogen sulfide gas from wastewater, and corrosion of exposed reinforcing steel can result in structural degradation and pipe failure. An internal investigation of the pipe is required to assess the condition of the PCCP pipe and identify damage areas, in order to determine the locations and extent of rehabilitation needed to restore the level of service, prolong service life, and mitigate the risk of failure. Capital Works is planning a limited manned inspection of the force main pipe at 5 air release valve (ARV) locations, 100 feet in both directions from the ARV manhole, which will be used as the initial evaluation of the representative condition of the pipe. Using this data, the need for performing a complete pipeline condition assessment will be determined, possibly utilizing a new electromagnetic technology for performing an internal pipe condition assessment that entails minimal interruption of operation of the pump station and force main. LCA and Arcadis are currently waiting for a dry weather period in late Summer 2018 to conduct test trials at the PTP for reducing flow to the Park Pump Station via utilization of the pretreatment plant flow equalization basin (hold back flow) in order to determine the acceptable

duration for a temporary shut-down of the station in order to perform the force main inspection **(No Change)**.

9. Suburban Division – Park Pump Station Upgrade

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

10. Suburban Division – Heidelberg Heights Wastewater Treatment Plant Improvements

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

11. Suburban Division – Wynnewood WWTP Upgrade Project

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

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and was concluded in late Summer 2018. The DEP Part 2 Water Quality Management Permit was received in March 2018. The project was advertised for bid in August 2018 and bids were opened in late September 2018. Bids were authorized for award at the October 22, 2018 Board meeting.

12. Suburban Division – Sand Spring WWTP Upgrade Project

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

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the

wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and should be concluded by late 2018; progress has been delayed due to DEP permitting issues. Following DEP approval of the Water Quality Management Permit (expected in Q4 this year), the project will proceed to bid phase. **(No Change)**

13. Suburban Division – SCARP

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

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

Peak flow reports were present to all City Signatories so there is an understanding of what system conditions caused the various bypasses and overflows in August during the wet weather events. Peak flow reporting was initiated for the City signatories for 8 storms between May and mid-September that generated flows at the WWTP in excess of 60 mgd.

14. Heidelberg Heights Sanitary Sewer System Inflow & Infiltration Mitigation Program

Excessive wet weather I/I flows into the developer-built Heidelberg Heights sanitary sewage collection system has been an on-going problem plaguing Operations and Capital Works, and has been the source of repeated Notices of Violation to DEP. The original sewage collection system consists of vitrified clay pipes (VCP), which have experienced signs of degradation over the years, exhibiting cracking, joint displacement/separation, root intrusion, protruding (“punched in”) laterals, and other damage. Historical work in the system included CCTV inspection, internal pipe lining and lateral lining; which resulted in negligible wet weather flow reduction. In 2017 an annual program was initiated to prioritize and replace damaged sewer main and sewer laterals, and approximately 1,100 linear feet (lf) of sewer main and 54 laterals were replaced (to the property line). The structural component of replacing main and lateral piping in this program is to combined with a policy initiative to prohibit and disconnect basement sump pump connections to the sewage collection system, which has been observed to be prevalent in the development and is a major source of excess wet weather flow into the system. Also, inspection of building sewers on private property should be considered, as these pipes are assumed to be a large contributor to system I/I. Any work proposed on private property requires coordination with Heidelberg Township, as there is currently no ordinance in place to prohibit basement sump pump connections to the sanitary sewer, and a residential plumbing inspection to identify these connections cannot be performed by LCA representatives without the legal framework/authority in place at the township level. In 2019 Capital Works will pursue the new policy initiative with Heidelberg Township, and also complete the replacement of approximately 1000 lf of sanitary sewer main and connecting laterals that have documented problem areas.