



LEHIGH COUNTY AUTHORITY

LCA Main Office:
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Agendas & Minutes Posted:
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BOARD MEETING AGENDA – July 9, 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

- *June 25, 2018 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2013C Bonds – 2018 Principal Payment Due (Resolution 7-2018-1) (green)*
- *City Division & Suburban Wastewater Division Tapping Fees (Resolution 7-2018-2) (tan)*

WATER

- *Allentown Division – Kline's Island WWTP: Electrical Substation Replacement (blue)*
- *Allentown Division – Kline's Island WWTP: Primary No. 2 Digester Cleaning (Change Order #1) (yellow)*

WASTEWATER

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

July 23, 2018

August 13, 2018

August 27, 2018

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

June 25, 2018

The Regular Meeting of the Lehigh County Authority was called to order at 12:00 p.m. on Monday, June 25, 2018, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Deana Zosky, Scott Bieber, Norma Cusick, Richard Bohner, and Linda Rosenfeld. Ted Lyons was on the conference phone until 1:35 p.m. and did not vote on any Authority business. Authority Staff present were Liesel Gross, Pat Mandes, Charles Volk, John Parsons, Chris Moughan, Phil DePoe, Brad Landon, and Ed Klein.

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 that one additional item would be offered under Staff Comments, and an Executive Session would be held at the end of the meeting to discuss matters of potential litigation.

Mr. Nagle also clarified that the agenda item listed as "Suburban Division – SCARP" should have been entitled as a presentation of the Regional Flow Management Strategy, of which the SCARP is a subset.

APPROVAL OF MINUTES

June 11, 2018 Regular Meeting Minutes

On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the Minutes of the June 11, 2018 meeting (4-0). Dean Zosky and Scott Bieber abstained.

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

Regional Flow Management Strategy Presentation

Liesel Gross, Pat Mandes and Jim Shelton of Arcadis presented an update on the regional effort to develop a Regional Flow Management Strategy (RFMS) for management of sewer flows in the Kline's Island Wastewater Treatment Plant sewer service area. The PowerPoint presentation covered the history of the U.S. Environmental Protection Agency (EPA) Administrative Order (AO) to eliminate sanitary sewer overflows that was issued in 2009 and the events leading to the August 1, 2018 deadline to submit the RFMS to EPA. The details of the draft RFMS were reviewed, as well as the Authority's roles and responsibilities as the operator of the City of Allentown sewer system, and the Authority's roles and responsibilities as the owner / operator of the Western Lehigh Interceptor facilities and facilitator of the Western Lehigh Sewerage Partnership (WLSP).

Ms. Gross, Ms. Mandes and Mr. Shelton reviewed that the Authority is one of 14 municipalities named in the AO, and all municipalities must develop and submit their own operations and maintenance (O&M) plan and inflow and infiltration (I&I) source reduction plan. These plans are in addition to the RFMS, which is an umbrella strategy on which all municipalities are agreeing to work together. Key elements of the RFMS include evaluating sewage billing meters for accuracy, flow

reporting after wet-weather events, and a flow metering and modeling program to develop an updated flow characterization for the system in approximately 2019 and again in approximately 2026. The flow characterization updates are needed so the region can learn how dry- and wet-weather sewage flows are being impacted by the municipalities' O&M and I&I reduction work, and to plan for capital improvements needed to address conveyance capacity needs for current and future flows.

Mr. Shelton reviewed rehabilitation and conveyance capacity projects the Authority will be directly responsible for in the next 10 years, including manhole rehabilitation in the Western Lehigh Inceptor system, upgrades to the Park Pump and Spring Creek pumps stations and force mains, installation of parallel intercepts in the Trexlertown area, and planning for a future regional pump station.

Ms. Gross explained that the EPA had indicated the AO might be terminated if the RFMS is adequate to illustrate regional collaboration on the management of flows, and enforcement will fall to the Pennsylvania Department of Environmental Protection (DEP). She stated that the WLSP service area is under a DEP action and connection management plan, but the entire Kline's Island service area faces hydraulic restrictions in certain flow conditions. The Authority is responsible for reviewing and approving all sewage planning modules for new connections in the region. As a result, the Authority will plan to approach DEP to discuss how these planning modules should be addressed moving forward as the municipalities are working on implementing their I&I reduction plans.

Discussion followed, focusing primarily on how the RFMS will be enforced if the EPA AO is terminated. Deana Zosky noted that the signatories are stating commitment in the RFMS and need to be held accountable for continuing their commitment to collaborating on flow monitoring and I&I reduction. Brian Nagle stated that EPA provided some incentive for the signatories to collaborate via the RFMS, as the municipalities would all like the AO to be terminated and the cooperation must continue for that to happen. Scott Bieber commented that if the AO is terminated and the municipalities are all reporting their progress to the Authority annually, then the Authority has some responsibility to review the reports and make sure the work is being done that the region has committed to completing.

Some additional discussion followed regarding technical details of the WLSP capacity projects. Brian Nagle asked about the Trexlertown Interceptor project and the impact of constructing the project in an environmentally sensitive area, and whether the former Iron Run Pump Station project that was not constructed would be an alternative. Jim Shelton explained that an evaluation of both projects would be completed to quantify environmental impact, social impact, carbon footprint and other factors along with construction and operational costs.

Deana Zosky thanked the Authority staff and consultants for the efforts over a long period of time to develop solutions that are data-driven and regional in nature, and asked for continued commitment to holding the municipalities accountable for doing the work that is needed to address the sewer overflows. She asked for a copy of the full submission to EPA when it is available. Liesel Gross noted that although very lengthy, the full submission would be made available on the Authority's website after all the municipalities have submitted their portions of the plan.

MONTHLY FINANCIAL REVIEW

Ed Klein gave an overview of the May 2018 financial report that was sent out with the Board packet, highlighting variances between budgeted expenses and actual or forecasted expenses for the calendar year. Most notable is the difference in budgeted versus actual expenses for capital improvements. Charles Volk highlighted various capital improvements that have faced scheduling challenges due to delays in permitting and other delays. He explained these projects will still be completed, but the construction schedule may move into 2019.

Liesel Gross stated that the financial statements as presented did not include adjustments to the budget or forecast to reflect the budget amendment approved by the Board in May 2018 reflecting changes to revenues or expenses in the City Division as a result of monthly billing implementation. These changes would be incorporated into the next forecast update, to be completed with the June financial statements.

Deana Zosky stated that the monthly financial report does not provide adequate information about the true nature of the variances the Authority is experiencing from budget, and that she would provide additional feedback to Ed Klein about her observation and suggestions.

Chairman Nagle asked about the timeline for the 2017 audit, and Mr. Klein explained the audit financial statements were received the week prior and are being reviewed for distribution to the Board for the next meeting. The primary reason for the delay in completing the audit was the early implementation of new reporting requirements for the Government Accounting Standards Board, which required an actuarial study of outstanding retirement benefits, and this actuarial study was significantly behind schedule.

MONTHLY SYSTEM OPERATIONS OVERVIEW

John Parsons reviewed the Monthly System Operations Overview report for May 2018. He highlighted that the three injuries noted on the report involved an employee suffering a pinched finger in an equipment accident and two employees facing exposure to black mold at an Authority facility that is being remediated and monitored.

Richard Bohner asked about the apparent increase in sewage flows to the Authority's industrial pretreatment facility. Charles Volk explained that sewage flows have increased over the past several months and the cause of this increase has not been identified yet, although it appears that it cannot be fully explained by rainy weather. The Authority is working with Upper Macungie Township to investigate the source of the higher flows.

Chairman Nagle asked about the ongoing bypasses at the Heidelberg Heights wastewater treatment plant. Mr. Volk explained the May 2018 bypass occurred due to a water main break that was discharging water leakage into an area directly within the construction area for a sewer rehabilitation project, causing potable water to enter the open sewer lines and discharging to the wastewater treatment plant and causing a bypass condition for a period of several days while the repair was being completed.

STAFF COMMENTS

Liesel Gross noted that the Lehigh County Board of Commissioners had appointed Brad Osborne and Geoff Brace to serve on a working team to review the Authority, its financial position and other items of concern, with the goal of understand how the County may support the extension of the Authority's charter. The County administration will be represented on the working team by Rick Molchany, Director of General Services. Ms. Gross noted that a kick-off meeting was held on June 20, 2018, at which time the team's overall purpose was discussed along with what information the Commissioners were most interested in learning from the Authority. Ms. Gross will provide regular updates to the Board at future meetings.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 1:35 p.m. The meeting reconvened at 1:42 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:42 p.m. to discuss potential litigation. The Executive Session ended at 2:13 p.m.

Mr. Nagle asked about an apparent sewage overflow that occurred within the past week in the vicinity of Lone Lane and Schantz Road in Upper Macungie Township. John Parsons explained that would be within the township's collection system, not an issue for the Authority to address, but he would follow-up with the township to learn more about the incident.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:15 p.m.

Richard H. Bohner
Secretary

RESOLUTION No. 7-2018-1

(Duly adopted 9 July, 2018)

AUTHORIZING THE UNDERTAKING OF AN AMENDMENT AND AN AMENDMENT PLAN; APPROVING THE FORM OF AND AUTHORIZING AND DIRECTING THE EXECUTION AND DELIVERY OF A SURETY AND SECOND SUPPLEMENTAL INDENTURE, AUTHORIZING AND DIRECTING THE PAYMENT OF FEES AND EXPENSES; AUTHORIZING AND DIRECTING THE PROPER AUTHORIZED OFFICERS OF THE AUTHORITY TO EXECUTE OTHER DOCUMENTS AND AGREEMENTS AND TO DO ALL THINGS NECESSARY TO CARRY OUT THIS RESOLUTION; AND RESCINDING ALL INCONSISTENT RESOLUTIONS.

WITNESSETH:

WHEREAS, the Lehigh County Authority (the "Authority") is a body corporate and politic organized by the Board of County Commissioners of the County of Lehigh, Pennsylvania under the provisions of the Pennsylvania Municipality Authorities Act, 53 Pa. C.S. § 5601 *et seq.*, as amended (the "Act"); and

WHEREAS, the City of Allentown, Pennsylvania (the "City") owns the Allentown Sewer Utility System and the Allentown Water Utility System (the "System"); and

WHEREAS, pursuant to the terms and conditions of the Allentown Water and Sewer Utility System Concession and Lease Agreement dated as of May 1, 2013, as amended and supplemented from time to time (collectively, the "Concession Agreement"), by and between the City and the Authority, the City leased to the Authority, and the Authority leased from the City, the Sewer Utility System and the Water Plant and Distribution System, upon the terms and conditions set forth therein; and

WHEREAS, pursuant to the Act, the Authority authorized and approved a project (the "Project") consisting of: (i) the up-front, lump-sum payment to the City as consideration for the lease of the System by the City to the Authority, of such amount as prescribed in the Concession Agreement; (ii) the funding of certain capital improvements to the System; (iii) the funding of certain debt service reserve funds and other funds created under the Original Indenture (as such term is defined herein); and (iv) the payment of transaction costs and expenses in connection with the acquisition of the System and the issuing of the Bonds (as hereinafter defined); and

WHEREAS, in order to finance the Project, the Authority issued its Lehigh County Authority Water and Sewer Revenue Bonds (City of Allentown Concession), Series 2013A (the "2013A Bonds"), its Lehigh County Authority Water and Sewer Capital Appreciation Bonds (City of Allentown Concession), Series 2013B (the "2013B Bonds") and its Lehigh County Authority Water and Sewer Revenue Bonds (City of Allentown Concession), Series 2013C (Federally Taxable) (the "2013C Bonds," and together with the 2013A Bonds and the 2013B Bonds, the "Bonds") in the aggregate principal amount of \$307,683,598.90; and

WHEREAS, the Bonds are issued under and secured by a Trust Indenture, as amended and supplemented by First Supplemental Trust Indenture dated as of August 1, 2015 (collectively, the "Original Indenture"), each from the Authority to Manufacturers and Traders Trust Company, as trustee (the "Trustee"); and

WHEREAS, a portion of the proceeds of the Bonds were deposited in a Debt Service Reserve Fund to satisfy the Debt Service Reserve Fund Requirement for the Bonds; and

WHEREAS, Section 13.01(g) of the Original Indenture provides that the Authority and the Trustee may from time to time, subject to the conditions and restrictions of the Original Indenture, enter into supplemental indentures to, modify, amend or supplement the Original Indenture, so long as the Trustee receives evidence that the proposed amendment will not cause the securities rating on the Bonds affected by such modification, amendment or supplement to be lowered, suspended or withdrawn; and

WHEREAS, the Authority desires to undertake certain amendments to the Original Indenture under and pursuant to the requirements of the Original Indenture in order to substitute in lieu of some or all of the cash or investments currently deposited in the Debt Service Reserve Fund a debt service reserve fund surety bond or policy or similar instrument (the "Surety") in the amount of the Debt Service Reserve Fund Requirement for the Bonds (the "Amendment"); and

WHEREAS, the Authority desires to accomplish the Amendment under and pursuant to the Original Indenture and a Second Supplemental Trust Indenture thereto, from the Authority to the Trustee (the "Second Supplemental Indenture," and together with the Original Indenture, the "Indenture"); and

WHEREAS, the Authority desires to apply such amounts released from the Debt Service Reserve Fund, as a result of Amendment, in order to accomplish some or all of the following purposes, as determined by an Authorized Officer of the Authority: (i) undertake the payment of some or all of the Debt Service Requirements of the Bonds, specifically including the 2013A Bonds and the payment in full of the 2013C Bonds on December 1, 2018, the maturity date of the 2013C Bonds; (ii) undertake the payment of Operation and Maintenance Expenses; (iii) undertake the payment of Capital Expenditures; (iv) undertake the replenishment of those funds and accounts held by the Trustee under the Original Indenture, as may be required; and (v) undertake the payment of the costs and expenses of accomplishing the Amendment and effectuating the purposes thereunder, including the payment of any premium for the Surety and the payment of all

fees and expenses of all professionals associated with the foregoing ((i) - (v) collectively referred to herein as the "Amendment Plan"); and

WHEREAS, certain action is required to be taken by the Authority as a prerequisite to the undertaking of the Amendment and the execution and delivery of the Second Supplemental Indenture; and

WHEREAS, all capitalized terms utilized herein and not otherwise defined shall have such meanings as ascribed in the Indenture;

NOW, THEREFORE, the Board of the Authority resolves as follows:

Section 1. Authorizing the Amendment and the Amendment Plan. The Amendment and the Amendment Plan as heretofore described are hereby authorized and directed to be undertaken. Further, the Authority authorizes and directs the undertaking of all appropriate direction and authorization of the Trustee as required under the Original Indenture to effectuate the Amendment and the Amendment Plan.

Section 2. Approval, Acceptance and Execution of Surety. The Authorized Officers of the Authority, upon receipt of favorable advice from the Authority's counsel, the Authority's financial advisor Concord Public Financial Advisors, Inc. (the "Financial Advisor") and McNees Wallace & Nurick LLC, as bond counsel ("Bond Counsel") with respect thereto, are hereby authorized and directed to accept, approve, execute and deliver the Surety as presented to the Authority; provided, however, that the undertaking of the Surety shall enable the Authority to satisfy the requirements of Section 13.01(g) of the Original Indenture.

The Authorized Officers of the Authority are hereby authorized and directed to execute the Surety (subject, however, to compliance with the aforementioned limitations) in such form as the Authority's counsel and Bond Counsel may advise and the officer executing the Surety may approve, such approval to be conclusively evidenced by the execution thereof.

Section 3. Approval of Second Supplemental Indenture. The form, terms and conditions of the Second Supplemental Indenture (a copy of which shall be filed with the records of the Authority) shall be acceptable to the Authorized Officers of the Authority with the advice of counsel to the Authority and Bond Counsel, and the form, terms and conditions of the Second Supplemental Indenture are hereby approved. The appropriate Authorized Officers of the Authority are hereby authorized and directed to execute and deliver the Second Supplemental Indenture in such form on behalf of the Authority, subject to such changes and modifications, if any, as may be approved by such Authorized Officers of the Authority, the execution and delivery of the Second Supplemental Indenture to be conclusive evidence of such approval, and the attesting officials of the Authority are hereby authorized and directed to cause the corporate seal of the Authority to be affixed thereto, if necessary, and to attest the same. The appropriate Authorized Officers of the Authority are further authorized and directed to acknowledge the same on behalf of the Authority and to deliver the Second Supplemental Indenture to the Trustee.

Section 4. Appointment of Bond Counsel and Financial Advisor. This Authority hereby confirms its appointment of the firm of McNees Wallace & Nurick LLC, Harrisburg and Lancaster, Pennsylvania, to serve as Bond Counsel in connection with the undertaking of the Amendment and the Amendment Plan. This Authority hereby confirms its appointment of Concord Public Financial Advisors, Inc. to serve as the Financial Advisor in connection with the undertaking of the Amendment and the Amendment Plan.

Section 5. Payment of Fees and Expenses. The proper officers of the Authority are hereby authorized and directed to pay or cause to be paid all fees and expenses of accomplishing the Amendment and effectuating the purposes thereunder, including the payment of any premium for the Surety and the payment of all fees and expenses of the Financial Advisor and Bond Counsel.

Section 6. Liability of the Authority. No covenant, stipulation, obligation or agreement contained in this Resolution, the Indenture, the Surety or other related and appropriate documents shall be deemed to be a covenant, stipulation, obligation or agreement of any past, present or future member, officer, agent or employee of the Authority in his or her individual capacity and neither the members of the Authority nor any officer executing any documents associated with the undertaking of the Amendment and the Amendment Plan shall be liable personally, or be subject to any personal liability or accountability by reason of the undertaking of the Amendment Plan.

Section 7. Authorizing Incidental Actions. The proper officers of the Authority are hereby authorized, directed and empowered on behalf of the Authority to execute any and all papers and documents, and to do or cause to be done any and all acts and things necessary or proper for the carrying out of the provisions of this Resolution, the Indenture, the Surety the Amendment and the Amendment Plan.

Section 8. Rescinding Inconsistent Resolutions. All resolutions or parts of resolutions inconsistent herewith be and the same hereby are rescinded, canceled and annulled.

Section 9. Effective Date. This Resolution shall take effect immediately.

On motion of _____, seconded by _____, this resolution was adopted the 9th day of July 2018.

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I, Bradford E. Landon, Solicitor of Lehigh County Authority, do hereby certify that the foregoing is a true, correct and complete copy of a resolution which was duly adopted by the Authority at a public meeting of the Authority held on the 9th of July 2018, after notice thereof had been duly given as required by law, at which meeting a quorum was present and voting and which resolution No. 7-2018-1 is now in full force and effect on the date of this certification.

Bradford E. Landon, Solicitor

RESOLUTION No. 7-2018-2

(Duly adopted 9 July 2018)

A RESOLUTION ESTABLISHING THE VARIOUS COMPONENTS OF THE LEHIGH COUNTY AUTHORITY CAPITAL RECOVERY FEES FOR THE POST-CONCESSION CAPITAL COST RECOVERY FEES (BOTH CAPACITY PART AND DISTRIBUTION PART) FOR THE CITY DIVISION WATER SYSTEM; THE POST-CONCESSION CAPITAL COST RECOVERY FEES (BOTH CAPACITY PART AND COLLECTION PART) FOR THE CITY DIVISION WASTEWATER SYSTEM; AND THE CAPITAL RECOVERY CHARGES (TAPPING FEES, VARIOUS PARTS) FOR THE FOLLOWING SUBDIVISIONS - UPPER MILFORD SYSTEM, WESTERN WEISENBERG TOWNSHIP SYSTEM, WYNNEWOOD SYSTEM, HEIDELBERG HEIGHTS SYSTEM, SAND SPRING SYSTEM, WESTERN LEHIGH INTERCEPTOR SYSTEM AND LITTLE LEHIGH RELIEF INTERCEPTOR SYSTEM - OF THE SUBURBAN WASTEWATER DIVISION.

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 Post-Concession Capital Cost Recovery Fees (both Capacity Part and Distribution Part) for the City Division water system (which summary and details are attached as Exhibit A); the Post-Concession Capital Cost Recovery Fees (both Capacity Part and Collection Part) for the City Division wastewater system (which summary and details are attached as Exhibit B); and the Capital Recovery Charges (Tapping Fees, various parts) for the following subdivisions - Upper Milford System, Western Weisenberg Township System, Wynnewood System, Heidelberg Heights System, Sand Spring System, Western Lehigh Interceptor System and

Little Lehigh Relief Interceptor System - of the Suburban Division wastewater systems, (which summary and details are attached as Exhibit C), the current versions 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 in Exhibits A, B and C, attached hereto and made a part hereof, are adopted effective 1 July 2018.

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 July 2018.

On motion of _____, seconded by _____, this Resolution was adopted the 9th day of July 2018.

Exhibit A

Post-Concession Capital Cost Recovery Fees (both Capacity Part and Distribution Part) for the Lehigh County Authority – City Division water system.

Summary of Recommended Fees:

Please refer to the attached report prepared by Keystone Alliance Consulting, Inc., which provides details on the calculation of these capital cost recovery fees in accordance with applicable law.

	<u>Current Fee</u>	<u>New Fee (per gallon)</u>
Capacity Part	\$0.00851	\$0.01442
Distribution Part	\$0.02551	\$0.03787
Total	\$0.03402	\$0.05229

The recommended fees listed above reflect capital costs incurred through 2017 and are in addition to other tapping fees that have been established by the City of Allentown, as well as customer facilities fees and connection fees established by Lehigh County Authority. All current and applicable tapping fees are published in the Authority's Schedule of Water Rates and Charges.



Lehigh County Authority

LEHIGH COUNTY AUTHORITY

WATER SYSTEM TAPPING FEE

CALCULATION

FOR ALLENTOWN DIVISION

JANUARY 2018

Keystone Alliance Consulting, Inc.



**LEHIGH COUNTY AUTHORITY – CITY DIVISION
WATER SYSTEM TAPPING FEE CALCULATION**

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EXHIBITS

Exhibit 1 – Calculation of Water Tapping Fee
Exhibit 2 – Capacity System Assets
Exhibit 3 – Distribution System Assets
Exhibit 4 – Contribution Summary
Exhibit 5A – Debt Service Summary – Calculation of Financing Costs
Exhibit 5B – Debt Service Summary – Summary of Interest Paid
Exhibit 5C – Debt Service Summary – Outstanding Principal

APPENDICES

Appendix A – 2013 General Obligation Bonds Debt Service Schedule
Appendix B – 2013 General Obligation Bonds Sources and Uses of Funds

**LEHIGH COUNTY AUTHORITY – CITY DIVISION
WATER SYSTEM TAPPING FEE CALCULATION**

**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”) working as an operating agent for the City of Allentown (the City) to recover specific capital costs. In the case of this calculation the costs in question have been incurred since 2013 when the Authority took over operations of the City’s water system and are in addition to the tapping fee already in place for the City. 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 main 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 distribution lines and treatment facilities. The tapping fee calculation is comprised of four parts – capacity, distribution, 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 fee for the City of Allentown, the only pertinent parts are capacity and distribution. 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 below 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.

TABLE 1
TAPPING FEE COMPONENTS

1. Connection Fee	Refer to LCA Fee Schedule
2. Customer Facilities Fee	Refer to LCA Fee Schedule
3. Tapping Fee – Per Gallon	
Capacity Part	\$0.01442
Distribution Part	<u>0.03787</u>
TOTAL	\$0.05229

**LEHIGH COUNTY AUTHORITY – CITY DIVISION
WATER SYSTEM TAPPING FEE CALCULATION**

SCHEDULE A

CONNECTION FEE COMPONENT

The connection fee recovers the cost of the installation of the service line from the Authority's water main 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 – CITY DIVISION
WATER SYSTEM TAPPING FEE CALCULATION****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 water system. These facilities generally include the service line beyond the curb stop, the water meter and any appurtenances.

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 cost of the customer facility fee component are reflected in the Authority fee schedule.

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.

**LEHIGH COUNTY AUTHORITY – CITY DIVISION
WATER SYSTEM TAPPING FEE CALCULATION****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 water 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 water 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, transmission mains, storage tanks, pumping stations, wells and appurtenant structures and the treatment plant. The distribution part covers costs for the installation of distribution mains. The remainder of the tapping fee includes the special purpose and the reimbursement parts. These are not applicable to the Allentown system. Accordingly the tapping fee will focus on the capacity and distribution 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 are divided by the capacity amount, which for purposes of this calculation is defined as the maximum safe-yield of the water system or 39,000,000 gallons per day since this capacity is the limiting factor in the amount of water that can be supplied to the customers. The resultant is the tapping fee per gallon.

The tapping fee calculation under the original cost and the trended original cost methodologies is presented in Exhibit No. 1. The tapping fee per is disaggregated between the capacity and distribution part of the water system. The original capital costs for the water treatment plant were extracted from the records of the Authority, and are detailed in Exhibit No. 2. These costs were trended to reflect current dollars using indices published by the Engineering News Record. This approach is an industry standard for developing replacement costs for infrastructure-related facilities and is acknowledged by the Act. The original capital costs for the distribution system were also extracted from the records of the Authority, and are detailed in Exhibit No. 3.

Some of the capital costs incurred by the Authority have been reimbursed by the City. 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. A summary of contributed costs is shown in Exhibit No. 4.

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. A Debt Service Summary is detailed in Exhibits No. 5A, 5B and 5C.

The charge per gallon for the distribution and capacity parts are compared in Table 2 below under both capital cost methodologies. The Authority is permitted under the Act to choose the methodology that produces the highest tapping fee, which in this case is the original cost approach.

TABLE 2
COMPARISON OF TAPPING FEES

<u>COMPONENT</u>	<u>ORIGINAL COST</u>	<u>TRENDED ORIG COST</u>
Capacity Per Gallon	\$0.01442	\$0.00868
Distribution Per Gallon	\$0.03787	\$0.02273
Total Per Gallon	\$0.05229	\$0.03142

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 fee. 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.

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

Exhibit No. 1

Lehigh County Authority - City Division

Lehigh County, Pennsylvania

Calculation of Water Tapping Fee

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Capital Expenditures	2	\$4,260,047	\$4,509,900
Less: Contributions	4	4,099	4,311
Net Capital		<u>\$4,255,947</u>	<u>\$4,505,588</u>
Financing Costs for Capacity Part	5A	78,139	89,036
Total Cost of Capacity Part		<u>\$4,334,087</u>	<u>\$4,594,624</u>
Plus: Interest Paid On Debt	5B	\$484,301	-
Less: Outstanding Debt	5C	4,255,947	4,255,947
Eligible Cost for Capacity Part		<u>\$562,440</u>	<u>\$338,677</u>
Total Capacity		39,000,000	39,000,000
Capacity Tapping Fee per Gallon		\$0.01442	\$0.00868
B. <u>Distribution Part</u>			
Capital Expenditures	3	\$9,861,850	\$10,577,579
Less: Contributions	4	350,695	367,311
Net Capital		<u>\$9,511,155</u>	<u>\$10,210,268</u>
Financing Costs for Capacity Part	5A	174,625	187,461
Total Cost of Collection Part		<u>\$9,685,780</u>	<u>\$10,397,729</u>
Plus: Interest Paid On Debt	5B	\$1,302,313	-
Less: Outstanding Debt	5C	9,511,155	9,511,155
Eligible Cost for Collection Part		<u>\$1,476,938</u>	<u>\$886,574</u>
Total Capacity		39,000,000	39,000,000
Collection Tapping Fee per Gallon		\$0.03787	\$0.02273
Total Tapping Fee per Gallon		\$0.05229	\$0.03142

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
A. <u>Capacity Part</u>			
Capital Expenditures			
CAC-U-ROOF REPLACEMENTS - PH 1	2	\$1,635,155	\$1,752,926
CAC-W-WFP-GENERAL IMPROVEMENT	2	280,097	301,172
CAC-W-SCHANTZ SPRING CHLORINE BOOST	2	3,677	3,884
CAC-U-ROOF REPLACEMENTS-PH-2	2	51,929	54,946
CAC-W-TRANS MAIN LEAK EVALU	2	148,656	161,092
CAC-W-D&C-CAP-REPLACEMENTS	2	1,812,120	1,891,562
CAC-W-WFP-EMERG POWER PH-2	2	2,622	2,759
CAC-W-VARIOUS WATER STUDIES	2	682	717
CAC-W-WFP-HIGH CELING UPGRADES	2	293,803	309,126
CAC-W-WFP CARBON DIOXIDE	2	31,306	31,715
		<u>\$4,260,047</u>	<u>\$4,509,900</u>
Less: Contributions			
CAC-U-ROOF REPLACEMENTS - PH 1	4	\$0	\$0
CAC-W-WFP-GENERAL IMPROVEMENT	4	-	-
CAC-W-SCHANTZ SPRING CHLORINE BOOST	4	3,677	3,884
CAC-U-ROOF REPLACEMENTS-PH-2	4	-	-
CAC-W-TRANS MAIN LEAK EVALU	4	422	428
CAC-W-D&C-CAP-REPLACEMENTS	4	-	-
CAC-W-WFP-EMERG POWER PH-2	4	-	-
CAC-W-VARIOUS WATER STUDIES	4	-	-
CAC-W-WFP-HIGH CELING UPGRADES	4	-	-
CAC-W-WFP CARBON DIOXIDE	4	-	-
		<u>\$4,099</u>	<u>\$4,311</u>
Net Capital			
CAC-U-ROOF REPLACEMENTS - PH 1		\$1,635,155	\$1,752,926
CAC-W-WFP-GENERAL IMPROVEMENT		280,097	301,172
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER		-	-
CAC-U-ROOF REPLACEMENTS-PH-2		51,929	54,946
CAC-W-TRANS MAIN LEAK EVALU		148,233	160,664
CAC-W-D&C-CAP-REPLACEMENTS		1,812,120	1,891,562
CAC-W-WFP-EMERG POWER PH-2		2,622	2,759
CAC-W-VARIOUS WATER STUDIES		682	717
CAC-W-WFP-HIGH CELING UPGRADES		293,803	309,126
CAC-W-WFP CARBON DIOXIDE		31,306	31,715
		<u>\$4,255,947</u>	<u>\$4,505,588</u>

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Financing Costs for Capacity Part			
CAC-U-ROOF REPLACEMENTS - PH 1	5A	\$30,021	34,208
CAC-W-WFP-GENERAL IMPROVEMENT	5A	5,143	5,860
CAC-W-SCHANTZ SPRING CHLORINE BOOST	5A	-	-
CAC-U-ROOF REPLACEMENTS-PH-2	5A	953	1,086
CAC-W-TRANS MAIN LEAK EVALU	5A	2,722	3,101
CAC-W-D&C-CAP-REPLACEMENTS	5A	33,271	37,910
CAC-W-WFP-EMERG POWER PH-2	5A	48	55
CAC-W-VARIOUS WATER STUDIES	5A	13	14
CAC-W-WFP-HIGH CELING UPGRADES	5A	5,394	6,146
CAC-W-WFP CARBON DIOXIDE	5A	575	655
		<u>\$78,139</u>	<u>\$89,036</u>
Total Cost of Capacity Part			
CAC-U-ROOF REPLACEMENTS - PH 1		\$1,665,177	\$1,787,134
CAC-W-WFP-GENERAL IMPROVEMENT		285,239	307,032
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER		-	-
CAC-U-ROOF REPLACEMENTS-PH-2		52,883	56,033
CAC-W-TRANS MAIN LEAK EVALU		150,955	163,765
CAC-W-D&C-CAP-REPLACEMENTS		1,845,391	1,929,472
CAC-W-WFP-EMERG POWER PH-2		2,670	2,814
CAC-W-VARIOUS WATER STUDIES		694	732
CAC-W-WFP-HIGH CELING UPGRADES		299,197	315,273
CAC-W-WFP CARBON DIOXIDE		31,880	32,370
		<u>\$4,334,087</u>	<u>\$4,594,624</u>
Plus: Interest Paid On Debt			
CAC-U-ROOF REPLACEMENTS - PH 1	5B	\$217,062	
CAC-W-WFP-GENERAL IMPROVEMENT	5B	39,312	
CAC-W-SCHANTZ SPRING CHLORINE BOOST	5B	-	
CAC-U-ROOF REPLACEMENTS-PH-2	5B	5,735	
CAC-W-TRANS MAIN LEAK EVALU	5B	22,440	
CAC-W-D&C-CAP-REPLACEMENTS	5B	168,161	
CAC-W-WFP-EMERG POWER PH-2	5B	265	
CAC-W-VARIOUS WATER STUDIES	5B	69	
CAC-W-WFP-HIGH CELING UPGRADES	5B	29,676	
CAC-W-WFP CARBON DIOXIDE	5B	1,581	
		<u>\$484,301</u>	-

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Less: Outstanding Debt			
CAC-U-ROOF REPLACEMENTS - PH 1	5C	\$1,635,155	\$1,635,155
CAC-W-WFP-GENERAL IMPROVEMENT	5C	280,097	280,097
CAC-W-SCHANTZ SPRING CHLORINE BOOST	5C	-	-
CAC-U-ROOF REPLACEMENTS-PH-2	5C	51,929	51,929
CAC-W-TRANS MAIN LEAK EVALU	5C	148,233	148,233
CAC-W-D&C-CAP-REPLACEMENTS	5C	1,812,120	1,812,120
CAC-W-WFP-EMERG POWER PH-2	5C	2,622	2,622
CAC-W-VARIOUS WATER STUDIES	5C	682	682
CAC-W-WFP-HIGH CELING UPGRADES	5C	293,803	293,803
CAC-W-WFP CARBON DIOXIDE	5C	31,306	31,306
		<u>\$4,255,947</u>	<u>\$4,255,947</u>
Eligible Cost for Capacity Part			
CAC-U-ROOF REPLACEMENTS - PH 1		\$247,083	\$151,979
CAC-W-WFP-GENERAL IMPROVEMENT		44,455	26,935
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER		-	-
CAC-U-ROOF REPLACEMENTS-PH-2		6,689	4,103
CAC-W-TRANS MAIN LEAK EVALU		25,162	15,532
CAC-W-D&C-CAP-REPLACEMENTS		201,431	117,352
CAC-W-WFP-EMERG POWER PH-2		313	192
CAC-W-VARIOUS WATER STUDIES		81	50
CAC-W-WFP-HIGH CELING UPGRADES		35,071	21,470
CAC-W-WFP CARBON DIOXIDE		2,156	1,064
		<u>\$562,440</u>	<u>\$338,677</u>
Total Capacity		39,000,000	39,000,000
Capacity Tapping Fee per Gallon			
CAC-U-ROOF REPLACEMENTS - PH 1		\$0.00634	\$0.00390
CAC-W-WFP-GENERAL IMPROVEMENT		0.00114	0.00069
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER		-	-
CAC-U-ROOF REPLACEMENTS-PH-2		0.00017	0.00011
CAC-W-TRANS MAIN LEAK EVALU		0.00065	0.00040
CAC-W-D&C-CAP-REPLACEMENTS		0.00516	0.00301
CAC-W-WFP-EMERG POWER PH-2		0.00001	0.00000
CAC-W-VARIOUS WATER STUDIES		0.00000	0.00000
CAC-W-WFP-HIGH CELING UPGRADES		0.00090	0.00055
CAC-W-WFP CARBON DIOXIDE		0.00006	0.00003
		<u>\$0.01442</u>	<u>\$0.00868</u>

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
B. Distribution Part			
Capital Expenditures			
CAC-W-COA DIST MAINS	3	\$16,273	\$18,019
CAC-W-STEEL RESERVOIR REHAB CO	3	281,088	294,645
CAC-W-MAIN REPLACEMENTS CYC-1	3	2,312,909	2,554,877
CAC-W-CITY PROPERTY METERS	3	7,856	8,576
CAC-W-MAIN REPLACEMENTS CYC-2	3	2,405,366	2,607,668
CAC-W-MAIN REPLACEMENTS CYC-3	3	4,649,214	4,896,491
CAC-W-GEN WATER SYSTEM IMPROVE	3	83,397	89,807
CAC-W-CEDAR CRK BRIDGE REPLACE	3	292	303
CAC-W-COA SKETCH PLAN REVIEW	3	474	499
CAC-W-COA DIST SYS IMPROVE 3RD PTY	3	247	260
CAC-W-MAIN REPLACEMENTS CYC-4	3	59,058	60,163
CAC-W-CEDAR CRK BRIDGE REPLACE	3	45,370	45,963
CAC-W-MAIN REPLACEMENTS CYC-5	3	304	308
		<u>\$9,861,850</u>	<u>\$10,577,579</u>
Less: Contributions			
CAC-W-COA DIST MAINS	4	\$16,273	\$18,019
CAC-W-STEEL RESERVOIR REHAB CO	4	281,088	294,645
CAC-W-MAIN REPLACEMENTS CYC-1	4	-	-
CAC-W-CITY PROPERTY METERS	4	7,856	8,576
CAC-W-MAIN REPLACEMENTS CYC-2	4	-	-
CAC-W-MAIN REPLACEMENTS CYC-3	4	-	-
CAC-W-GEN WATER SYSTEM IMPROVE	4	-	-
CAC-W-CEDAR CRK BRIDGE REPLACE	4	108	109
CAC-W-COA SKETCH PLAN REVIEW	4	-	-
CAC-W-COA DIST SYS IMPROVE 3RD PTY	4	-	-
CAC-W-MAIN REPLACEMENTS CYC-4	4	-	-
CAC-W-CEDAR CRK BRIDGE REPLACE	4	45,370	45,963
CAC-W-MAIN REPLACEMENTS CYC-5	4	-	-
		<u>\$350,695</u>	<u>\$367,311</u>
Net Capital			
CAC-W-COA DIST MAINS		\$0	\$0
CAC-W-STEEL RESERVOIR REHAB CO		-	-
CAC-W-MAIN REPLACEMENTS CYC-1		2,312,909	2,554,877
CAC-W-CITY PROPERTY METERS		-	-
CAC-W-MAIN REPLACEMENTS CYC-2		2,405,366	2,607,668
CAC-W-MAIN REPLACEMENTS CYC-3		4,649,214	4,896,491
CAC-W-GEN WATER SYSTEM IMPROVE		83,397	89,807
CAC-W-CEDAR CRK BRIDGE REPLACE		184	194
CAC-W-COA SKETCH PLAN REVIEW		474	499
CAC-W-COA DIST SYS IMPROVE 3RD PTY		247	260
CAC-W-MAIN REPLACEMENTS CYC-4		59,058	60,163
CAC-W-CEDAR CRK BRIDGE REPLACE		-	-
CAC-W-MAIN REPLACEMENTS CYC-5		304	308
		<u>\$9,511,155</u>	<u>\$10,210,268</u>

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Financing Costs for Capacity Part			
CAC-W-COA DIST MAINS	5A	\$0	\$0
CAC-W-STEEL RESERVOIR REHAB CO	5A	-	-
CAC-W-MAIN REPLACEMENTS CYC-1	5A	42,465	46,908
CAC-W-CITY PROPERTY METERS	5A	-	-
CAC-W-MAIN REPLACEMENTS CYC-2	5A	44,163	47,877
CAC-W-MAIN REPLACEMENTS CYC-3	5A	85,360	89,900
CAC-W-GEN WATER SYSTEM IMPROVE	5A	1,531	1,649
CAC-W-CEDAR CRK BRIDGE REPLACE	5A	3	4
CAC-W-COA SKETCH PLAN REVIEW	5A	9	9
CAC-W-COA DIST SYS IMPROVE 3RD PTY	5A	5	5
CAC-W-MAIN REPLACEMENTS CYC-4	5A	1,084	1,105
CAC-W-CEDAR CRK BRIDGE REPLACE	5A	-	-
CAC-W-MAIN REPLACEMENTS CYC-5	5A	6	6
		<u>\$174,625</u>	<u>\$187,461</u>
Total Cost of Collection Part			
CAC-W-COA DIST MAINS		\$0	\$0
CAC-W-STEEL RESERVOIR REHAB CO		-	-
CAC-W-MAIN REPLACEMENTS CYC-1		2,355,374	2,601,784
CAC-W-CITY PROPERTY METERS		-	-
CAC-W-MAIN REPLACEMENTS CYC-2		2,449,529	2,655,545
CAC-W-MAIN REPLACEMENTS CYC-3		4,734,574	4,986,391
CAC-W-GEN WATER SYSTEM IMPROVE		84,929	91,456
CAC-W-CEDAR CRK BRIDGE REPLACE		188	198
CAC-W-COA SKETCH PLAN REVIEW		483	508
CAC-W-COA DIST SYS IMPROVE 3RD PTY		252	265
CAC-W-MAIN REPLACEMENTS CYC-4		60,143	61,268
CAC-W-CEDAR CRK BRIDGE REPLACE		-	-
CAC-W-MAIN REPLACEMENTS CYC-5		310	314
		<u>\$9,685,780</u>	<u>\$10,397,729</u>
Plus: Interest Paid On Debt			
CAC-W-COA DIST MAINS	5B	\$0	
CAC-W-STEEL RESERVOIR REHAB CO	5B	-	
CAC-W-MAIN REPLACEMENTS CYC-1	5B	443,130	
CAC-W-CITY PROPERTY METERS	5B	-	
CAC-W-MAIN REPLACEMENTS CYC-2	5B	366,157	
CAC-W-MAIN REPLACEMENTS CYC-3	5B	458,401	
CAC-W-GEN WATER SYSTEM IMPROVE	5B	31,106	
CAC-W-CEDAR CRK BRIDGE REPLACE	5B	19	
CAC-W-COA SKETCH PLAN REVIEW	5B	48	
CAC-W-COA DIST SYS IMPROVE 3RD PTY	5B	25	
CAC-W-MAIN REPLACEMENTS CYC-4	5B	3,413	
CAC-W-CEDAR CRK BRIDGE REPLACE	5B	15	
CAC-W-MAIN REPLACEMENTS CYC-5	5B	-	
		<u>\$1,302,313</u>	-

SCHEDULE B -LCA'S ALLENTOWN DIVISION WATER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Water Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Less: Outstanding Debt			
CAC-W-COA DIST MAINS	5C	\$0	\$0
CAC-W-STEEL RESERVOIR REHAB CO	5C	-	-
CAC-W-MAIN REPLACEMENTS CYC-1	5C	2,312,909	2,312,909
CAC-W-CITY PROPERTY METERS	5C	-	-
CAC-W-MAIN REPLACEMENTS CYC-2	5C	2,405,366	2,405,366
CAC-W-MAIN REPLACEMENTS CYC-3	5C	4,649,214	4,649,214
CAC-W-GEN WATER SYSTEM IMPROVE	5C	83,397	83,397
CAC-W-CEDAR CRK BRIDGE REPLACE	5C	184	184
CAC-W-COA SKETCH PLAN REVIEW	5C	474	474
CAC-W-COA DIST SYS IMPROVE 3RD PTY	5C	247	247
CAC-W-MAIN REPLACEMENTS CYC-4	5C	59,058	59,058
CAC-W-CEDAR CRK BRIDGE REPLACE	5C	-	-
CAC-W-MAIN REPLACEMENTS CYC-5	5C	304	304
		<u>\$9,511,155</u>	<u>\$9,511,155</u>
Eligible Cost for Collection Part			
CAC-W-COA DIST MAINS		\$0	\$0
CAC-W-STEEL RESERVOIR REHAB CO		-	-
CAC-W-MAIN REPLACEMENTS CYC-1		485,595	288,875
CAC-W-CITY PROPERTY METERS		-	-
CAC-W-MAIN REPLACEMENTS CYC-2		410,319	250,179
CAC-W-MAIN REPLACEMENTS CYC-3		543,760	337,177
CAC-W-GEN WATER SYSTEM IMPROVE		32,637	8,058
CAC-W-CEDAR CRK BRIDGE REPLACE		22	13
CAC-W-COA SKETCH PLAN REVIEW		57	34
CAC-W-COA DIST SYS IMPROVE 3RD PTY		30	18
CAC-W-MAIN REPLACEMENTS CYC-4		4,498	2,210
CAC-W-CEDAR CRK BRIDGE REPLACE		15	-
CAC-W-MAIN REPLACEMENTS CYC-5		6	10
		<u>\$1,476,938</u>	<u>\$886,574</u>
Total Capacity		39,000,000	39,000,000
Collection Tapping Fee per Gallon			
CAC-W-COA DIST MAINS		\$0.00000	\$0.00000
CAC-W-STEEL RESERVOIR REHAB CO		-	-
CAC-W-MAIN REPLACEMENTS CYC-1		0.01245	0.00741
CAC-W-CITY PROPERTY METERS		-	-
CAC-W-MAIN REPLACEMENTS CYC-2		0.01052	0.00641
CAC-W-MAIN REPLACEMENTS CYC-3		0.01394	0.00865
CAC-W-GEN WATER SYSTEM IMPROVE		0.00084	0.00021
CAC-W-CEDAR CRK BRIDGE REPLACE		0.00000	0.00000
CAC-W-COA SKETCH PLAN REVIEW		0.00000	0.00000
CAC-W-COA DIST SYS IMPROVE 3RD PTY		0.00000	0.00000
CAC-W-MAIN REPLACEMENTS CYC-4		0.00012	0.00006
CAC-W-CEDAR CRK BRIDGE REPLACE		0.00000	-
CAC-W-MAIN REPLACEMENTS CYC-5		0.00000	0.00000
		<u>\$0.03787</u>	<u>\$0.02273</u>

Exhibit No. 2
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Capacity Assets

Expenditure	Year Placed in Service	Original Cost	Cost Index		Trended Current Replacement Cost
			Original	Current	
CAC-U-ROOF REPLACEMENTS - PH 1	2013	\$-	9547	10878	\$-
CAC-W-WFP-GENERAL IMPROVEMENT	2013	8,287	9547	10878	9,442
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER	2013		9547	10878	-
CAC-U-ROOF REPLACEMENTS - PH 1	2014	26,968	9806	10878	29,917
CAC-W-WFP-GENERAL IMPROVEMENT	2014	55,441	9806	10878	61,503
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER	2014	77	9806	10878	85
CAC-U-ROOF REPLACEMENTS - PH 1	2015	973,677	10036	10878	1,055,407
CAC-W-WFP-GENERAL IMPROVEMENT	2015	119,320	10036	10878	129,336
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER	2015	333	10036	10878	361
CAC-U-ROOF REPLACEMENTS-PH-2	2015	9,700	10036	10878	10,514
CAC-W-TRANS MAIN LEAK EVALU	2015	147,857	10036	10878	160,268
CAC-W-D&C-CAP-REPLACEMENTS	2015	486,807	10036	10878	527,669
CAC-U-ROOF REPLACEMENTS - PH 1	2016	634,510	10339	10878	667,603
CAC-W-WFP-GENERAL IMPROVEMENT	2016	65,856	10339	10878	69,290
CAC-W-SCHANTZ SPRING CHLORINE BOOSTER	2016	3,267	10339	10878	3,438
CAC-U-ROOF REPLACEMENTS-PH-2	2016	42,229	10339	10878	44,432
CAC-W-TRANS MAIN LEAK EVALU	2016	376	10339	10878	396
CAC-W-D&C-CAP-REPLACEMENTS	2016	543,930	10339	10878	572,298
CAC-W-WFP-EMERG POWER PH-2	2016	2,622	10339	10878	2,759
CAC-W-VARIOUS WATER STUDIES	2016	682	10339	10878	717
CAC-W-WFP-HIGH CELING UPGRADES	2016	293,803	10339	10878	309,126
CAC-U-ROOF REPLACEMENTS - PH 1	2017	-	10738	10878	-
CAC-W-WFP-GENERAL IMPROVEMENT	2017	31,193	10738	10878	31,601
CAC-U-ROOF REPLACEMENTS-PH-2	2017	-	10738	10878	-
CAC-W-TRANS MAIN LEAK EVALU	2017	422	10738	10878	428
CAC-W-D&C-CAP-REPLACEMENTS	2017	781,383	10738	10878	791,594
CAC-W-WFP-EMERG POWER PH-2	2017	-	10738	10878	-
CAC-W-VARIOUS WATER STUDIES	2017	-	10738	10878	-
CAC-W-WFP-HIGH CELING UPGRADES	2017	-	10738	10878	-
CAC-W-WFP CARBON DIOXIDE	2017	31,306	10738	10878	31,715
		\$4,260,047			\$4,509,900

Exhibit No. 3
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Distribution Assets

Expenditure	Year Placed in Service	Original Cost	Cost Index		Trended Current Replacement Cost
			Original	Current	
CAC-W-COA DIST MAINS	2013	\$3,224	9547	10878	\$3,674
CAC-W-STEEL RESERVOIR REHAB CO	2013	502	9547	10878	571
CAC-W-MAIN REPLACEMENTS CYC-1	2013	61,372	9547	10878	69,930
CAC-W-CITY PROPERTY METERS	2013	1,049	9547	10878	1,195
CAC-W-MAIN REPLACEMENTS CYC-2	2013		9547	10878	
CAC-W-COA DIST MAINS	2014	7,884	9806	10878	8,746
CAC-W-STEEL RESERVOIR REHAB CO	2014	2,297	9806	10878	2,548
CAC-W-MAIN REPLACEMENTS CYC-1	2014	1,775,061	9806	10878	1,969,148
CAC-W-CITY PROPERTY METERS	2014	88	9806	10878	97
CAC-W-MAIN REPLACEMENTS CYC-2	2014	106,871	9806	10878	118,556
CAC-W-COA DIST MAINS	2015	5,165	10036	10878	5,598
CAC-W-STEEL RESERVOIR REHAB CO	2015	64,945	10036	10878	70,397
CAC-W-MAIN REPLACEMENTS CYC-1	2015	459,287	10036	10878	497,840
CAC-W-CITY PROPERTY METERS	2015	6,719	10036	10878	7,283
CAC-W-MAIN REPLACEMENTS CYC-2	2015	2,225,601	10036	10878	2,412,416
CAC-W-MAIN REPLACEMENTS CYC-3	2015	202,467	10036	10878	219,461
CAC-W-GEN WATER SYSTEM IMPROVE	2015	74,999	10036	10878	81,294
CAC-W-COA DIST MAINS	2016		10339	10878	-
CAC-W-STEEL RESERVOIR REHAB CO	2016	127,821	10339	10878	134,488
CAC-W-MAIN REPLACEMENTS CYC-1	2016	13,962	10339	10878	14,690
CAC-W-CITY PROPERTY METERS	2016		10339	10878	-
CAC-W-MAIN REPLACEMENTS CYC-2	2016	72,894	10339	10878	76,696
CAC-W-MAIN REPLACEMENTS CYC-3	2016	4,404,811	10339	10878	4,634,545
CAC-W-GEN WATER SYSTEM IMPROVE	2016	111	10339	10878	117
CAC-W-CEDAR CRK BRIDGE REPLACE	2016	184	10339	10878	194
CAC-W-COA SKETCH PLAN REVIEW	2016	474	10339	10878	499
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2016	247	10339	10878	260
CAC-W-MAIN REPLACEMENTS CYC-4	2016	8,528	10339	10878	8,973
CAC-W-COA DIST MAINS	2017		10738	10878	-
CAC-W-STEEL RESERVOIR REHAB CO	2017	85,523	10738	10878	86,641
CAC-W-MAIN REPLACEMENTS CYC-1	2017	3,227	10738	10878	3,269
CAC-W-CITY PROPERTY METERS	2017		10738	10878	-
CAC-W-MAIN REPLACEMENTS CYC-2	2017	-	10738	10878	-
CAC-W-MAIN REPLACEMENTS CYC-3	2017	41,937	10738	10878	42,485
CAC-W-GEN WATER SYSTEM IMPROVE	2017	8,288	10738	10878	8,396
CAC-W-CEDAR CRK BRIDGE REPLACE	2017	108	10738	10878	109
CAC-W-COA SKETCH PLAN REVIEW	2017	-	10738	10878	-
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2017	-	10738	10878	-
CAC-W-MAIN REPLACEMENTS CYC-4	2017	50,530	10738	10878	51,190
CAC-W-CEDAR CRK BRIDGE REPLACE	2017	45,370	10738	10878	45,963
CAC-W-MAIN REPLACEMENTS CYC-5	2017	304	10738	10878	308
		\$9,861,850			\$10,577,579

Exhibit No. 4
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Contribution Summary

<u>Capacity Part</u>		Year	Original Amount	Cost Index		Trended Amount
Contribution				Original	Current	
CAC-U-ROOF REPLACEMENTS - PH 1	2013		\$-	9547	10878	\$-
CAC-W-WFP-GENERAL IMPROVEMEN	2013			9547	10878	-
CAC-W-SCHANTZ SPRING CHLORINE	2013			9547	10878	-
CAC-U-ROOF REPLACEMENTS - PH 1	2014			9806	10878	-
CAC-W-WFP-GENERAL IMPROVEMEN	2014			9806	10878	-
CAC-W-SCHANTZ SPRING CHLORINE	2014		77	9806	10878	85
CAC-U-ROOF REPLACEMENTS - PH 1	2015			10036	10878	-
CAC-W-WFP-GENERAL IMPROVEMEN	2015			10036	10878	-
CAC-W-SCHANTZ SPRING CHLORINE	2015		333	10036	10878	361
CAC-U-ROOF REPLACEMENTS-PH-2	2015			10036	10878	-
CAC-W-TRANS MAIN LEAK EVALU	2015			10036	10878	-
CAC-W-D&C-CAP-REPLACEMENTS	2015			10036	10878	-
CAC-U-ROOF REPLACEMENTS - PH 1	2016			10339	10878	-
CAC-W-WFP-GENERAL IMPROVEMEN	2016			10339	10878	-
CAC-W-SCHANTZ SPRING CHLORINE	2016		3,267	10339	10878	3,438
CAC-U-ROOF REPLACEMENTS-PH-2	2016			10339	10878	-
CAC-W-TRANS MAIN LEAK EVALU	2016			10339	10878	-
CAC-W-D&C-CAP-REPLACEMENTS	2016			10339	10878	-
CAC-W-WFP-EMERG POWER PH-2	2016			10339	10878	-
CAC-W-VARIOUS WATER STUDIES	2016			10339	10878	-
CAC-W-WFP-HIGH CELING UPGRADE	2016			10339	10878	-
CAC-U-ROOF REPLACEMENTS - PH 1	2017			10738	10878	-
CAC-W-WFP-GENERAL IMPROVEMEN	2017			10738	10878	-
CAC-U-ROOF REPLACEMENTS-PH-2	2017			10738	10878	-
CAC-W-TRANS MAIN LEAK EVALU	2017		422	10738	10878	428
CAC-W-D&C-CAP-REPLACEMENTS	2017			10738	10878	-
CAC-W-WFP-EMERG POWER PH-2	2017			10738	10878	-
CAC-W-VARIOUS WATER STUDIES	2017			10738	10878	-
CAC-W-WFP-HIGH CELING UPGRADE	2017			10738	10878	-
CAC-W-WFP CARBON DIOXIDE	2017			10738	10878	-
			<u>\$4,099</u>			<u>\$4,311</u>

Exhibit No. 4
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Contribution Summary

Distribution Part		Year	Original Amount	Cost Index		Trended Amount
Contribution				Original	Current	
CAC-W-COA DIST MAINS		2013	\$3,224	9547	10878	\$3,674
CAC-W-STEEL RESERVOIR REHAB CC		2013	502	9547	10878	571
CAC-W-MAIN REPLACEMENTS CYC-1		2013				
CAC-W-CITY PROPERTY METERS		2013	1,049	9547	10878	1,195
CAC-W-MAIN REPLACEMENTS CYC-2		2013				
CAC-W-COA DIST MAINS		2014	7,884	9806	10878	8,746
CAC-W-STEEL RESERVOIR REHAB CC		2014	2,297	9806	10878	2,548
CAC-W-MAIN REPLACEMENTS CYC-1		2014				
CAC-W-CITY PROPERTY METERS		2014	88	9806	10878	97
CAC-W-MAIN REPLACEMENTS CYC-2		2014				
CAC-W-COA DIST MAINS		2015	5,165	10036	10878	5,598
CAC-W-STEEL RESERVOIR REHAB CC		2015	64,945	10036	10878	70,397
CAC-W-MAIN REPLACEMENTS CYC-1		2015				
CAC-W-CITY PROPERTY METERS		2015	6,719	10036	10878	7,283
CAC-W-MAIN REPLACEMENTS CYC-2		2015				
CAC-W-MAIN REPLACEMENTS CYC-3		2015				
CAC-W-GEN WATER SYSTEM IMPROV		2015				
CAC-W-COA DIST MAINS		2016				
CAC-W-STEEL RESERVOIR REHAB CC		2016	127,821	10339	10878	134,488
CAC-W-MAIN REPLACEMENTS CYC-1		2016				
CAC-W-CITY PROPERTY METERS		2016				
CAC-W-MAIN REPLACEMENTS CYC-2		2016				
CAC-W-MAIN REPLACEMENTS CYC-3		2016				
CAC-W-GEN WATER SYSTEM IMPROV		2016				
CAC-W-CEDAR CRK BRIDGE REPLACI		2016				
CAC-W-COA SKETCH PLAN REVIEW		2016				
CAC-W-COA DIST SYS IMPROVE 3RD		2016				
CAC-W-MAIN REPLACEMENTS CYC-4		2016				
CAC-W-COA DIST MAINS		2017				
CAC-W-STEEL RESERVOIR REHAB CC		2017	85,523	10738	10878	86,641
CAC-W-MAIN REPLACEMENTS CYC-1		2017				
CAC-W-CITY PROPERTY METERS		2017				
CAC-W-MAIN REPLACEMENTS CYC-2		2017				
CAC-W-MAIN REPLACEMENTS CYC-3		2017				
CAC-W-GEN WATER SYSTEM IMPROV		2017				
CAC-W-CEDAR CRK BRIDGE REPLACI		2017	108	10738	10878	109
CAC-W-COA SKETCH PLAN REVIEW		2017				
CAC-W-COA DIST SYS IMPROVE 3RD		2017				
CAC-W-MAIN REPLACEMENTS CYC-4		2017				
CAC-W-CEDAR CRK BRIDGE REPLACI		2017	45,370	10738	10878	45,963
CAC-W-MAIN REPLACEMENTS CYC-5		2017				
			\$350,695			\$367,311

Exhibit No. 5A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

			Cost of	Additional
			Issuance	Cost Per \$1 of Capital
Uses of Financed Funds				For Issuance Costs
Up-Front Lease Payment	\$211,332,218	77.41%	\$3,880,062	
Deposit to Capital Improvement Fund	31,850,566	11.67%	584,777	0.01836
Deposit to Debt Service Reserve Fund	26,379,843	9.66%	484,334	
Deposit to 2013A Capitalized Interest Account	3,450,000	1.26%	63,342	
Cost of Issuance	5,012,515			
TOTAL	\$278,025,141			

For every \$1 of Eligible Capital 0.01836 should be added in issuance costs.
be added in issuance costs.

Exhibit No. 5A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

Capacity	Expenditure	Year Placed in Service	Original Cost	Associated Issuance Original Cost	Additional		Trended Current Replacement Cost
					Original	Current	
	CAC-U-ROOF REPLACEMENTS - PH 1						
	CAC-W-WFP-GENERAL IMPROVEMENT	2013	\$8,287	\$152	9547	10878	\$173
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER						
	CAC-U-ROOF REPLACEMENTS - PH 1	2014	\$26,968	\$495	9547	10878	\$564
	CAC-W-WFP-GENERAL IMPROVEMENT	2014	55,441	1,018	9547	10878	1,160
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER						
	CAC-U-ROOF REPLACEMENTS - PH 1	2015	\$973,677	\$17,877	9547	10878	\$20,370
	CAC-W-WFP-GENERAL IMPROVEMENT	2015	119,320	2,191	9547	10878	2,496
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER						
	CAC-U-ROOF REPLACEMENTS-PH-2	2015	9,700	178	9547	10878	203
	CAC-W-TRANS MAIN LEAK EVALU	2015	147,857	2,715	9547	10878	3,093
	CAC-W-D&C-CAP-REPLACEMENTS	2015	486,807	8,938	9547	10878	10,184
	CAC-U-ROOF REPLACEMENTS - PH 1	2016	\$634,510	\$11,650	9547	10878	\$13,274
	CAC-W-WFP-GENERAL IMPROVEMENT	2016	65,856	1,209	9547	10878	1,378
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER						
	CAC-U-ROOF REPLACEMENTS-PH-2	2016	42,229	775	9547	10878	883
	CAC-W-TRANS MAIN LEAK EVALU	2016	376	7	9547	10878	8
	CAC-W-D&C-CAP-REPLACEMENTS	2016	543,930	9,987	9547	10878	11,379
	CAC-W-WFP-EMERG POWER PH-2	2016	2,622	48	9547	10878	55
	CAC-W-VARIOUS WATER STUDIES	2016	682	13	9547	10878	14
	CAC-W-WFP-HIGH CELING UPGRADES	2016	293,803	5,394	9547	10878	6,146
	CAC-U-ROOF REPLACEMENTS - PH 1	2017	\$-	\$-	9547	10878	\$-
	CAC-W-WFP-GENERAL IMPROVEMENT	2017	31,193	573	9547	10878	653
	CAC-U-ROOF REPLACEMENTS-PH-2	2017	-	-	9547	10878	-
	CAC-W-TRANS MAIN LEAK EVALU	2017					
	CAC-W-D&C-CAP-REPLACEMENTS	2017	781,383	14,346	9547	10878	16,347
	CAC-W-WFP-EMERG POWER PH-2	2017	-	-	9547	10878	-
	CAC-W-VARIOUS WATER STUDIES	2017	-	-	9547	10878	-
	CAC-W-WFP-HIGH CELING UPGRADES	2017	-	-	9547	10878	-
	CAC-W-WFP CARBON DIOXIDE	2017	31,306	575	9547	10878	655
				\$78,139			\$89,036

Exhibit No. 5A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

Distribution Expenditure	Year Placed in Service	Original Cost	Associated Issuance Original Cost	Additional Cost Index		Trended Current Replacement Cost
				Original	Current	
CAC-W-COA DIST MAINS						
CAC-W-STEEL RESERVOIR REHAB CO						
CAC-W-MAIN REPLACEMENTS CYC-1	2013	\$61,372	\$1,127	9547	10878	\$1,284
CAC-W-CITY PROPERTY METERS						
CAC-W-MAIN REPLACEMENTS CYC-2						
CAC-W-COA DIST MAINS						
CAC-W-STEEL RESERVOIR REHAB CO						
CAC-W-MAIN REPLACEMENTS CYC-1	2014	\$1,775,061	\$32,590	9806	10878	\$36,154
CAC-W-CITY PROPERTY METERS						
CAC-W-MAIN REPLACEMENTS CYC-2	2014	106,871	1,962	9806	10878	2,177
CAC-W-COA DIST MAINS						
CAC-W-STEEL RESERVOIR REHAB CO						
CAC-W-MAIN REPLACEMENTS CYC-1	2015	\$459,287	\$8,433	10036	10878	\$9,140
CAC-W-CITY PROPERTY METERS						
CAC-W-MAIN REPLACEMENTS CYC-2	2015	2,225,601	40,862	10036	10878	44,292
CAC-W-MAIN REPLACEMENTS CYC-3	2015	202,467	3,717	10036	10878	4,029
CAC-W-GEN WATER SYSTEM IMPROVE	2015	74,999	1,377	10036	10878	1,493
CAC-W-COA DIST MAINS						
CAC-W-STEEL RESERVOIR REHAB CO						
CAC-W-MAIN REPLACEMENTS CYC-1	2016	\$13,962	\$256	10339	10878	\$270
CAC-W-CITY PROPERTY METERS						
CAC-W-MAIN REPLACEMENTS CYC-2	2016	72,894	1,338	10339	10878	1,408
CAC-W-MAIN REPLACEMENTS CYC-3	2016	4,404,811	80,872	10339	10878	85,090
CAC-W-GEN WATER SYSTEM IMPROVE	2016	111	2	10339	10878	2
CAC-W-CEDAR CRK BRIDGE REPLACE	2016	184	3	10339	10878	4
CAC-W-COA SKETCH PLAN REVIEW	2016	474	9	10339	10878	9
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2016	247	5	10339	10878	5
CAC-W-MAIN REPLACEMENTS CYC-4	2016	8,528	157	10339	10878	165

Exhibit No. 5A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

Distribution (continued)	Year Placed in Service	Original Cost	Associated Issuance Original Cost	Additional		Trended Current Replacement Cost
				Cost Index Original	Current	
CAC-W-COA DIST MAINS						
CAC-W-STEEL RESERVOIR REHAB CO						
CAC-W-MAIN REPLACEMENTS CYC-1	2017	\$3,227	\$59	10738	10878	\$60
CAC-W-CITY PROPERTY METERS						
CAC-W-MAIN REPLACEMENTS CYC-2	2017	-	-	10738	10878	-
CAC-W-MAIN REPLACEMENTS CYC-3	2017	41,937	770	10738	10878	780
CAC-W-GEN WATER SYSTEM IMPROVE	2017	8,288	152	10738	10878	154
CAC-W-CEDAR CRK BRIDGE REPLACE						
CAC-W-COA SKETCH PLAN REVIEW	2017	-	-	10738	10878	-
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2017	-	-	10738	10878	-
CAC-W-MAIN REPLACEMENTS CYC-4	2017	50,530	928	10738	10878	940
CAC-W-CEDAR CRK BRIDGE REPLACE						
CAC-W-MAIN REPLACEMENTS CYC-5	2017	304	6	10738	10878	6
			<u>\$174,625</u>			<u>\$187,461</u>

Exhibit No. 5B
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Summary of Interest Paid

Capacity	Expenditure	Year Placed in Service	Original Cost	Interest Paid To Date
	CAC-U-ROOF REPLACEMENTS - PH 1			
	CAC-W-WFP-GENERAL IMPROVEMENT	2013	\$8,287	\$1,807
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER			
	CAC-U-ROOF REPLACEMENTS - PH 1	2014	\$26,968	\$5,448
	CAC-W-WFP-GENERAL IMPROVEMENT	2014	55,441	11,200
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER			
	CAC-U-ROOF REPLACEMENTS - PH 1	2015	\$973,677	\$147,523
	CAC-W-WFP-GENERAL IMPROVEMENT	2015	119,320	18,078
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER			
	CAC-U-ROOF REPLACEMENTS-PH-2	2015	9,700	1,470
	CAC-W-TRANS MAIN LEAK EVALU	2015	147,857	22,402
	CAC-W-D&C-CAP-REPLACEMENTS	2015	486,807	73,757
	CAC-U-ROOF REPLACEMENTS - PH 1	2016	\$634,510	\$64,090
	CAC-W-WFP-GENERAL IMPROVEMENT	2016	65,856	6,652
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER			
	CAC-U-ROOF REPLACEMENTS-PH-2	2016	42,229	4,265
	CAC-W-TRANS MAIN LEAK EVALU	2016	376	38
	CAC-W-D&C-CAP-REPLACEMENTS	2016	543,930	54,941
	CAC-W-WFP-EMERG POWER PH-2	2016	2,622	265
	CAC-W-VARIOUS WATER STUDIES	2016	682	69
	CAC-W-WFP-HIGH CELING UPGRADES	2016	293,803	29,676
	CAC-U-ROOF REPLACEMENTS - PH 1	2017	\$-	\$-
	CAC-W-WFP-GENERAL IMPROVEMENT	2017	31,193	1,575
	CAC-U-ROOF REPLACEMENTS-PH-2	2017	-	-
	CAC-W-TRANS MAIN LEAK EVALU			
	CAC-W-D&C-CAP-REPLACEMENTS	2017	781,383	39,463
	CAC-W-WFP-EMERG POWER PH-2	2017	-	-
	CAC-W-VARIOUS WATER STUDIES	2017	-	-
	CAC-W-WFP-HIGH CELING UPGRADES	2017	-	-
	CAC-W-WFP CARBON DIOXIDE	2017	31,306	1,581
				\$484,301

Exhibit No. 5B
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Summary of Interest Paid

Distribution	Year Placed in Service	Original Cost	Interest Paid To Date
Expenditure			
CAC-W-COA DIST MAINS			
CAC-W-STEEL RESERVOIR REHAB CO			
CAC-W-MAIN REPLACEMENTS CYC-1	2013	\$61,372	\$13,380
CAC-W-CITY PROPERTY METERS			
CAC-W-MAIN REPLACEMENTS CYC-2			
CAC-W-COA DIST MAINS			
CAC-W-STEEL RESERVOIR REHAB CO			
CAC-W-MAIN REPLACEMENTS CYC-1	2014	\$1,775,061	\$358,590
CAC-W-CITY PROPERTY METERS			
CAC-W-MAIN REPLACEMENTS CYC-2	2014	106,871	21,590
CAC-W-COA DIST MAINS			
CAC-W-STEEL RESERVOIR REHAB CO			
CAC-W-MAIN REPLACEMENTS CYC-1	2015	\$459,287	\$69,587
CAC-W-CITY PROPERTY METERS			
CAC-W-MAIN REPLACEMENTS CYC-2	2015	2,225,601	337,204
CAC-W-MAIN REPLACEMENTS CYC-3	2015	202,467	11,363
CAC-W-GEN WATER SYSTEM IMPROVE	2015	74,999	30,676
CAC-W-COA DIST MAINS			
CAC-W-STEEL RESERVOIR REHAB CO			
CAC-W-MAIN REPLACEMENTS CYC-1	2016	\$13,962	\$1,410
CAC-W-CITY PROPERTY METERS			
CAC-W-MAIN REPLACEMENTS CYC-2	2016	72,894	7,363
CAC-W-MAIN REPLACEMENTS CYC-3	2016	4,404,811	444,920
CAC-W-GEN WATER SYSTEM IMPROVE	2016	111	11
CAC-W-CEDAR CRK BRIDGE REPLACE	2016	184	19
CAC-W-COA SKETCH PLAN REVIEW	2016	474	48
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2016	247	25
CAC-W-MAIN REPLACEMENTS CYC-4	2016	8,528	861

Exhibit No. 5B
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Summary of Interest Paid

Distribution (continued)			
Expenditure	Year Placed in Service	Original Cost	Interest Paid To Date
CAC-W-COA DIST MAINS			
CAC-W-STEEL RESERVOIR REHAB CO			
CAC-W-MAIN REPLACEMENTS CYC-1	2017	\$3,227	\$163
CAC-W-CITY PROPERTY METERS			
CAC-W-MAIN REPLACEMENTS CYC-2	2017	-	-
CAC-W-MAIN REPLACEMENTS CYC-3	2017	41,937	2,118
CAC-W-GEN WATER SYSTEM IMPROVE	2017	8,288	419
CAC-W-CEDAR CRK BRIDGE REPLACE			
CAC-W-COA SKETCH PLAN REVIEW	2017	-	-
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2017	-	-
CAC-W-MAIN REPLACEMENTS CYC-4	2017	50,530	2,552
CAC-W-CEDAR CRK BRIDGE REPLACE			
CAC-W-MAIN REPLACEMENTS CYC-5	2017	304	15
			<u>\$1,302,313</u>

Exhibit No. 5C
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Outstanding Principal

Capacity	Expenditure	Year Placed in Service	Financed Amount	Payments To Date	Outstanding Principal
	CAC-U-ROOF REPLACEMENTS - PH 1				
	CAC-W-WFP-GENERAL IMPROVEMENT	2013	\$8,287	\$-	\$8,287
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER				
	CAC-U-ROOF REPLACEMENTS - PH 1	2014	\$26,968	\$-	\$26,968
	CAC-W-WFP-GENERAL IMPROVEMENT	2014	55,441	-	55,441
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER				
	CAC-U-ROOF REPLACEMENTS - PH 1	2015	\$973,677	\$-	\$973,677
	CAC-W-WFP-GENERAL IMPROVEMENT	2015	119,320	-	119,320
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER				
	CAC-U-ROOF REPLACEMENTS-PH-2	2015	9,700	-	9,700
	CAC-W-TRANS MAIN LEAK EVALU	2015	147,857	-	147,857
	CAC-W-D&C-CAP-REPLACEMENTS	2015	486,807	-	486,807
	CAC-U-ROOF REPLACEMENTS - PH 1	2016	\$634,510	\$-	\$634,510
	CAC-W-WFP-GENERAL IMPROVEMENT	2016	65,856	-	65,856
	CAC-W-SCHANTZ SPRING CHLORINE BOOSTER				
	CAC-U-ROOF REPLACEMENTS-PH-2	2016	42,229	-	42,229
	CAC-W-TRANS MAIN LEAK EVALU	2016	376	-	376
	CAC-W-D&C-CAP-REPLACEMENTS	2016	543,930	-	543,930
	CAC-W-WFP-EMERG POWER PH-2	2016	2,622	-	2,622
	CAC-W-VARIOUS WATER STUDIES	2016	682	-	682
	CAC-W-WFP-HIGH CELING UPGRADES	2016	293,803	-	293,803
	CAC-U-ROOF REPLACEMENTS - PH 1	2017	\$-	\$-	\$-
	CAC-W-WFP-GENERAL IMPROVEMENT	2017	31,193	-	31,193
	CAC-U-ROOF REPLACEMENTS-PH-2	2017	-	-	-
	CAC-W-TRANS MAIN LEAK EVALU				
	CAC-W-D&C-CAP-REPLACEMENTS	2017	781,383	-	781,383
	CAC-W-WFP-EMERG POWER PH-2	2017	-	-	-
	CAC-W-VARIOUS WATER STUDIES	2017	-	-	-
	CAC-W-WFP-HIGH CELING UPGRADES	2017	-	-	-
	CAC-W-WFP CARBON DIOXIDE	2017	31,306	-	31,306
					\$4,255,947

Exhibit No. 5C
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Outstanding Principal

Distribution

<u>Expenditure</u>	<u>Year Placed in Service</u>	<u>Financed Amount</u>	<u>Payments To Date</u>	<u>Outstanding Principal</u>
CAC-W-COA DIST MAINS				
CAC-W-STEEL RESERVOIR REHAB CO				
CAC-W-MAIN REPLACEMENTS CYC-1	2013	\$61,372	\$-	\$61,372
CAC-W-CITY PROPERTY METERS				
CAC-W-MAIN REPLACEMENTS CYC-2				
CAC-W-COA DIST MAINS				
CAC-W-STEEL RESERVOIR REHAB CO				
CAC-W-MAIN REPLACEMENTS CYC-1	2014	\$1,775,061	\$-	\$1,775,061
CAC-W-CITY PROPERTY METERS				
CAC-W-MAIN REPLACEMENTS CYC-2	2014	106,871	-	106,871
CAC-W-COA DIST MAINS				
CAC-W-STEEL RESERVOIR REHAB CO				
CAC-W-MAIN REPLACEMENTS CYC-1	2015	\$459,287	\$-	\$459,287
CAC-W-CITY PROPERTY METERS				
CAC-W-MAIN REPLACEMENTS CYC-2	2015	2,225,601	-	2,225,601
CAC-W-MAIN REPLACEMENTS CYC-3	2015	202,467	-	202,467
CAC-W-GEN WATER SYSTEM IMPROVE	2015	74,999	-	74,999
CAC-W-COA DIST MAINS				
CAC-W-STEEL RESERVOIR REHAB CO				
CAC-W-MAIN REPLACEMENTS CYC-1	2016	\$13,962	\$-	\$13,962
CAC-W-CITY PROPERTY METERS				
CAC-W-MAIN REPLACEMENTS CYC-2	2016	72,894	-	72,894
CAC-W-MAIN REPLACEMENTS CYC-3	2016	4,404,811	-	4,404,811
CAC-W-GEN WATER SYSTEM IMPROVE	2016	111	-	111
CAC-W-CEDAR CRK BRIDGE REPLACE	2016	184	-	184
CAC-W-COA SKETCH PLAN REVIEW	2016	474	-	474
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2016	247	-	247
CAC-W-MAIN REPLACEMENTS CYC-4	2016	8,528	-	8,528

Exhibit No. 5C
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Outstanding Principal

Distribution (continued)

Expenditure	Year Placed in Service	Financed Amount	Payments To Date	Outstanding Principal
CAC-W-COA DIST MAINS				
CAC-W-STEEL RESERVOIR REHAB CO				
CAC-W-MAIN REPLACEMENTS CYC-1	2017	\$3,227	\$-	\$3,227
CAC-W-CITY PROPERTY METERS				
CAC-W-MAIN REPLACEMENTS CYC-2	2017	-	-	-
CAC-W-MAIN REPLACEMENTS CYC-3	2017	41,937	-	41,937
CAC-W-GEN WATER SYSTEM IMPROVE	2017	8,288	-	8,288
CAC-W-CEDAR CRK BRIDGE REPLACE				
CAC-W-COA SKETCH PLAN REVIEW	2017	-	-	-
CAC-W-COA DIST SYS IMPROVE 3RD PTY	2017	-	-	-
CAC-W-MAIN REPLACEMENTS CYC-4	2017	50,530	-	50,530
CAC-W-CEDAR CRK BRIDGE REPLACE				
CAC-W-MAIN REPLACEMENTS CYC-5	2017	304	-	304
				<u>\$9,511,155</u>

Appendix A

General Obligation Bonds, Series of 2013 Debt Service Schedule

Fiscal Year	2013A Bonds			2013B Bonds			2013C Bonds		
	Principal	Rate	Interest	Principal	Rate	Interest	Principal	Rate	Interest
2013	\$0		\$3,927,692	\$0		\$0	\$0		\$204,087
2014	-		12,403,238	-		-	-		644,484
2015	-		12,403,238	-		-	-		644,484
2016	-		12,403,238	-		-	-		644,484
2017	-		12,403,238	-		-	-		644,484
2018	-		12,403,238	-		-	18,735,000	3.440%	644,484
2019	-		12,403,238	368,001	3.210%	81,636.99	-		-
2020	-		12,403,238	701,732	3.660%	212,877.92	-		-
2021	-		12,403,238	996,170	4.090%	398,996.52	-		-
2022	-		12,403,238	1,258,697	4.440%	637,820.11	-		-
2023	-		12,403,238	1,493,839	4.690%	919,803.97	-		-
2024	-		12,403,238	1,693,404	4.950%	1,258,559.11	-		-
2025	-		12,403,238	1,868,322	5.150%	1,637,993.77	-		-
2026	-		12,403,238	2,015,021	5.340%	2,067,072.00	-		-
2027	-		12,403,238	2,143,721	5.490%	2,535,276.48	-		-
2028	-		12,403,238	2,249,366	5.630%	3,048,031.12	-		-
2029	-		12,403,238	2,339,586	5.750%	3,602,840.25	-		-
2030	-		12,403,238	2,421,339	5.830%	4,181,901.37	-		-
2031	-		12,403,238	2,492,253	5.900%	4,803,546.95	-		-
2032	-		12,403,238	2,545,451	5.970%	5,464,490.94	-		-
2033	-		12,403,238	2,587,129	6.030%	6,158,603.95	-		-
2034	-		12,403,238	2,801,952	6.080%	7,364,104.15	-		-
2035	3,140,000	5.000%	12,403,238	3,169,798	6.120%	9,158,624.10	-		-
2036	3,365,000	5.000%	12,246,238	3,318,505	6.150%	10,496,257.91	-		-
2037	3,545,000	5.000%	12,077,988	3,454,285	6.180%	11,946,519.07	-		-
2038	4,215,000	5.000%	11,900,738	3,440,030	6.210%	12,995,769.06	-		-
2039	21,685,000	5.000%	11,689,988	-		-	-		-
2040	23,920,000	5.000%	10,605,738	-		-	-		-
2041	26,305,000	5.000%	9,409,738	-		-	-		-
2042	28,855,000	5.000%	8,094,488	-		-	-		-
2043	31,570,000	5.000%	6,651,738	-		-	-		-
2044	22,925,000	5.125%	5,073,238	-		-	-		-
2045	24,100,000	5.125%	3,898,331	-		-	-		-
2046	25,335,000	5.125%	2,663,206	-		-	-		-
2047	26,630,000	5.125%	1,364,788	-		-	-		-
Total	\$245,590,000		\$372,475,129	\$43,358,599		\$88,970,726	\$18,735,000		\$3,426,507

31,851,566 Amount for Capital

Appendix B

General Obligation Bonds, Series of 2013 Sources and Uses of Funds

	2013A Bonds and 2013B Bonds		
Sources of Funds			
Par Amount of the 2013 Bonds	\$288,948,598.90	\$18,735,000.00	\$307,683,598.90
Net Original Issue Discount	(10,923,457.80)	0.00	(10,923,457.80)
Total	<u>\$278,025,141.10</u>	<u>\$18,735,000.00</u>	<u>\$296,760,141.10</u>
Uses of Funds			
Up-Front Lease Payment	\$211,332,217.56	\$0.00	\$211,332,217.56
Deposit to Capital Improvement Fund	31,850,565.74	0.00	31,850,565.74
Deposit to Debt Service Reserve Fund	26,379,843.25	1,710,430.04	28,090,273.29
Deposit to 2013A Capitalizaed Interest Account	3,450,000.00	0.00	3,450,000.00
Deposit ot Operations and Maintenance Reserve Fund	0.00	9,199,515.00	9,199,515.00
Deposit to Major Maintenance Reserve Fund	0.00	7,500,000.00	7,500,000.00
Cost of Issuance	5,012,514.55	325,054.96	5,337,569.51
Total	<u>\$278,025,141.10</u>	<u>\$18,735,000.00</u>	<u>\$296,760,141.10</u>

Exhibit B

Post-Concession Capital Cost Recovery Fees (both Capacity Part and Collection Part) for the Lehigh County Authority – City Division wastewater system.

Summary of Recommended Fees:

Please refer to the attached report prepared by Keystone Alliance Consulting, Inc., which provides details on the calculation of these capital cost recovery fees in accordance with applicable law.

	<u>Current Fee</u>	<u>New Fee (per gallon)</u>
Capacity Part	\$0.01538	\$0.02517
Distribution Part	\$0.00052	\$0.00091
Total	\$0.01590	\$0.02608

The recommended fees listed above reflect capital costs incurred through 2017 and are in addition to other tapping fees that have been established by the City of Allentown, as well as customer facilities fees and connection fees established by Lehigh County Authority. All current and applicable tapping fees are published in the Authority's Schedule of Wastewater Rates and Charges.



Lehigh County Authority

LEHIGH COUNTY AUTHORITY

SEWER SYSTEM TAPPING FEE CALCULATION FOR ALLENTOWN DIVISION

JANUARY 2018

Keystone Alliance Consulting, Inc.



**LEHIGH COUNTY AUTHORITY – CITY DIVISION
SEWER SYSTEM TAPPING FEE CALCULATION**

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Exhibit 1 – Calculation of Sewer Tapping Fee
Exhibit 2 – Capacity System Assets
Exhibit 3 – Collection System Assets
Exhibit 4A – Debt Service Summary – Calculation of Financing Costs
Exhibit 4B – Debt Service Summary – Summary of Interest Paid
Exhibit 4C – Debt Service Summary – Outstanding Principal

APPENDICES

Appendix A – 2013 General Obligation Bonds Debt Service Schedule
Appendix B – 2013 General Obligation Bonds Sources and Uses of Funds

**LEHIGH COUNTY AUTHORITY – CITY DIVISION
SEWER SYSTEM TAPPING FEE CALCULATION****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”) working as an operating agent for the City of Allentown (the City) to recover specific capital costs. In the case of this calculation the costs in question have been incurred since 2013 when the Authority took over operations of the City’s water system and are in addition to the tapping fee already in place for the City. 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 fee for the City of Allentown, the only pertinent parts are capacity and 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 below 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.

TABLE 1
TAPPING FEE COMPONENTS

1. Connection Fee	Refer to LCA Fee Schedule
2. Customer Facilities Fee	Refer to LCA Fee Schedule
3. Tapping Fee – Per Gallon	
Capacity Part	\$0.02517
Collection Part	<u>0.00091</u>
TOTAL	\$0.02608

**LEHIGH COUNTY AUTHORITY – CITY DIVISION
SEWER SYSTEM TAPPING FEE CALCULATION**

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 – CITY DIVISION
SEWER SYSTEM TAPPING FEE CALCULATION**

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 – CITY DIVISION
SEWER SYSTEM TAPPING FEE CALCULATION**

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 Allentown system. 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 sewer systems, the capacity is generally determined by the permitted capacity of the treatment facility. For the Allentown system, this is 40,000,000 gallons per day. The resultant is the tapping fee per gallon.

The tapping fee calculation under the original cost and the trended original cost methodologies is presented in Exhibit No. 1. The tapping fee per is disaggregated between the capacity and collection part of the sewer system.

Some of the capital costs incurred by the Authority have been reimbursed by the City. 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. A summary of contributed costs is shown in Exhibit No. 4.

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. A Debt Service Summary is detailed in Exhibits No. 5A, 5B and 5C.

The charge per gallon for the collection and capacity parts are compared in Table 2 below under both capital cost methodologies. The Authority is permitted under the Act to choose the methodology that produces the highest tapping fee, which in this case is the original cost approach.

TABLE 2
COMPARISON OF TAPPING FEES

<u>COMPONENT</u>	<u>ORIGINAL COST</u>	<u>TRENDED ORIG COST</u>
Capacity Per Gallon	\$0.02517	\$0.01688
Collection Per Gallon	\$0.00091	\$0.00060
Total Per Gallon	\$0.02608	\$0.01747

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 fee. 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.

SCHEDULE A -LCA'S ALLENTOWN DIVISION SEWER CAPITAL RECOVERY FEES - 1/1/2018

Exhibit No. 1

Lehigh County Authority - City Division

Lehigh County, Pennsylvania

Calculation of Sewer Tapping Fee

A. <u>Capacity Part</u>	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
Capital Expenditures	2	\$8,352,562	\$8,869,422
Less: Contributions		147,108	149,030
Net Capital		\$8,205,454	\$8,720,391
Financing Costs for Capacity Part	4A	150,652	160,106
Total Cost of Capacity Part		\$8,356,106	\$8,880,498
Plus: Interest Paid On Debt	4B	\$855,987	-
Less: Outstanding Debt	4C	8,205,454	8,205,454
Eligible Cost for Capacity Part		\$1,006,639	\$675,044
Total Capacity		40,000,000	40,000,000
Capacity Tapping Fee per Gallon		\$0.02517	\$0.01688
B. <u>Collection Part</u>			
Capital Expenditures	3	\$316,738	\$334,502
Less: Contributions		-	-
Net Capital		\$316,738	\$334,502
Financing Costs for Capacity Part	4A	5,815	6,141
Total Cost of Collection Part		\$322,553	\$340,643
Plus: Interest Paid On Debt	4B	\$30,707	-
Less: Outstanding Debt	4C	316,738	316,738
Eligible Cost for Collection Part		\$36,522	\$23,905
Total Capacity		40,000,000	40,000,000
Collection Tapping Fee per Gallon		\$0.00091	\$0.00060
Total Tapping Fee per Gallon		\$0.02608	\$0.01747

SCHEDULE A -LCA'S ALLENTOWN DIVISION SEWER CAPITAL RECOVERY FEES - 1/1/2018

**Exhibit No. 1 - Additional
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Calculation of Sewer Tapping Fee
By Project Segment**

	<u>Exhibit Reference</u>	<u>Original Cost</u>	<u>Trended Cost</u>
A. <u>Capacity Part</u>			
Capital Expenditures			
CAC-S-WWTP-GENERAL IMPROVEMENT	2	\$515,582	\$549,973
CAC-S-WWTP-MOTOR CONTROL CENT	2	2,138,410	2,318,448
CAC-S-WWTP BELT FILT PRESS REBUILD	2	1,637,537	1,804,962
CAC-S-WWTP-DIGESTER COVER REPL	2	2,902,011	3,000,347
CAC-S-WWTP ODOR CONTROL TOWER	2	488,151	514,645
CAC-S-WWTP ALT DISENFECT STUDY	2	6,697	7,039
CAC-S-VARIOUS WW SYST STUDIES	2	15,784	16,208
CAC-S-WWTP-ELEC SUBSTATIONS	2	160,462	163,489
CAC-S-WWTP-INTERM BLENDING	2	200	211
CAC-S-WWTP CLARIFIER MECH IMP	2	487,727	494,101
		<u>\$8,352,562</u>	<u>\$8,869,422</u>
Less: Contributions			
CAC-S-WWTP-GENERAL IMPROVEMENT		\$0	\$0
CAC-S-WWTP-MOTOR CONTROL CENT		-	-
CAC-S-WWTP BELT FILT PRESS REBUILD		-	-
CAC-S-WWTP-DIGESTER COVER REPL		-	-
CAC-S-WWTP ODOR CONTROL TOWER		-	-
CAC-S-WWTP ALT DISENFECT STUDY		195	197
CAC-S-VARIOUS WW SYST STUDIES		10,228	10,362
CAC-S-WWTP-ELEC SUBSTATIONS		136,685	138,471
CAC-S-WWTP-INTERM BLENDING		-	-
CAC-S-WWTP CLARIFIER MECH IMP		-	-
		<u>\$147,108</u>	<u>\$149,030</u>
Net Capital			
CAC-S-WWTP-GENERAL IMPROVEMENT		\$515,582	\$549,973
CAC-S-WWTP-MOTOR CONTROL CENT		2,138,410	2,318,448
CAC-S-WWTP BELT FILT PRESS REBUILD		1,637,537	1,804,962
CAC-S-WWTP-DIGESTER COVER REPL		2,902,011	3,000,347
CAC-S-WWTP ODOR CONTROL TOWER		488,151	514,645
CAC-S-WWTP ALT DISENFECT STUDY		6,503	6,842
CAC-S-VARIOUS WW SYST STUDIES		5,556	5,846
CAC-S-WWTP-ELEC SUBSTATIONS		23,777	25,017
CAC-S-WWTP-INTERM BLENDING		200	211
CAC-S-WWTP CLARIFIER MECH IMP		487,727	494,101
		<u>\$8,205,454</u>	<u>\$8,720,391</u>

Financing Costs for Capacity Part

CAC-S-WWTP-GENERAL IMPROVEMENT	4A	\$9,466	\$10,098
CAC-S-WWTP-MOTOR CONTROL CENT	4A	39,261	42,567
CAC-S-WWTP BELT FILT PRESS REBUILD	4A	30,065	33,139
CAC-S-WWTP-DIGESTER COVER REPL	4A	53,281	55,086
CAC-S-WWTP ODOR CONTROL TOWER	4A	8,962	9,449
CAC-S-WWTP ALT DISENFECTION STUDY	4A	119	126
CAC-S-VARIOUS WW SYST STUDIES	4A	102	107
CAC-S-WWTP-ELEC SUBSTATIONS	4A	437	459
CAC-S-WWTP-INTERM BLENDING	4A	4	4
CAC-S-WWTP CLARIFIER MECH IMP	4A	8,955	9,072
		<u>\$150,652</u>	<u>\$160,106</u>

Total Cost of Capacity Part

CAC-S-WWTP-GENERAL IMPROVEMENT		\$525,049	\$560,070
CAC-S-WWTP-MOTOR CONTROL CENT		2,177,671	2,361,015
CAC-S-WWTP BELT FILT PRESS REBUILD		1,667,602	1,838,101
CAC-S-WWTP-DIGESTER COVER REPL		2,955,292	3,055,433
CAC-S-WWTP ODOR CONTROL TOWER		497,113	524,094
CAC-S-WWTP ALT DISENFECTION STUDY		6,622	6,968
CAC-S-VARIOUS WW SYST STUDIES		5,658	5,953
CAC-S-WWTP-ELEC SUBSTATIONS		24,214	25,477
CAC-S-WWTP-INTERM BLENDING		204	215
CAC-S-WWTP CLARIFIER MECH IMP		496,682	503,172
		<u>\$8,356,106</u>	<u>\$8,880,498</u>

Plus: Interest Paid On Debt

CAC-S-WWTP-GENERAL IMPROVEMENT	4B	\$57,502	
CAC-S-WWTP-MOTOR CONTROL CENT	4B	277,622	
CAC-S-WWTP BELT FILT PRESS REBUILD	4B	261,351	
CAC-S-WWTP-DIGESTER COVER REPL	4B	192,177	
CAC-S-WWTP ODOR CONTROL TOWER	4B	43,305	
CAC-S-WWTP ALT DISENFECTION STUDY	4B	558	
CAC-S-VARIOUS WW SYST STUDIES	4B	477	
CAC-S-WWTP-ELEC SUBSTATIONS	4B	2,041	
CAC-S-WWTP-INTERM BLENDING	4B	17	
CAC-S-WWTP CLARIFIER MECH IMP	4B	20,936	
		<u>\$855,987</u>	-

Less: Outstanding Debt

CAC-S-WWTP-GENERAL IMPROVEMENT	4C	\$515,582	\$515,582
CAC-S-WWTP-MOTOR CONTROL CENT	4C	2,138,410	2,138,410
CAC-S-WWTP BELT FILT PRESS REBUILD	4C	1,637,537	1,637,537
CAC-S-WWTP-DIGESTER COVER REPL	4C	2,902,011	2,902,011
CAC-S-WWTP ODOR CONTROL TOWER	4C	488,151	488,151
CAC-S-WWTP ALT DISENFECTION STUDY	4C	6,503	6,503
CAC-S-VARIOUS WW SYST STUDIES	4C	5,556	5,556
CAC-S-WWTP-ELEC SUBSTATIONS	4C	23,777	23,777
CAC-S-WWTP-INTERM BLENDING	4C	200	200
CAC-S-WWTP CLARIFIER MECH IMP	4C	487,727	487,727
		<u>\$8,205,454</u>	<u>\$8,205,454</u>

Eligible Cost for Capacity Part

CAC-S-WWTP-GENERAL IMPROVEMENT	\$66,968	\$44,488
CAC-S-WWTP-MOTOR CONTROL CENT	316,883	222,605
CAC-S-WWTP BELT FILT PRESS REBUILD	291,416	200,564
CAC-S-WWTP-DIGESTER COVER REPL	245,458	153,423
CAC-S-WWTP ODOR CONTROL TOWER	52,268	35,943
CAC-S-WWTP ALT DISENFECT STUDY	678	465
CAC-S-VARIOUS WW SYST STUDIES	579	397
CAC-S-WWTP-ELEC SUBSTATIONS	2,478	1,699
CAC-S-WWTP-INTERM BLENDING	21	14
CAC-S-WWTP CLARIFIER MECH IMP	29,891	15,445
	<u>\$1,006,639</u>	<u>\$675,044</u>

Total Capacity

40,000,000 40,000,000

Capacity Tapping Fee per Gallon

CAC-S-WWTP-GENERAL IMPROVEMENT	\$0.00167	\$0.00111
CAC-S-WWTP-MOTOR CONTROL CENT	0.00792	0.00557
CAC-S-WWTP BELT FILT PRESS REBUILD	0.00729	0.00501
CAC-S-WWTP-DIGESTER COVER REPL	0.00614	0.00384
CAC-S-WWTP ODOR CONTROL TOWER	0.00131	0.00090
CAC-S-WWTP ALT DISENFECT STUDY	0.00002	0.00001
CAC-S-VARIOUS WW SYST STUDIES	0.00001	0.00001
CAC-S-WWTP-ELEC SUBSTATIONS	0.00006	0.00004
CAC-S-WWTP-INTERM BLENDING	0.00000	0.00000
CAC-S-WWTP CLARIFIER MECH IMP	0.00075	0.00039
	<u>\$0.02517</u>	<u>\$0.01688</u>

B. Collection Part

Capital Expenditures

CAC-S-SEWER MAIN REPLACEMENT	3	<u>\$316,738</u>	<u>\$334,502</u>
		\$316,738	\$334,502
Less: Contributions			
CAC-S-SEWER MAIN REPLACEMENT	4	<u>\$0</u>	<u>\$0</u>
		\$0	\$0
Net Capital			
CAC-S-SEWER MAIN REPLACEMENT		<u>\$316,738</u>	<u>\$334,502</u>
		\$316,738	\$334,502
Financing Costs for Capacity Part			
CAC-S-SEWER MAIN REPLACEMENT	5A	<u>\$5,815</u>	<u>\$6,141</u>
		\$5,815	\$6,141
Total Cost of Collection Part			
CAC-S-SEWER MAIN REPLACEMENT		<u>\$322,553</u>	<u>\$340,643</u>
		\$322,553	\$340,643
Plus: Interest Paid On Debt			
CAC-S-SEWER MAIN REPLACEMENT	5B	<u>\$30,707</u>	
		\$30,707	-
Less: Outstanding Debt			
CAC-S-SEWER MAIN REPLACEMENT	5C	<u>\$316,738</u>	<u>\$316,738</u>
		\$316,738	\$316,738
Eligible Cost for Collection Part			
CAC-S-SEWER MAIN REPLACEMENT		<u>\$36,522</u>	<u>\$23,905</u>
		\$36,522	\$23,905
Total Capacity		40,000,000	40,000,000
Collection Tapping Fee per Gallon			
CAC-S-SEWER MAIN REPLACEMENT		<u>\$0.00091</u>	<u>\$0.00060</u>
		\$0.00091	\$0.00060

Exhibit No. 2
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Capacity Assets

Expenditure	Year Placed in Service	Original Cost	Cost Index		Trended Current Replacement Cost
			Original	Current	
CAC-S-WWTP-GENERAL IMPROVEMENT	2013	\$58	9547	10878	\$66
CAC-S-WWTP-MOTOR CONTROL CENT	2013	9,578	9547	10878	10,914
CAC-S-WWTP BELT FILT PRESS REBUILD	2013	4,670	9547	10878	5,322
CAC-S-WWTP-DIGESTER COVER REPL	2013	259	9547	10878	295
CAC-S-WWTP-GENERAL IMPROVEMENT	2014	164,129	9806	10878	182,075
CAC-S-WWTP-MOTOR CONTROL CENT	2014	196,099	9806	10878	217,541
CAC-S-WWTP BELT FILT PRESS REBUILD	2014	1,169,843	9806	10878	1,297,755
CAC-S-WWTP-DIGESTER COVER REPL	2014	16,720	9806	10878	18,548
CAC-S-WWTP-GENERAL IMPROVEMENT	2015	151,920	10036	10878	164,672
CAC-S-WWTP-MOTOR CONTROL CENT	2015	1,776,337	10036	10878	1,925,441
CAC-S-WWTP BELT FILT PRESS REBUILD	2015	462,908	10036	10878	501,764
CAC-S-WWTP-DIGESTER COVER REPL	2015	109,250	10036	10878	118,420
CAC-S-WWTP ODOR CONTROL TOWER	2015	32,552	10036	10878	35,285
CAC-S-WWTP-GENERAL IMPROVEMENT	2016	27,568	10339	10878	29,006
CAC-S-WWTP-MOTOR CONTROL CENT	2016	156,396	10339	10878	164,553
CAC-S-WWTP BELT FILT PRESS REBUILD	2016	116	10339	10878	122
CAC-S-WWTP-DIGESTER COVER REPL	2016	1,305,478	10339	10878	1,373,565
CAC-S-WWTP ODOR CONTROL TOWER	2016	455,598	10339	10878	479,360
CAC-S-WWTP ALT DISENFECT STUDY	2016	6,503	10339	10878	6,842
CAC-S-VARIOUS WW SYST STUDIES	2016	5,556	10339	10878	5,846
CAC-S-WWTP-ELEC SUBSTATIONS	2016	23,777	10339	10878	25,017
CAC-S-WWTP-INTERM BLENDING	2016	200	10339	10878	211
CAC-S-WWTP-GENERAL IMPROVEMENT	2017	171,908	10738	10878	174,154
CAC-S-WWTP-MOTOR CONTROL CENT	2017	-	10738	10878	-
CAC-S-WWTP BELT FILT PRESS REBUILD	2017	-	10738	10878	-
CAC-S-WWTP-DIGESTER COVER REPL	2017	1,470,305	10738	10878	1,489,519
CAC-S-WWTP ODOR CONTROL TOWER	2017	-	10738	10878	-
CAC-S-WWTP ALT DISENFECT STUDY	2017	195	10738	10878	197
CAC-S-VARIOUS WW SYST STUDIES	2017	10,228	10738	10878	10,362
CAC-S-WWTP-ELEC SUBSTATIONS	2017	136,685	10738	10878	138,471
CAC-S-WWTP-INTERM BLENDING	2017	-	10738	10878	-
CAC-S-WWTP CLARIFIER MECH IMP	2017	487,727	10738	10878	494,101
		\$8,352,562			\$8,869,422

Exhibit No. 3
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Collection Assets

Expenditure	Year Placed in Service	Original Cost	Cost Index		Trended Current Replacement Cost
			Original	Current	
CAC-S-SEWER MAIN REPLACEMENT	2013	\$-	9547	10878	\$-
CAC-S-SEWER MAIN REPLACEMENT	2014	72,415	9806	10878	80,332
CAC-S-SEWER MAIN REPLACEMENT	2015	59,696	10036	10878	64,707
CAC-S-SEWER MAIN REPLACEMENT	2016	61,974	10339	10878	65,206
CAC-S-SEWER MAIN REPLACEMENT	2017	122,653	10738	10878	124,256
		\$316,738			\$334,502

Exhibit No. 4A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

			<u>Cost of Issuance</u>	<u>Additional Cost Per \$1 of Capital For Issuance Costs</u>
Uses of Financed Funds				
Up-Front Lease Payment	\$211,332,218	77.41%	\$3,880,062	0.01836
Deposit to Capital Improvement Fund	31,850,566	11.67%	584,777	
Deposit to Debt Service Reserve Fund	26,379,843	9.66%	484,334	
Deposit to 2013A Capitalized Interest Account	3,450,000	1.26%	63,342	
Cost of Issuance	5,012,515			
TOTAL	<u>\$278,025,141</u>			

For every \$1 of Eligible Capital 0.01836 should be added in issuance costs.
be added in issuance costs.

Exhibit No. 4A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

Capacity				Additional		Trended
			Associated			Current
	Expenditure	Year Placed in Service	Original Cost	Original Cost	Cost Index Original Current	Replacement Cost
CAC-S-WWTP-GENERAL IMPROVEMENT	2013	\$58	\$1	9547	10878	\$1
CAC-S-WWTP-MOTOR CONTROL CENT	2013	9,578	176	9547	10878	200
CAC-S-WWTP BELT FILT PRESS REBUILD	2013	4,670	86	9547	10878	98
CAC-S-WWTP-DIGESTER COVER REPL	2013	259	5	9547	10878	5
CAC-S-WWTP-GENERAL IMPROVEMENT	2014	\$164,129	\$3,013	9806	10878	\$3,343
CAC-S-WWTP-MOTOR CONTROL CENT	2014	196,099	3,600	9806	10878	3,994
CAC-S-WWTP BELT FILT PRESS REBUILD	2014	1,169,843	21,478	9806	10878	23,827
CAC-S-WWTP-DIGESTER COVER REPL	2014	16,720	307	9806	10878	341
CAC-S-WWTP-GENERAL IMPROVEMENT	2015	\$151,920	\$2,789	10036	10878	\$3,023
CAC-S-WWTP-MOTOR CONTROL CENT	2015	1,776,337	32,614	10036	10878	35,351
CAC-S-WWTP BELT FILT PRESS REBUILD	2015	462,908	8,499	10036	10878	9,212
CAC-S-WWTP-DIGESTER COVER REPL	2015	109,250	2,006	10036	10878	2,174
CAC-S-WWTP ODOR CONTROL TOWER	2015	32,552	598	10036	10878	648
CAC-S-WWTP-GENERAL IMPROVEMENT	2016	\$27,568	\$506	10339	10878	\$533
CAC-S-WWTP-MOTOR CONTROL CENT	2016	156,396	2,871	10339	10878	3,021
CAC-S-WWTP BELT FILT PRESS REBUILD	2016	116	2	10339	10878	2
CAC-S-WWTP-DIGESTER COVER REPL	2016	1,305,478	23,969	10339	10878	25,219
CAC-S-WWTP ODOR CONTROL TOWER	2016	455,598	8,365	10339	10878	8,801
CAC-S-WWTP ALT DISENFECT STUDY	2016	6,503	119	10339	10878	126
CAC-S-VARIOUS WW SYST STUDIES	2016	5,556	102	10339	10878	107
CAC-S-WWTP-ELEC SUBSTATIONS	2016	23,777	437	10339	10878	459
CAC-S-WWTP-INTERM BLENDING	2016	200	4	10339	10878	4
CAC-S-WWTP-GENERAL IMPROVEMENT	2017	\$171,908	\$3,156	10738	10878	\$3,197
CAC-S-WWTP-MOTOR CONTROL CENT	2017	-	-	10738	10878	-
CAC-S-WWTP BELT FILT PRESS REBUILD	2017	-	-	10738	10878	-
CAC-S-WWTP-DIGESTER COVER REPL	2017	1,470,305	26,995	10738	10878	27,348
CAC-S-WWTP ODOR CONTROL TOWER	2017	-	-	10738	10878	-
CAC-S-WWTP ALT DISENFECT STUDY						
CAC-S-VARIOUS WW SYST STUDIES						
CAC-S-WWTP-ELEC SUBSTATIONS						
CAC-S-WWTP-INTERM BLENDING	2017	-	-	10738	10878	-
CAC-S-WWTP CLARIFIER MECH IMP	2017	487,727	8,955	10738	10878	9,072

Exhibit No. 4A
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Calculation of Financing Costs

Collection	Expenditure	Year Placed in Service	Original Cost	Associated Issuance Original Cost	Additional		Trended Current Replacement Cost
					Cost Index Original	Current	
	CAC-S-SEWER MAIN REPLACEMENT	2013	\$-	\$-	9547	10878	\$-
	CAC-S-SEWER MAIN REPLACEMENT	2014	\$72,415	\$1,330	9806	10878	\$1,475
	CAC-S-SEWER MAIN REPLACEMENT	2015	\$59,696	\$1,096	10036	10878	\$1,188
	CAC-S-SEWER MAIN REPLACEMENT	2016	\$61,974	\$1,138	10339	10878	\$1,197
	CAC-S-SEWER MAIN REPLACEMENT	2017	\$122,653	\$2,252	10738	10878	\$2,281
				<u>\$5,815</u>			<u>\$6,141</u>

Exhibit No. 4B
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Summary of Interest Paid

Capacity	Expenditure	Year Placed in Service	Original Cost	Interest Paid To Date
	CAC-S-WWTP-GENERAL IMPROVEMENT	2013	\$58	\$11
	CAC-S-WWTP-MOTOR CONTROL CENT	2013	9,578	1,775
	CAC-S-WWTP BELT FILT PRESS REBUILD	2013	4,670	865
	CAC-S-WWTP-DIGESTER COVER REPL	2013	259	48
	CAC-S-WWTP-GENERAL IMPROVEMENT	2014	\$164,129	\$28,181
	CAC-S-WWTP-MOTOR CONTROL CENT	2014	196,099	33,671
	CAC-S-WWTP BELT FILT PRESS REBUILD	2014	1,169,843	200,864
	CAC-S-WWTP-DIGESTER COVER REPL	2014	16,720	2,871
	CAC-S-WWTP-GENERAL IMPROVEMENT	2015	\$151,920	\$19,564
	CAC-S-WWTP-MOTOR CONTROL CENT	2015	1,776,337	228,750
	CAC-S-WWTP BELT FILT PRESS REBUILD	2015	462,908	59,612
	CAC-S-WWTP-DIGESTER COVER REPL	2015	109,250	14,069
	CAC-S-WWTP ODOR CONTROL TOWER	2015	32,552	4,192
	CAC-S-WWTP-GENERAL IMPROVEMENT	2016	\$27,568	\$2,367
	CAC-S-WWTP-MOTOR CONTROL CENT	2016	156,396	13,427
	CAC-S-WWTP BELT FILT PRESS REBUILD	2016	116	10
	CAC-S-WWTP-DIGESTER COVER REPL	2016	1,305,478	112,076
	CAC-S-WWTP ODOR CONTROL TOWER	2016	455,598	39,114
	CAC-S-WWTP ALT DISENFECT STUDY	2016	6,503	558
	CAC-S-VARIOUS WW SYST STUDIES	2016	5,556	477
	CAC-S-WWTP-ELEC SUBSTATIONS	2016	23,777	2,041
	CAC-S-WWTP-INTERM BLENDING	2016	200	17
	CAC-S-WWTP-GENERAL IMPROVEMENT	2017	\$171,908	\$7,379
	CAC-S-WWTP-MOTOR CONTROL CENT	2017	-	-
	CAC-S-WWTP BELT FILT PRESS REBUILD	2017	-	-
	CAC-S-WWTP-DIGESTER COVER REPL	2017	1,470,305	63,113
	CAC-S-WWTP ODOR CONTROL TOWER	2017	-	-
	CAC-S-WWTP ALT DISENFECT STUDY			
	CAC-S-VARIOUS WW SYST STUDIES			
	CAC-S-WWTP-ELEC SUBSTATIONS			
	CAC-S-WWTP-INTERM BLENDING	2017	-	-
	CAC-S-WWTP CLARIFIER MECH IMP	2017	487,727	20,936
				\$855,987

Exhibit No. 4B
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Summary of Interest Paid

Collection			
	Expenditure	Year Placed in Service	Original Cost
	CAC-S-SEWER MAIN REPLACEMENT	2013	\$-
	CAC-S-SEWER MAIN REPLACEMENT	2014	\$72,415
	CAC-S-SEWER MAIN REPLACEMENT	2015	\$59,696
	CAC-S-SEWER MAIN REPLACEMENT	2016	\$61,974
	CAC-S-SEWER MAIN REPLACEMENT	2017	\$122,653
			<u>\$30,707</u>

Exhibit No. 4C
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Outstanding Principal

Capacity	Expenditure	Year Placed in Service	Financed Amount	Payments To Date	Outstanding Principal
	CAC-S-WWTP-GENERAL IMPROVEMENT	2013	\$58	\$-	\$58
	CAC-S-WWTP-MOTOR CONTROL CENT	2013	9,578	-	9,578
	CAC-S-WWTP BELT FILT PRESS REBUILD	2013	4,670	-	4,670
	CAC-S-WWTP-DIGESTER COVER REPL	2013	259	-	259
	CAC-S-WWTP-GENERAL IMPROVEMENT	2014	\$164,129	\$-	\$164,129
	CAC-S-WWTP-MOTOR CONTROL CENT	2014	196,099	-	196,099
	CAC-S-WWTP BELT FILT PRESS REBUILD	2014	1,169,843	-	1,169,843
	CAC-S-WWTP-DIGESTER COVER REPL	2014	16,720	-	16,720
	CAC-S-WWTP-GENERAL IMPROVEMENT	2015	\$151,920	\$-	\$151,920
	CAC-S-WWTP-MOTOR CONTROL CENT	2015	1,776,337	-	1,776,337
	CAC-S-WWTP BELT FILT PRESS REBUILD	2015	462,908	-	462,908
	CAC-S-WWTP-DIGESTER COVER REPL	2015	109,250	-	109,250
	CAC-S-WWTP ODOR CONTROL TOWER	2015	32,552	-	32,552
	CAC-S-WWTP-GENERAL IMPROVEMENT	2016	\$27,568	\$-	\$27,568
	CAC-S-WWTP-MOTOR CONTROL CENT	2016	156,396	-	156,396
	CAC-S-WWTP BELT FILT PRESS REBUILD	2016	116	-	116
	CAC-S-WWTP-DIGESTER COVER REPL	2016	1,305,478	-	1,305,478
	CAC-S-WWTP ODOR CONTROL TOWER	2016	455,598	-	455,598
	CAC-S-WWTP ALT DISENFECT STUDY	2016	6,503	-	6,503
	CAC-S-VARIOUS WW SYST STUDIES	2016	5,556	-	5,556
	CAC-S-WWTP-ELEC SUBSTATIONS	2016	23,777	-	23,777
	CAC-S-WWTP-INTERM BLENDING	2016	200	-	200
	CAC-S-WWTP-GENERAL IMPROVEMENT	2017	\$171,908	\$-	\$171,908
	CAC-S-WWTP-MOTOR CONTROL CENT	2017	-	-	-
	CAC-S-WWTP BELT FILT PRESS REBUILD	2017	-	-	-
	CAC-S-WWTP-DIGESTER COVER REPL	2017	1,470,305	-	1,470,305
	CAC-S-WWTP ODOR CONTROL TOWER	2017	-	-	-
	CAC-S-WWTP ALT DISENFECT STUDY				
	CAC-S-VARIOUS WW SYST STUDIES				
	CAC-S-WWTP-ELEC SUBSTATIONS				
	CAC-S-WWTP-INTERM BLENDING	2017	-	-	-
	CAC-S-WWTP CLARIFIER MECH IMP	2017	487,727	-	487,727
					<u>\$8,205,454</u>

Exhibit No. 4C
Lehigh County Authority - City Division
Lehigh County, Pennsylvania
Debt Summary - Outstanding Principal

Collection	Expenditure	Year Placed in Service	Financed Amount	Payments To Date	Outstanding Principal
	CAC-W-MAIN REPLACEMENTS CYC-1	2013	\$-	\$-	\$-
	CAC-W-MAIN REPLACEMENTS CYC-1	2014	\$72,415	\$-	\$72,415
	CAC-W-MAIN REPLACEMENTS CYC-2	2015	\$59,696	\$-	\$59,696
	CAC-W-MAIN REPLACEMENTS CYC-1	2016	\$61,974	\$-	\$61,974
	CAC-W-MAIN REPLACEMENTS CYC-1	2017	\$122,653	\$-	\$122,653
					<u>\$316,738</u>

Appendix A

General Obligation Bonds, Series of 2013 Debt Service Schedule

Fiscal Year	2013A Bonds			2013B Bonds			2013C Bonds		
	Principal	Rate	Interest	Principal	Rate	Interest	Principal	Rate	Interest
2013	\$0		\$3,927,692	\$0		\$0	\$0		\$204,087
2014	-		12,403,238	-		-	-		644,484
2015	-		12,403,238	-		-	-		644,484
2016	-		12,403,238	-		-	-		644,484
2017	-		12,403,238	-		-	-		644,484
2018	-		12,403,238	-		-	18,735,000	3.440%	644,484
2019	-		12,403,238	368,001	3.210%	81,636.99	-		-
2020	-		12,403,238	701,732	3.660%	212,877.92	-		-
2021	-		12,403,238	996,170	4.090%	398,996.52	-		-
2022	-		12,403,238	1,258,697	4.440%	637,820.11	-		-
2023	-		12,403,238	1,493,839	4.690%	919,803.97	-		-
2024	-		12,403,238	1,693,404	4.950%	1,258,559.11	-		-
2025	-		12,403,238	1,868,322	5.150%	1,637,993.77	-		-
2026	-		12,403,238	2,015,021	5.340%	2,067,072.00	-		-
2027	-		12,403,238	2,143,721	5.490%	2,535,276.48	-		-
2028	-		12,403,238	2,249,366	5.630%	3,048,031.12	-		-
2029	-		12,403,238	2,339,586	5.750%	3,602,840.25	-		-
2030	-		12,403,238	2,421,339	5.830%	4,181,901.37	-		-
2031	-		12,403,238	2,492,253	5.900%	4,803,546.95	-		-
2032	-		12,403,238	2,545,451	5.970%	5,464,490.94	-		-
2033	-		12,403,238	2,587,129	6.030%	6,158,603.95	-		-
2034	-		12,403,238	2,801,952	6.080%	7,364,104.15	-		-
2035	3,140,000	5.000%	12,403,238	3,169,798	6.120%	9,158,624.10	-		-
2036	3,365,000	5.000%	12,246,238	3,318,505	6.150%	10,496,257.91	-		-
2037	3,545,000	5.000%	12,077,988	3,454,285	6.180%	11,946,519.07	-		-
2038	4,215,000	5.000%	11,900,738	3,440,030	6.210%	12,995,769.06	-		-
2039	21,685,000	5.000%	11,689,988	-		-	-		-
2040	23,920,000	5.000%	10,605,738	-		-	-		-
2041	26,305,000	5.000%	9,409,738	-		-	-		-
2042	28,855,000	5.000%	8,094,488	-		-	-		-
2043	31,570,000	5.000%	6,651,738	-		-	-		-
2044	22,925,000	5.125%	5,073,238	-		-	-		-
2045	24,100,000	5.125%	3,898,331	-		-	-		-
2046	25,335,000	5.125%	2,663,206	-		-	-		-
2047	26,630,000	5.125%	1,364,788	-		-	-		-
Total	\$245,590,000		\$372,475,129	\$43,358,599		\$88,970,726	\$18,735,000		\$3,426,507

Appendix B

General Obligation Bonds, Series of 2013 Sources and Uses of Funds

	2013A Bonds and 2013B Bonds		
Sources of Funds			
Par Amount of the 2013 Bonds	\$288,948,598.90	\$18,735,000.00	\$307,683,598.90
Net Original Issue Discount	(10,923,457.80)	0.00	(10,923,457.80)
Total	\$278,025,141.10	\$18,735,000.00	\$296,760,141.10
Uses of Funds			
Up-Front Lease Payment	\$211,332,217.56	\$0.00	\$211,332,217.56
Deposit to Capital Improvement Fund	31,850,565.74	0.00	31,850,565.74
Deposit to Debt Service Reserve Fund	26,379,843.25	1,710,430.04	28,090,273.29
Deposit to 2013A Capitalized Interest Account	3,450,000.00	0.00	3,450,000.00
Deposit of Operations and Maintenance Reserve Fund	0.00	9,199,515.00	9,199,515.00
Deposit to Major Maintenance Reserve Fund	0.00	7,500,000.00	7,500,000.00
Cost of Issuance	5,012,514.55	325,054.96	5,337,569.51
Total	\$278,025,141.10	\$18,735,000.00	\$296,760,141.10

MEMORANDUM

Date: July 9, 2018

To: Lehigh County Authority Board of Directors
From: Phil DePoe, Capital Works Program Manager
Subject: Allentown Division: Kline's Island WWTP Electrical Substation Replacements
– Construction Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Construction Phase	\$2,638,500
2	Professional Services Authorization – Keystone Engineering Group (1), (2)	\$136,500
3	Electrical Contract Award (1) – Philips Brothers Electrical Contractors, Inc.	\$2,382,000

- (1) *Included in the Capital Project Authorization*
(2) *Includes bid and construction phase related engineering services*

PROJECT OVERVIEW

The Kline's Island Wastewater Treatment Plant's electrical service is supplied by one of two 12.4 kV power transmission line feeds from the electric utility PP&L. The 12.4 kV transmission lines enter Substation No. 1 and connect to the 12.4 kV switchgear, which distributes the 12.4 kV to the 480V Substation No. 1 and to the 480V Substation No. 2. The 480V Substation No. 1 & 2 distribute the power to various MCC's and loads throughout the WWTP. Substation No. 2 was originally installed in 1977, has reached the end of its useful life, and will be replaced during this project. The 12.4 kV switchgear and Substation No. 1 will be replaced during a later project.

FINANCIAL

The City has reviewed and approved this project as a Major Capital Improvement, thereby allowing the cost to be recovered via a capital cost recovery charge in the LCA Allentown Division.

PROJECT STATUS

The project was advertised for bid on May 4, 2018. A pre-bid meeting was held on May 16, 2018. Bids were received June 8, 2018.

THIS APPROVAL - CONSTRUCTION PHASE

The construction phase includes activities that are necessary to replace the existing Substation No. 2. The Electrical Contractor will be responsible for all construction activities, including but not limited to the following:

- Install new primary feeder cabling from existing electrical Manhole No. 1 to the existing primary switchgear
- Install new primary feeder cabling from existing electrical Manhole No. 1 to the newly replaced Substation No. 2
- Install temporary power poles, temporary generator(s), and a temporary substation as needed

- Coordinate with PP&L when necessary to ensure temporary power is provided via existing transmission lines
- Remove existing Substation No. 2 and replace with new equipment

BIDDING SUMMARY

The projects requires an Electrical Construction (EC) Contract. The bid results are summarized below:

Bidder	Bid Results
BSI Electrical Contractors	\$1,903,000
Philips Brothers Electrical Contractors, Inc.	2,382,000
Joyce Electrical Inc.	2,481,475
Albarell Electric Inc.	3,188,000

During review of the bids, Staff noticed that the bid submitted by BSI Electrical Contractors (BSI) was much lower than the engineer's construction estimate. Staff suspected the price difference was related to a deviation from the engineer's design. Therefore, it was formally requested that BSI provide written documentation to describe the basis for their bid, which proved to be related to their temporary power approach. Upon technical and legal review of all documentation, it was determined that BSI did not meet the design requirements as specified in the contract documents regarding the temporary power. Staff recommends that BSI's bid be rejected due to its unqualified status.

Staff recommends the award of the Electrical Construction contract to the second lowest bidder, Philips Brothers Electrical Contractors, Inc., subject to the receipt of the necessary Performance Bonds, Insurance and other required documentation. LCA staff has reviewed the references and qualifications and experience statement provided by Philips Brothers Electrical Contractors, Inc, and has determined that the contractor is well qualified to complete this project. In fact, the contractor has performed a large electrical project at the KIWWTP in the past.

PROFESSIONAL SERVICES

Keystone Engineering Group has been our design consultant on this project and will provide construction engineering services for the construction of the project. Their work include:

1. Posted bid documents, attend pre-bid meeting, prepared addenda, answered bidder questions
2. Recommended award and prepared contract documents
3. Participate in the preconstruction meeting and attend monthly progress meetings
4. Review shop drawings, provide technical assistance, answer RFIs, process change orders
5. Provide 50 site visits during construction activities and provide QA/QC
6. Collect and review construction schedules and reports
7. Prepare final project close-out and record drawings

PROJECT SCHEDULE

The specifications require the project to be substantially complete by the end of October 2019.

FUTURE AUTHORIZATIONS

No future authorizations are anticipated for this project.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	<u>AD-S-18-1</u>	BUDGET FUND:	<u>Allentown Div\Wastewater\Capital</u>
PROJECT TITLE:	<u>Allentown Division – WWTP Electrical Substation Replacements: Construction Phase</u>		PROJECT TYPE:
THIS AUTHORIZATION:	<u>\$2,638,500</u>	<input checked="" type="checkbox"/>	Construction
TO DATE (W/ ABOVE)	<u>\$2,847,500</u>	<input type="checkbox"/>	Engineering Study
		<input type="checkbox"/>	Equipment Purchase
		<input checked="" type="checkbox"/>	Amendment No. 1

DESCRIPTION AND BENEFITS:

The Kline's Island Wastewater Treatment Plant's electrical service is supplied by one of two 12.4 kV power transmission line feeds from the electric utility PP&L. The 12.4 kV transmission lines enter Substation No. 1 and connect to the 12.4 kV switchgear, which distributes the 12.4 kV to the 480V Substation No. 1 and to the 480V Substation No. 2. The 480V Substation No. 1 & 2 distribute the power to various MCC's and loads throughout the WWTP. Substation No. 2 was originally installed in 1977, has reached the end of its useful life, and will be replaced during this project. The 12.4 kV switchgear and Substation No. 1 will be replaced during a later project.

Notice to Proceed shall be given in August 2018 and substantial project completion is expected by October 2019.

Please see attached Board Memo for further project details.

Authorization Status:

Prior Authorizations	
Conceptual/Design Phase	\$209,000

Requested This Authorization	
Construction Phase	
Staff	\$100,000
Engineering Consultant	136,500
Electrical Contractor	2,382,000
Contingencies	20,000
Total This Authorization	\$2,638,500

Future Authorizations	
None	\$0

Total Estimated Project
\$2,847,500

REVIEW AND APPROVALS:

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



Lehigh County Authority

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

**PROFESSIONAL SERVICES AUTHORIZATION
AMENDMENT NO. 2**

Professional: KEYSTONE ENGINEERING GROUP
590 East Lancaster Avenue
Malvern, PA 19355

Date: July 9, 2018

Requested By: Phil DePoe

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division – WWTP: Kline’s Island Electrical Substation Replacements – Bidding and Construction Phase

Keystone Engineering Group has performed the bidding phase services and will perform the construction phase related services for the replacement of the existing electrical Substation No. 2 at the City of Allentown’s Wastewater Treatment Plant (WWTP).

This Authorization: Bidding and Construction Phase

Professional Services Authorization: *\$136,500 (\$15,000 for bid; \$121,500 for construction)*

Professional Services ⁽¹⁾
1. Posted bid documents, attend pre-bid meeting, prepared addenda, answered bidder questions
2. Recommended award and prepared contract documents
3. Participate in the preconstruction meeting and attend monthly progress meetings
4. Review shop drawings, provide technical assistance, answer RFIs, process change orders
5. Provide 50 site visits during construction activities and provide QA/QC
6. Collect and review construction schedules and reports
7. Prepare final project close-out and record drawings

(1) For Bidding and Construction Phase Only.

Please reference the cover Memo for additional information.

Conceptual Design Phase

Previous authorizations: *\$20,500*

Design Phase

Previous authorizations: *\$189,000*

Total

Not to be exceeded without further authorization: *\$346,000*

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

(For Authority Use Only)

Authorization Completion:

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

MEMORANDUM

Date: July 9, 2018

To: Lehigh County Authority Board of Directors
From: Phil DePoe, Capital Works Program Manager
Subject: Allentown Division – WWTP: Primary No. 2 Cleaning - Construction Phase
CHANGE ORDER #1

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Construction Phase <u>Amendment No. 1:</u> Denali – Construction phase change order	\$95,173

PROJECT OVERVIEW:

During the recent Digester Cover Replacement Project, both the Secondary and Primary No. 1 Digester were cleaned by a contractor prior to their covers being removed and replaced. As the cleaning of these digester tanks are typically performed on a 5-year cycle at the WWTP, Primary Digester No. 2 was due for a cleaning in 2018. This work was performed by an outside contractor as well.

CHANGE ORDER SUMMARY:

This construction phase change order requested by the general contractor (Denali) is to capture the additional dry tons of sludge removed during the recent cleaning of the Primary No. 2 Digester. The bid documents estimated the dry tons of residual sludge to be removed at 165, paid on a unit price basis. This estimate was based on the dry tons of sludge recently removed from the Primary No. 1 Digester, which proved to not be representative of the Primary No. 2 Digester. During the actual cleaning, 360 dry tons of residual sludge were removed from the Primary No. 2 Digester. The additional quantity will be paid at the unit price per the contract. The project is complete and the change order will close out the payments to the contractor.

The numerous recent capital projects (Power Zone House Construction, Belt Filter Press Rehabilitation, Secondary Digester Cover Replacement, and Primary No. 1. Digester Replacement) entailed transfers of sludge involving this tank, which created uncertainties regarding the actual volume of residual dry tons requiring removal during bid document preparation. Upon cleaning of the tank, it was apparent the true total amount of dry tons need to be removed was underestimated.

It is important to note that the unit price used for the Primary No 1. Digester cleaning was \$958/dry ton. The total contract price to clean Primary No. 1 Digester was \$149,720. The unit price provided by Denali to clean Primary No. 2 Digester was \$488/dry ton. The total contract price to clean Primary No. 2 Digester is \$199,443 (including change order). The difference in total contract amount is attributed to the extra stress placed on the Digester during the recent years as indicated above.

FINANCIAL:

This project was funded by the LCA Allentown Division.

PROJECT STATUS:

Construction is 100% complete and closeout paperwork is being finalized.

FUTURE AUTHORIZATIONS:

None. The project is complete.

CAPITAL PROJECT AUTHORIZATION AMENDMENT NO. 1

PROJECT NO.:	AD-S-18-2	BUDGET FUND:	Allentown Div\Wastewater\Capital
PROJECT TITLE:	Allentown Division – WWTP: Primary No. 2 Digester Cleaning - Construction Phase	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input checked="" type="checkbox"/> Amendment No. 1
THIS AUTHORIZATION:	\$95,173		
TO DATE (W/ ABOVE)	\$224,862		

CONTRACT AMENDMENT NO. 1 – CONSTRUCTION PHASE CHANGE ORDER

DESCRIPTION AND BENEFITS:

This construction phase change order requested by the general contractor (Denali) is to capture the additional dry tons removed during the recent cleaning of the Primary No. 2 Digester. The bid documents estimated the dry tons of residual sludge to be removed at 165, paid on a unit price basis. This estimate was based on the dry tons recently removed from the Primary No. 1 Digester, which proved to not be representative of Primary No. 2 Digester. During actual cleaning, 360 dry tons of residual sludge were removed from the Primary No. 2 Digester. The additional quantity will be paid at the unit price per the contract. The project is complete and the change order will close out the payments to the contractor.

Please see attached Board Memo for further project details.

Authorization Status:

<i>Previous Authorizations</i>	
<i>Construction Phase</i>	<i>\$129,689</i>

Requested This Authorization	
<i>Construction Phase Contract Amendment No. 1</i>	
General Contractor: Denali	\$95,173
Total This Authorization	\$95,173

Future Authorizations Anticipated	None
Total Estimated Project	\$224,862

REVIEW AND APPROVALS:

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

FINANCE & ADMINISTRATION**ACTION ITEMS****1. 2013C Bonds – 2018 Principal Payment Due (Resolution 7-2018-1) – July 9, 2018**

Resolution No. 7-2018-1 is presented for Board consideration to allow for an update to the bond indenture governing the 2013 bonds for lease of the Allentown water and sewer systems, and authorizing the use of a debt service reserve fund surety policy to allow for release of funds to make a principle payment on the 2013C bonds, due in December 2018. The resolution attached will be supplemented by additional details of the surety policy to be provided by Concord Financial in advance of the July 9, 2018 Board meeting.

2. City Division & Suburban Wastewater Division Tapping Fees (Resolution 7-2018-2) – July 9, 2018

Resolution No. 7-2018-2 is presented for Board consideration to update certain tapping fees related the City Division water and sewer systems, and the Suburban Wastewater Division. Upon adoption, these fees will be effective July 1, 2019. Exhibits A & B referenced in the resolution are attached to the resolutions, and Exhibit C will be provided by the Authority's rate consultant in advance of the July 9, 2018 Board meeting.

DISCUSSION ITEMS**1. 2017 Audit and Financial Statements – July 23, 2018**

The 2017 Financial Statements and Comprehensive Annual Financial Report will be provided to the Board at the July 9, 2018 meeting. Auditors will be available to review the financial statements at the July 23, 2018 Board meeting.

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

5354 Hamilton Blvd., 1 commercial lot, LMT

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

Fields at Indian Creek, Phase 3, 57 residential units (sfd), UMiIT/Emmaus, water & sewer

Kohler Tract, 123 residential lots (sfa), UMiIT, water and sewer

Mary Ann's Plaza, 1 lot with 5 commercial units, NWT – 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

CVS, 1 commercial lot, 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

Hillview Farms, 31 residential lots (sfd), LMT/SWT – No Change

Indian Creek Industrial Park, 6 commercial lots, UMiIT, water and sewer – No Change

Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT – No Change

Lower Macungie Township Community Center Expansion, 1 institutional lot, LMT – 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

Parkland School District, new elementary school, 1 lot, UMT – No Change

Schoeneck Road, Lot 1, 1 lot warehouse, LMT – No Change

Shepherd's Corner, 1 commercial lot, LMT – No Change

Spring Creek Properties Settlement Subdivision, Lot 1, 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

Sewage Planning Modules Reviewed in Prior Month:

2708 Mill Creek Road, LMT, 400 gpd.

2996 Macungie Road, LMT, 400 gpd.

Hidden Meadows, Phase IC, UMT, 1,190 gpd.

WATER

ACTION ITEMS

1. **Allentown Division – Water Main Replacement Program Cycle 4 – July 23, 2018**

The project is the replacement of 2.2-miles of aged and/or failing Cast Iron water main in multiple locations throughout the City. This Project is required under the Operating Standards in the Concession Agreement and will be funded by the LCA Allentown Division. The project bids will be opened on July 10, 2018 and award of bid and construction phase services are to be requested for authorization at the 7/23/18 Board meeting.

2. **Suburban Division - Water Main Replacement Program Cycle 4 – July 23, 2018**

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 will be opened on July 18, 2018 and award of bid and construction phase services are to be requested for authorization at the 7/23/18 Board meeting.

3. **Suburban Division – CLD Auxiliary Pump Station Project – July 23, 2018**

The project consists of installation of a new booster pumping station and water main extension to pump water from the Lower Pressure System to the Upper Pressure System as well as a SCADA system. The LCA Suburban Division will fund the project. The project bids will be opened on June 29, 2018 and award of bid and construction phase services are to be requested for authorization at the 7/23/18 Board meeting.

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 July 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. **(No Change)**

2. **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, and the goal for Installation and startup is now in the October/November 2018 timeframe. Board approval for the construction phase is anticipated during late summer of 2018. **(No Change)**

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

The project consists of various replacements at the Kline's Island Wastewater Treatment Plant, Water Filtration Plant, and miscellaneous gatehouses and pump stations. Phase I of the project

was completed in mid-2016. Phase II of the project was advertised on 3/6/2018 and bids were received on 3/27/2018. Board approval for the construction phase of the project was granted at the 4/23/2018 Meeting. Construction will be completed by late August. This project will be funded by LCA Allentown Division.

4. **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)**

5. **Suburban Division – Pine Lakes Pumping Station Improvements**

This project was originally bid in July 2016 and bids were subsequently rejected due to the lack of competitiveness and significant exceedance of the engineer's estimate. The project was modified and rebid in May 2017 resulting in greater bidder interest and lower prices. The purpose of this project is to upgrade the original hydro-pneumatic well station (built in mid-1970s) to continue the level of service, replace aged and problematic equipment, reduce the probability and consequence of risk, and prolong the useful life of the station. The station is to be upgraded to a double pumping variable speed system with full SCADA telemetry. Construction began in Fall 2017, and will be completed by Summer 2018. **(No Change)**

6. **Suburban Division – Crestwood Alternate Water Supply**

The project consists of abandonment of existing wells and storage tank currently serving higher elevation customers and a connection of the pumping station to the main North Whitehall Division System. The project will also involve installation of a SCADA system. The project bids were opened on July 7 and authorization to award was given at the July 24, 2017 Board meeting. A pre-construction meeting was held in September. Construction started in October 2017 and is expected to be completed in July 2018. The wells have been abandoned and residents are now receiving their water through the Northampton Borough Municipal Authority interconnection. Construction will be completed by mid-Summer 2018. **(No Change)**

7. **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 approximately 90% complete. **(No Change)**

8. **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, and the project is anticipated to be ready for bidding in late Summer 2018. **(No Change)**

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

The project will include setting up a surface water flow-monitoring network for the Little Lehigh Creek. The work is in response to the Watershed Monitoring Plan that was developed and reported to LCA by Al 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 approvals that will allow us to mount our equipment on their bridges.

10. **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 the 4/23/18 Board meeting, and design is anticipated to be completed and ready for bid by end of Summer. **(No Change)**

WASTEWATER

ACTION ITEMS

1. **Allentown Division – Kline’s Island WWTP: Electrical Substation Replacement – July 9, 2018**

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 is requested at the July 9, 2018 Board Meeting. Construction of the project is expected to begin in August of 2018 and will be completed by October 2019. This Major Capital Project will be funded by the LCA Allentown Division.

2. **Allentown Division – Kline’s Island WWTP: Primary No. 2 Digester Cleaning (Change Order # 1) – July 9, 2018**

This project involved the cleaning of the Primary No. 2 Digester at the wastewater treatment plant. The project was advertised on February 23, 2018 and bids were received on March 23, 2018. Construction approval was granted at the April 9, 2018 Board Meeting. The cleaning of Primary No. 2 Digester began on May 7, 2018 and was completed on June 19, 2018. The bid documents were based on a sludge removal quantity of 165 dry tons. This assumed quantity was based on the recent quantities of dry ton sludge removed from Primary No. 1 and the Secondary Digester. Payment for the additional quantity removed is based on the original bid unit price per dry ton. Approval of the change order is requested at the July 9, 2018 Board Meeting.

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 is scheduled for completion by the end of August 2018. 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 are currently underway. The project is expected to be finished by the end of 2018.

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 will begin in early July and will be completed by the end of September. This capital project will be funded by the LCA Allentown Division.

5. 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 mid-Summer 2018 **(No Change)**.

6. Suburban Division – Lynn Township WWTP Improvements, Phases 1 & 2

This project will upgrade the wastewater treatment plant (WWTP) headworks to install a mechanical fine screen, in order to protect the influent pumps and mitigate rag buildup. The project is funded by the Lynn Township Suburban Division. Construction is complete with only minor punch list items left to address. **(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 and is anticipated to be completed by late Summer 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 currently evaluating technologies and procedures for performing an internal force main pipe condition assessment that require minimal interruption of operation of the pump station and force main. LCA and Arcadis are currently waiting for an extended dry weather period to conduct test trials for reducing flow to the Park Pump Station via utilization of the pretreatment plant flow equalization basin (hold back flow) in order to undertake a temporary shut-down of the station are being planned. **(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 Sanitary Sewer Rehabilitation

This project involves replacement of approximately 1,100 feet of 8-inch sewer main and 54 sewer laterals (public portion only) in the Heidelberg Heights sanitary sewer system. Recent internal CCTV inspection of the system revealed numerous pipe breaks, root intrusions, and other defects that has resulted in excessive infiltration of groundwater, particularly during storm events. The targeted sewer lines appear to be in the worst condition, and have the highest priority for replacement. This project is part on an on-going effort to reduce hydraulic overloads at the Heidelberg Heights wastewater treatment plant. The project was advertised for bid in January 2018 and bids were opened on 2/28/2018. The Board authorized the construction phase of this project at the 3/12/2018 Board meeting. LCA issued a notice to proceed on 3/29/18 to the contractor and construction is anticipated to be completed by early Summer. **(No Change)**

11. 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 is to be drained and cleaned in order to perform a thorough assessment to determine structural integrity and remaining service life. **(No Change)**

12. Suburban Division – Wynnewood and Sand Spring 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 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.

Each plant, while meeting effluent limits, has reached the end of its useful life. Both plants are 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 facilities in entirety with new facilities utilizing a proven technology appropriate for the wastewater flows and loading characteristics at each site. The new facilities 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 mid-Summer 2018.

The DEP Part 2 Water Quality Management Permit was received in March 2018 for the Wynnewood project. DEP permitting for the Sand Spring project has been delayed due to technical issues and lengthy DEP review times. In order to avoid continued delays, we anticipate proceeding with bidding the Wynnewood project in advance of Sand Spring. The Wynnewood project will be ready for bid phase in August 2018.

13. Suburban Division – Spring Creek Force Main Air Release Valve Replacement

This project involves the replacement of the nine inoperable or faulty air release valves on the Spring Creek Force Main with new combination air release/vacuum valves. The new air release valves will improve hydraulics and energy efficiency in the force main and at the Spring Creek Pump Station. The project is in design phase and will be advertised for bid in July of this year. **(No Change)**

14. 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. LCA, the Western Lehigh Sewerage Partnership, City of Allentown, and City municipal signatories agreed to this approach in concept and received written confirmation from EPA that the submission deadline is August 1, 2018.

Meetings with the City Signatories took place in April and May to develop and finalize the RFMS. The WLSP also reviewed and approved the RFMS. Source reduction plans and O&M plans will be submitted by each individual Signatory as well as the City. The LCA is responsible for delivery of the RFMS to EPA.