



LEHIGH COUNTY AUTHORITY

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

Agendas & Minutes Posted:
www.lehighcountyauthority.org

Published: September 30, 2019

BOARD MEETING AGENDA – October 7, 2019

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

- *September 23, 2019 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2020 Budget Review (Discussion)*
- *WLI User Charge Report (green)*

WATER

WASTEWATER

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

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

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

9. Staff Comments

10. Solicitor's Comments

11. Public Comments / Other Comments

12. Executive Sessions

13. Adjournment

UPCOMING BOARD MEETINGS

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

October 21, 2019

November 11, 2019

November 25, 2019

PUBLIC PARTICIPATION POLICY

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

REGULAR MEETING MINUTES

September 23, 2019

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:00 p.m. on Monday, September 23, 2019, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Kevin Baker, Jeff Morgan, Richard Bohner, Ted Lyons and Amir Famili. Norma Cusick was on the conference phone for the duration of the meeting. Authority Staff present were Liesel Gross, Brad Landon, Chuck Volk, Ed Klein, Pat Mandes, Chris Moughan, Susan Sampson, Todd Marion, Amy Kunkel and Lisa Miller.

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

REVIEW OF AGENDA

Liesel Gross stated there are no changes to the agenda and there will be an Executive Session at the end of the regular meeting to discuss matters of potential litigation.

Mr. Nagle announced that the Board received their packet in the mail prior to the meeting and received a copy of the 2020 Preliminary Budget at today's meeting.

APPROVAL OF MINUTES

September 9, 2019 Regular Meeting Minutes

Richard Bohner noted that the September 9th Board meeting was the shortest in Board history. On a motion by Richard Bohner, seconded by Linda Rosenfeld, the Board approved the minutes of the September 9, 2019 meeting (8-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

2020 Preliminary Budget

The 2020 Preliminary Budget was distributed at the meeting and provided for discussion. Liesel Gross explained the preliminary Budget would be presented at this meeting and will continue to be refined for another review at the October 7, 2019 Board meeting. The final Budget would then be presented for approval at the October 21, 2019 meeting. The Budget must be approved by November 1, 2019.

Ed Klein gave a PowerPoint presentation of the 2020 preliminary Budget and provided a review of the key benchmarks of the budget. The Authority staff is suggesting an increase in 6 new employees in 2020 to address key organizational gaps and employee development. There was some discussion regarding the increases in the Internal Services budget. Ed Klein explained some of the major variances are a result of not having any increases in the last few years and are being caught up in the 2020 Budget.

On the City Division side, Ted Lyons noted that of the revenue that is generated, almost half goes to finance debt. Liesel Gross stated that in processing the Budget for the City Division, these numbers

are not finalized. Changes to the Suburban Wastewater budget are expected due to the continued review of the impact of increased flows over the past year, but with no major surprises.

Liesel Gross stated that the preliminary Budget information packet includes more detail than the presentation and they will both be posted to the website. At the October 7th Board meeting, there will be a second review of the Budget with any changes from the preliminary Budget, along with the User Charge Report for the Western Lehigh Interceptor. At the October 21st Board meeting, the final Budget will be presented for approval.

LCA Pension Program – 2020 Minimum Municipal Obligation (MMO)

Ed Klein presented the 2020 Minimum Municipal Obligation (MMO) memorandum and worksheet for the Authority's Pension Plan to the Board. Mr. Klein explained the costs of the plan and the unfunded liability.

Change Order Request – Suburban Division – Water Meter Reading Equipment Upgrade

Chuck Volk reviewed the background of the project and explained the request for the change order would allow for the continuation of the project. Amy Kunkel explained that the construction phase change order is for the replacement of additional water meter radio units with new Smartpoint units and a contract extension to complete the second phase of the project in the Suburban Division. By including the second phase of the replacements in the change order to this year's contract, the Authority will obtain project cost savings. The technology of the meters was discussed.

On a motion by Jeff Morgan, seconded by Linda Rosenfeld, the Board approved the Capital Project Authorization – Construction Phase Amendment No. 1 in the amount of \$1,317,800.00 which includes the Construction Change Order to Core and Main, LP in the amount of \$1,207,800.00 (8-0).

Western Lehigh Service Area – Hydraulic Flow Model Recalibration

Pat Mandes reviewed the background of the project which is part of the Western Lehigh interceptor Signatory Inflow and Infiltration Program. The scope of the project will allow for Arcadis to recalibrate the sewer system hydraulic model using current flow and rainfall data. The model will be used to estimate average dry day flows and predict peak wet weather flows. Ted Lyons asked what the process is to recalibrate the model. Liesel Gross explained the process where wet day and dry day data is collected and reviewed, along with any repair work that has been done, any new infrastructure added, and any new industrial discharges that have been added to the system since the last model calibration and then creates a model as to how the system works on those wet and dry days. The model will be used to identify priorities for additional system rehabilitation and expansion, and to design new infrastructure such as storage tanks or new interceptors that will be sized appropriately for current and future flows. There was some discussion regarding modeling.

Liesel Gross explained this work follows the flow metering program that began earlier in 2019. The model calibration was not included in the 2019 budget and was originally envisioned to begin in 2020. However, the flow metering will be complete in October and the system needs are a high priority to address, so the calibration is recommended to begin in 2019. The budget amendment for \$245,000 represents the portion of the project that is expected to be completed in 2019, and the remainder will be included in the 2020 budget.

On a motion by Ted Lyons, seconded by Linda Rosenfeld, the Board approved the Capital Project Authorization Amendment for the 2019 Hydraulic Model Recalibration in the amount of \$365,000.00 which includes the Professional Services Authorization to Arcadis in the amount of \$365,000.00 and

the approval of the 2019 Budget amendment – Suburban Wastewater Capital Budget in the amount of \$245,000.00 (8-0).

MONTHLY FINANCIAL REVIEW

Ed Klein presented the August 2019 financial report with a PowerPoint presentation, highlighting variances between budgeted revenues and expenses and actual or forecasted revenues and expenses.

MONTHLY SYSTEM OPERATIONS OVERVIEW

John Parsons reviewed the Monthly System Operations Overview report for August 2019. The report also included a status report of the Western Lehigh Interceptor High Flow Emergency Project as of September 13, 2019. Liesel Gross commented that Authority Staff will discuss how to prioritize the remaining work and come back to the Board to discuss a plan on how to formally end the Emergency Project.

STAFF COMMENTS

Liesel Gross updated the Board on the search for a Solicitor noting that additional interviews and meetings are taking place but expects a discussion with the Board in October.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 1:49 p.m. The meeting reconvened at 1:57 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:57 p.m. to discuss matters of potential litigation.

The Executive Session ended at 2:16 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:16 p.m.

Richard H. Bohner
Secretary



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

MEMORANDUM

Date: September 27, 2019

To: Board of Directors & Management Staff

From: Jennifer Montero

Re: Proposed 2019 WLI, LLRI-Phase 1 and LLRI-Phase 2
Wastewater User Charges

Attached is a copy of the "2020 Report on Wastewater User Charges". This is the annual report that explains the derivation of the various billing rates that are charged to the users of the Western Lehigh Interceptor, Little Lehigh Relief Interceptor Phase 1, and Little Lehigh Relief Interceptor Phase 2.

As you will read in the Executive Summary on page 3, **rates to an average residential user are predicted to increase overall by 4%.** The increase in WLI rates is primarily due to a 9% increase in the City rates which determine the City cost portion of the WLI rate cost basis along with an 11% increase over 2019 estimated costs in the WLI O&M budget. These increases are offset by higher estimated flows than were used to determine the 2019 rates. The decrease in the LLRI-I rate is due to a 9% decrease in operation and maintenance costs and higher flows. The decrease in the LLRI-II rate is due to a significant decrease in operating and maintenance costs.

LCA has implemented estimated quarterly billing procedures effective January 2009. Estimating the quarterly bills have provided consistent Signatory payments and has resulted in having payments approximately one month prior to remitting LCA payment to the City. The estimates are based on a prior four quarter average and are being reviewed by the respective Signatory. The four quarterly estimated bills are reconciled the following year.

We request that the Board give Preliminary Approval of the rates.

LEHIGH COUNTY AUTHORITY

2020 REPORT ON WASTEWATER USER CHARGES

September 27, 2019

LEHIGH COUNTY AUTHORITY
2020 REPORT ON WASTEWATER USER CHARGES

INDEX

	<u>Page No.</u>
Executive Summary	3
I. Introduction	5
II. Billing Basis Determination	7
III. Capital Recovery Fees	8
IV. Western Lehigh Interceptor User Charge Development	9
Tables: Allentown Estimated Costs	13
Operation & Maintenance Costs	14
O&M Costs Shared by Signatories and Emmaus	15
Total System Costs	16
Cost Allocation Summary	17
Billing Basis O&M	18
Unit Cost Summary	19
V. Relief Interceptor User Charge Development	20
Tables: Phase 1 - Operation & Maintenance Costs	22
Phase 2 - Operation & Maintenance Costs	23
Billing Basis	24
Phase 1 - Cost Allocation	25
Phase 2 - Cost Allocation	26
Appendix A User Charge Sampling and Analysis Procedures	27
Appendix B Estimated Quarterly Bill Procedures	32

EXECUTIVE SUMMARY

This summary provides an overview of the various assumptions included in the Lehigh County Authority (LCA) "2020 Report on Wastewater User Charges." Further detailed information can be found in the report.

1. Waste Strength

The assumed concentration for all Non-Exceptional Strength users will be 250 ppm for BOD, 275 ppm for TSS, and 35 ppm for TKN. Exceptional Strength Limits will be 300 ppm for BOD, 360 ppm for TSS, and 85 ppm for TKN.

The estimated concentration for LCA's Western Lehigh Interceptor signatory discharge to the Kline's Island Wastewater Treatment Plant is 131 ppm for BOD, 148 ppm for TSS, and 28 ppm for TKN which are net values without Emmaus discharges. These strengths are based on the continuation of the LCA Wastewater Treatment Plant (PTP) in Fogelsville reducing all waste strength that passes through it and with brewing operations at Boston Beer.

2. Payments to the LCA Wastewater Pretreatment Plant (PTP)

Credits will be given to the PTP, at City unit rates, for pounds of BOD and TSS removed by the operation of the PTP in excess of the required removal of certain industrial strengths. These credits are as mentioned in the 4/17/91 Amendment to the 4/1/83 Agreement between LCA, the LCA Signatories, and the County.

3. User Rates

The following rates are proposed for 2020 as shown in comparison to the budgeted 2019 rates and represent an increase of 4% from the 2019 rates for a typical residential customer.

	<u>2019</u>	<u>2020 Proposed</u>
<u>LCA SIGNATORIES</u>		
Western Lehigh Interceptor		
FLOW (per 1,000 gals)	0.89	0.98
BOD (per pound)	0.28	0.31
TSS (per pound)	0.25	0.29
TKN (per pound)	0.43	0.41
ALLOCATION (per 1,000 gals per day)	0.29	0.21
Little Lehigh Relief Interceptor		
PHASE 1 (per 1,000 gals)	0.22	0.19
PHASE 2 (per 1,000 gals)	0.03	0.003
<u>EMMAUS</u>		
Western Lehigh Interceptor	0.3	0.38
FLOW (per 1,000 gals)		
<u>OTHER USERS</u> – L. Macungie, Salisbury, & S. Whitehall - Little Lehigh Relief Interceptor – Phase 1		
FLOW (per 1,000 gals)	0.19	0.14

3. User Rates (continued)

NOTES:

Western Lehigh Interceptor: LCA has elected to use a combination of operating funds and Western Lehigh Interceptor fees collected from new connections to pay certain administrative order (AO) capital projects such as the Signatory I&I Investigation and Remediation Program. Sixty percent of the costs will be recovered through user charges over a 10-20 year period while the capital recovery fees will cover 40% of the costs.

For 2020, we have estimated the City Division's unit charges using a 2019 estimate for total hydraulic and organic loadings based on actual 3rd and 4th quarter 2018 and 1st and 2nd quarter 2019 signatory flows and loads into Kline's Island Wastewater Treatment Plant. The 3rd and 4th 2018 actual flows have been adjusted down to account for the lower flow trend we are seeing in the 3rd quarter of 2019 which long range forecast predict may continue until the end of the year. 2020 budget rates used for signatory quarterly bills are calculated using 2020 approved budgeted WWTP operating and maintenance expenses divided by the 2019 actual flows and loads. The City rates show an overall 9% increase. The increase in rates is largely due to increased costs allocated to the loadings rates due to the increase in pay-as-you-go capital, specifically general improvements at Kline's Island.

Little Lehigh Relief Interceptor – PHASE 1: The rate for 2020 will decrease by 26% from the 2019 rate for non-LCA signatory users and 14% for LCA signatory users. The decrease reflects a nearly \$50,000 decrease in operating and maintenance costs based on 2019 forecasted expenses. The non-LCA signatory users are being charged an extra component in their rate for the Park Pump Station Rehabilitation project. This is due to the LCA signatory portion of the project being paid for by funds available to them via reserves from WLI rates and capital recovery fees.

Little Lehigh Relief Interceptor – PHASE 2: The rate for 2020 will decrease from the 2019 rate of .03/1,000 gallon to \$.003/1,000 gallons and reflects a 90% decrease in the cost basis portion of the rate based on 2019 forecasted operating and maintenance costs.

4. User Payments

Quarterly Estimated Payments: To improve the WLI operating fund cash flow, Signatories will receive an estimated quarterly bill. Estimating the quarterly bills will provide consistent Signatory payments and will result in having payments arriving prior to LCA's payment to the City (City Division) for treatment and transportation costs. Submission of the Signatory data is still required but the timing of the submission is no longer as critical. The estimated quarterly bill for each Signatory for the year 2020 is attached to this report, "Estimated Quarterly Bill Procedures" as Appendix B.

I. INTRODUCTION

This report is intended to demonstrate how the user rates for 2020 were developed. It also reports comparative historical data. The Lehigh County Authority (LCA) Wastewater facilities – the Western Lehigh Interceptor (WLI), and the Little Lehigh Relief Interceptor, Phases 1 and 2 (LLRI-P1 and LLRI-P2) are legally and financially independent of each other.

Background – WLI

In 1971, LCA constructed the WLI to serve four municipalities – Upper and Lower Macungie Townships and the Boroughs of Alburtis and Macungie. Since then, Upper Milford, Lowhill and Weisenberg Townships have been added. Collectively, the municipalities are referred to as the “Signatories” (or “Signatory”). LCA also provides transportation service through the WLI to a portion of the Borough of Emmaus (“Emmaus”).

LCA, serving as agent for the Signatories, contracts with the City of Allentown (City) for the transportation, treatment and disposal of wastewater from the Signatory area (see “City of Allentown – Concession Lease” on page 6). Discharges to the City are based on constant flow measurements and periodic sampling and analyses to determine discharge strength.

The WLI consists of 20.6 miles of gravity sewer line and several parallel relief lines, including the Western Lehigh Relief Facilities (WLRf – a pump station and 3 miles of force main) that were completed during 1998 and the Spring Creek Force Main Extension (5 miles of force main) completed in 2005. In 2010, the 3 million gallon Flow Equalization Basin was constructed at the PTP to be utilized in storing wet weather flows to reduce the risk of sanitary sewer overflows within the WLI system.

Background – LLRI

Under the provisions of agreements with the City, all municipalities are required to construct relief facilities whenever jointly-used City-owned sewer lines become overloaded. In 1973, the City notified the Signatories, Salisbury Township (Salisbury) and South Whitehall Township (South Whitehall) that the City-owned Little Lehigh Interceptor required relief.

Under an agreement dated February 10, 1981, LCA was authorized to plan and construct the required facilities. The agreement contemplated two financially independent sets of facilities. The first, known as Phase 1, relieves the City’s Little Lehigh Interceptor and serves the Signatories, Salisbury and South Whitehall. It consists of the Park Pump Station and a large diameter force main, extending from the Park Pump Station to the Allentown Interceptor, just upstream of the City treatment plant. The second, known as Phase 2, relieves the City’s Emmaus Interceptor from Keck’s Bridge to the Park Pump Station and serves the Signatories.

Existing Billing Practices – WLI

Costs attributable to the WLI and the use of the City facilities are allocated through user rates among the Signatories based on three criteria: (1) flow, (2) strength, and (3) treatment allocation. Costs attributable to the operation of the WLI (excluding Exceptional Strength Analyses costs), the City interceptors, and a portion of the City treatment plant operational costs are allocated based on flow. The balance of the City treatment plant operational and the WLI Exceptional Strength Analyses costs are allocated to the three waste strength parameters of BOD, TSS and TKN. Allocation of the City costs are based on the City's user charge system, developed in 1979. All City and LCA debt service costs are allocated based on wastewater treatment allocations to the Signatories.

Emmaus, because it deals directly with the City for its treatment and transportation needs and because it has made a capital contribution in lieu of paying future debt service, pays user charges based only on WLI operating costs.

Billing practices used herein were established in the April 1, 1983 Service Agreement. Billable flows and strengths to each Signatory are based on a summation of the individual customer discharges within each Signatory service area. Inflow and infiltration (I/I) attributable to the WLI service area is shared proportionately by all Signatories.

Existing Billing Practices – LLRI

Costs attributable to LLRI-P1 are allocated among the Signatories, Salisbury and South Whitehall in proportion to metered wastewater flows tributary to the City's Little Lehigh Interceptor, except that South Whitehall flows are reduced by 500,000 gallons per day (gpd,) based on a City commitment to transmit that wastewater on South Whitehall's behalf.

Costs attributable to LLRI-P2 are allocated among only the Signatories based on billable wastewater flow. The Authority has established a rate per 1,000 gallons to cover expected expenses. Therefore, as in 2019, a rate of \$0.003 will be applied to the Signatory billing.

City of Allentown – Concession Lease

In August 2013, LCA assumed responsibility for the operation of the City of Allentown water and wastewater systems (City System), now referred to as the LCA Allentown Division. As part of this 50-year lease, LCA is now responsible for calculating annual City wastewater rates and billing City Signatories for wastewater usage. The 2020 rates have been calculated according to Municipal Service Agreements. Signatories will remain responsible for their share of the previously existing City Debt Service plus additional amounts for ongoing capital improvements. The City System is legally and financially independent of the of the LCA systems.

II. BILLING BASIS DETERMINATION

Discharge from each residential, commercial or industrial user is estimated and summed within each Signatory service area.

Flow Determination

Flows are determined based on one of the following methods. Where a sewer meter is available, periodic readings are used. If a sewer meter is not available, periodic readings of the water meter are used for commercial and industrial customers. For residential users receiving water service as of 1 January, the first quarter's metered water usage is used. For residential users connecting after 1 January, or for users not having a water meter, 220 gpd is used.

Strength Determination

Assumed Average Strength and Exceptional Strength Limits proposed for 2020 are:

Discharge Type	Parameter	
	Assumed Average Strength	Exceptional Strength
BOD	250 ppm	300 ppm
TSS	275 ppm	360 ppm
TKN	35 ppm	85 ppm

As in previous years, all industrial and certain commercial users with greater than 25,000 gallons per billing period will be sampled and tested at least once per year in order to determine the strength of their discharge. Any user with BOD, TSS or TKN discharge in excess of the Exceptional Strength Limit will be billed based on those test results. All users with discharge below the Exceptional Strength Limit will be billed at the Average Strength level.

Sampling and testing frequency, duration and other related guidelines are described in the "User Charge Sampling & Analysis Procedures and Billing Computations," attached to this report as Appendix A.

The LCA Pretreatment Plant (PTP) is required to treat certain industrial discharges to 210 ppm for BOD and 230 ppm for TSS. Through the operation of the PTP, those industrial discharges, together with other customer discharges located upstream of the PTP, will be significantly reduced below those required levels. An agreement between the Signatories, LCA and the County (prior PTP owner) identifies how billings, and credits for those additional removals, will be calculated. Those terms have been used in calculating total system billables and the credit for this report.

Emmaus Billing Basis

The Emmaus Service Agreement (7/1/86) provides that Emmaus will participate in WLI operating and maintenance costs, including administrative costs, while excluding debt service. Administrative costs are allocated based on the ratio of salaries applicable to WLI operation and maintenance to total WLI salaries. The minimum and maximum limits for allocation of Administrative costs are 32% and 52% respectively.

III. CAPITAL RECOVERY FEES

Background

Since 1985, capital recovery fees have been charged to the Signatories to recover the purchase cost of treatment capacity from the City (Treatment allocation Fee) and the construction cost of the WLI (Interceptor Fee). Since 1986, a Relief Interceptor Fee has also been charged to all new connections. The Interceptor Fee is recovering costs of the original interceptor, the various relief facility projects and the flow equalization basin.

A review of all fees is conducted annually with proposed changes made effective in July. All fees are determined in accordance with Pennsylvania Law (Act 57 of 2003.)

Use of Capital Recovery Fees

The Interceptor fees currently collected for new user connections to the WLI are currently held in a reserve account to retire additional WLI debt, fund capital projects or pay for unexpected expenses.

Since the bonds that financed the Relief Interceptor were retired, collected fees have been placed in an account and will be funding a portion of the WLI system capital costs.

Concerning treatment capacity, as the service area continues to grow and the need for treatment capacity grows, the treatment fees collected are placed in a reserve fund to either purchase additional capacity or to fund additional capacity options.

IV. WLI USER CHARGE DEVELOPMENT

This section describes the methods used to calculate WLI User Charges. Four general steps are followed:

1. Year 2020 costs have been estimated based on prior years' cost, flow and loading trends.
2. Costs have been allocated to five billing parameters – FLOW, BOD, TSS, TKN and ALLOCATION.
3. A billing basis has been estimated for each billing parameter.
4. Unit costs were determined for each parameter by dividing the total costs by the billing basis.

Two types of costs are incurred – City and LCA. City charges include three types of costs – debt service, interceptor use, and operation and maintenance. LCA charges include two types of costs – debt service and operation and maintenance.

Assumptions

For estimating City costs, the following assumptions have been made for LCA total discharge to the City:

	<u>2019</u>	<u>2020</u>
LCA Total Allocation in City Plant	10.78 MGD	10.78 MGD
Average Daily FLOW	9.503 MGD	11.7 MGD
Average BOD Concentration	141 ppm	131 ppm
Average TSS Concentration	164 ppm	148 ppm
Average TKN Concentration	33 ppm	28 ppm

City Debt Service

LCA is required to pay a portion of the pre-concession lease debt service on the bonds that were purchased to finance the City Plant improvements based on the LCA share of treatment capacity. LCA's estimated share of these total debt service costs is \$121,244 for 2020. This pre-concession debt will be completely paid off by the end of 2026. An additional debt service amount of 274,950 is also being charged for projects for which LCA has executed since it began operating the City Plant in 2013. These projects include the replacement of the belt filter press, motor control center, Substation #2 rehabilitation, and digester cover replacement at the Kline Island Wastewater Treatment Plant and roof replacements at both the Kline Island Wastewater Treatment Plant and the Distribution and Collections Building. Also included in total City Debt Service is an annual payment of \$39,609 for financed Administrative Order projects, bringing total City Debt Service for 2020 to \$435,804.

City Interceptor Use

In lieu of debt service, LCA pays a fixed rate of \$0.01 per 1,000 gallons for the use of the City interceptors. For 2020, the estimated cost is \$42,888.

City Operation and Maintenance

LCA pays the City fund for all flow and pounds discharged by the Western Lehigh Interceptor Signatories. In setting rates, annual operation and maintenance costs (including pay-as-you-go capital) and loadings for the City Plant are estimated, thus allowing unit rates to be estimated. The following City unit rates, shown in comparison to the previous year's rates, were estimated by LCA:

	2019 Rates	2020 Rates
FLOW (per 1,000 gals)	0.186	0.185
BOD (per pound)	0.234	0.259
TSS (per pound)	0.197	0.214
TKN (per pound)	0.323	0.369

The components of the City costs are summarized in the Table - "Allentown Estimated Costs" (page 13). Pay-as-you-go capital expense increases resulted in a 9% overall rate increase over the 2020 estimated rates.

LCA Debt Service

The 2020 Debt Service is estimated at \$398,555. The Debt Service is based on PennVest loans approved to fund the Flow Equalization Basin project mentioned in the Introduction.

LCA Operation and Maintenance

Operation and maintenance costs are shown in the Table - "Operation & Maintenance Costs" (page 14). As earlier mentioned, since Emmaus does not participate in all operation and maintenance costs, separate costs that Emmaus and the Signatories share in are shown in the Table - "O&M Costs Shared by Signatories and Emmaus" (page 15).

As in previous User Rate Reports, the costs of Exceptional Strength Analyses are equally divided between BOD, TSS and TKN. These costs are net of any Signatory reimbursements.

Billing Basis

To estimate the 2020 billable discharges, the second half of 2018 and the first half of 2019 billings were reviewed. Projected growth, where applicable, for each Signatory was added. A summary of this information may be found in the Table - "Billing Basis O&M" (page18).

Rate Design

Although rate calculation options are almost limitless, several legal requirements eliminate many of the options. First, federal law and regulations provide that "each recipient of the waste treatment services within the applicant's service area will pay its proportionate share of the cost of operation (including replacement) "of all waste treatment service provided by the applicant."

Second, Pennsylvania's Municipality Authorities Act requires that rates be "uniform and reasonable."

Finally, the Service Agreements require that a rate methodology substantially identical to that adopted by the City be used and that debt service costs attributable to the City facilities and to the WLI be allocated in proportion to the hydraulic allocation.

Based on the aggregate of these restrictions, unit costs for FLOW, BOD, TSS, TKN, and ALLOCATION are based on the total billables divided into the total cost for each parameter. City debt service and other costs are only allocated to the Signatories and not Emmaus. LCA operation and maintenance costs related to the WLI are allocated to both the Signatories and Emmaus.

User Rate Adequacy

Using the proposed unit rates, multiplied by the various customer billing bases, a total expected revenue of \$7,993,249 is estimated. Comparing this revenue to the expense of \$7,993,249 shown on the Table - "Cost Allocation Summary" (page 17) indicates an overall coverage of 0%.

WESTERN LEHIGH INTERCEPTOR
TABLES

ALLENTOWN ESTIMATED COSTS

	2019 Est Budget	2020 Estimate
DEBT SERVICE:		
Summary	\$ 732,470	\$ 435,804
Other Interceptor	34,688	42,888
DEBT SERVICE SUBTOTAL	\$ 767,158	\$ 478,692
 OPERATION AND MAINTENANCE:		
Flow	\$ 646,064	\$ 794,530
BOD	951,002	1,213,488
TSS	932,724	1,135,681
TKN	306,789	373,266
OPERATION AND MAINTENANCE SUBTOTAL	\$ 2,836,579	\$ 3,516,965
 TOTAL ALLENTOWN COSTS	\$ 3,603,737	\$ 3,995,657

OPERATION & MAINTENANCE COSTS

ITEM	2019 ESTIMATED LCA COSTS	2020 ESTIMATED LCA COSTS
DEBT SERVICE:		
Financing and Bond Issues	\$ 398,555	\$ 398,555
OPERATING & MAINTENANCE CHARGES:		
Personnel		
Personnel Subtotal	\$ 82,250	\$ 179,959
Purchase of Services		
General Services	\$ 90,159	\$ 162,414
Employee Benefits	\$ 34,390	\$ 105,966
Utilities	\$ 47,815	\$ 124,357
Engineering	\$ 6,500	\$ 12,886
Exc. Str. Analyses (External)	\$ 43,000	\$ 43,000
General Analyses (External)	\$ 3,100	\$ 3,300
Maintenance	\$ 198,015	\$ 186,847
Misc. Purchase of Services	\$ 162,430	\$ 80,412
I/I Rehabilitation Program	\$ -	\$ -
Rental Charges	\$ 16,534	\$ 35,413
Purchase of Services Subtotal	\$ 601,944	\$ 754,596
Materials and Supplies		
Fuel	\$ 10,000	\$ 9,446
Misc. Materials & Supplies	\$ 33,350	\$ 21,820
Materials & Supplies Subtotal	\$ 43,350	\$ 31,266
Equipment		
Equipment	\$ 39,802	\$ 153,043
Amortized Equipment	\$ 35,622	\$ -
Equipment Subtotal	\$ 75,424	\$ 153,043
Capital Funding (Sig. + Emmaus)		
Capital Management	\$ -	\$ 7,500
Amortized Planning & Flow Monitoring (AO)	\$ 214,174	\$ 200,000
Capital Funding Subtotal	\$ 214,174	\$ 207,500
TOTAL OPERATING & MAINTENANCE	\$ 1,017,142	\$ 1,326,364
Pay-Go Capital Projects (Non-AO)	\$ -	\$ -
Reserve Amount for Future Projects	\$ 600,000	\$ 400,000
TOTAL LCA EXPENSES	\$ 2,015,697	\$ 2,124,919
Less: Miscellaneous Revenue	\$ (100,000)	\$ -
TOTAL LCA CHARGES	\$ 1,915,697	\$ 2,124,919

O&M COSTS SHARED BY SIGNATORIES AND EMMAUS

ITEM	2020 ESTIMATED LCA COSTS	PERCENT ALLOCABLE TO EMMAUS	PORTION SHARED BY SIGNATORIES AND EMMAUS
DEBT SERVICE:			
1996 Financing & Bond Issue	\$ 398,555	0.0%	\$ -
OPERATING & MAINTENANCE CHARGES:			
Personnel			
Personnel Subtotal	\$ 179,959	52.0%	\$ 93,579
Purchase of Services			
General Services	\$ 162,414	52.0%	\$ 84,455
Employee Benefits	105,966	52.0%	55,103
Utilities	124,357	100.0%	124,357
Engineering	12,886	100.0%	12,886
Exc. Str. Analyses (External)	43,000	0.0%	-
General Analyses (External)	3,300	100.0%	3,300
Maintenance	186,847	100.0%	186,847
Misc. Purchase of Services	80,412	100.0%	80,412
I/I Rehabilitation Program	-	100.0%	-
Rental Charges	35,413	52.0%	18,415
Purchase of Services Subtotal	\$ 754,596		\$ 565,775
Materials and Supplies			
Fuel	\$ 9,446	100.0%	\$ 9,446
Misc. Materials & Supplies	21,820.11	100.0%	21,820.11
Materials & Supplies Subtotal	\$ 31,266		\$ 31,266
Equipment			
Equipment Subtotal	\$ 153,043	100.0%	\$ 153,043
Capital Funding			
Capital Funding Subtotal	\$ 207,500	100.0%	\$ 207,500
TOTAL OPERATING & MAINTENANCE	\$ 1,326,364		\$ 1,051,163
Reserve Fund Allocation	-	0.0%	-
TOTAL LCA EXPENSES	\$ 1,724,919		\$ 1,051,163
Less: Miscellaneous Revenue	-		-
TOTAL LCA CHARGES	\$ 1,724,919		\$ 1,051,163

TOTAL SYSTEM COSTS

	2019 Budget	2020 Estimate
DEBT SERVICE:		
Allentown	\$ 767,158	\$ 478,692
LCA	398,555	398,555
DEBT SERVICE SUBTOTAL	<u>\$ 1,165,713</u>	<u>\$ 877,247</u>
OPERATION AND MAINTENANCE:		
Allentown	\$ 2,836,579	\$ 3,516,965
LCA	1,684,142	1,726,364
OPERATION AND MAINTENANCE SUBTOTAL	<u>\$ 4,520,721</u>	<u>\$ 5,243,329</u>
COUNTY CREDITS		
BOD	\$ 1,214,488	\$ 1,271,439
TSS	537,925	601,234
TOTAL COUNTY CREDITS SUBTOTAL	<u>\$ 1,752,413</u>	<u>\$ 1,872,673</u>
TOTAL SYSTEM COST	<u><u>\$ 7,438,847</u></u>	<u><u>\$ 7,993,249</u></u>

COST ALLOCATION SUMMARY

	ALLOCATION PARAMETER					
	Total Cost	Flow	Allocation	BOD	TSS	TKN
O&M						
Allentown O&M	\$ 3,516,965	\$ 794,530	\$ -	\$ 1,213,488	\$ 1,135,681	\$ 373,266
LCA O&M	<u>1,726,364</u>	<u>1,683,364</u>		<u>14,333</u>	<u>14,333</u>	<u>14,333</u>
Total O&M	\$ 5,243,329	\$ 2,477,894	\$ -	\$ 1,227,821	\$ 1,150,014	\$ 387,599
LCA WTP CREDITS *	\$ 1,872,673	\$ -	\$ -	\$ 1,271,439	\$ 601,234	\$ -
DEBT SERVICE						
Allentown Interceptor	\$ 42,888	\$ 42,888	\$ -	\$ -	\$ -	\$ -
Summary of Allentown Debt	435,804	-	435,804	-	-	-
LCA	<u>398,555</u>	<u>-</u>	<u>398,555</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Debt Service	\$ 877,247	\$ 42,888	\$ 834,359	\$ -	\$ -	\$ -
TOTAL COSTS	<u>\$ 7,993,249</u>	<u>\$ 2,520,783</u>	<u>\$ 834,359</u>	<u>\$ 2,499,260</u>	<u>\$ 1,751,248</u>	<u>\$ 387,599</u>

* Credits to the LCA WTP are paid at City unit rates for non-required removals

BILLING BASIS O&M

	<u>Flow gpd</u>	<u>BOD lb/day</u>	<u>TSS lb/day</u>	<u>TKN lb/day</u>
<u>Signatory Area</u>				
Alburtis	133,873	341	379	57
Macungie	186,634	448	458	57
Lower Macungie	1,483,006	3,393	3,503	456
Upper Macungie *	4,441,000	16,378	10,929	1,889
Weisenberg	31,626	73	73	9
Upper Milford	167,552	610	836	57
Lowhill	6,323	13	15	2
Pretreatment Plant & Haulers	<u>232,027</u>	<u>484</u>	<u>532</u>	<u>68</u>
LCA SYSTEM SUBTOTAL	6,682,041	21,740	16,725	2,595
Emmaus	<u>857,230</u>			
TOTAL	<u><u>7,539,271</u></u>	<u><u>21,740</u></u>	<u><u>16,725</u></u>	<u><u>2,595</u></u>

* Includes Boston Beer

Billing Basis for Debt Service

10.780 Million Gallons Per Day

UNIT COST SUMMARY

Item	Annual Cost	Billing Basis (gpd or lb/day)	Unit Cost (\$/1000 gal or \$/lb)
FLOW - Allentown Costs	\$ 837,418	6,682,042	\$0.3424
- Interceptor Costs/ Signatories	\$ 632,201.36	6,682,042	\$0.2585
- Interceptor Costs/ Signatories & Emmaus	\$ 1,051,163	7,539,272	\$0.3809
BOD (lb)	\$ 2,499,260	21,740	\$0.3141
TSS (lb)	\$ 1,751,248	16,725	\$0.2861
TKN (lb)	\$ 387,599	2,595	\$0.4081
ALLOCATION	\$ 834,359	10,780,000	\$0.2115

NOTE:

FLOW Unit Cost = Annual Cost/[(Billing Basis/1000) x No. of Days in Year]

Lb Unit Cost = Annual Cost/(Billing Basis x No. of Days in Year)

V. RELIEF INTERCEPTOR USER CHARGE DEVELOPMENT

This section describes the methods used to calculate user rates for the Little Lehigh Relief Interceptor System.

For both Phases, the total costs are divided by the billable flow. Billable flows differ between Phase 1 and Phase 2. Phase 1 provides service to the Signatories, Salisbury, South Whitehall, and Lower Macungie Township - Phase II and the Brookside Diversion. Phase 2 provides service only to the Signatories.

Costs for both Phases are shown in the Tables - "Phase 1-Operation & Maintenance Costs" (page 22) and "Phase 2-Operation & Maintenance Costs" (page 23).

Debt Service - Phase 1

In January 1993, the bonds issued for construction of Phase 1 were retired. No additional projects that required bond issues are ongoing and no debt service is included in the rate tables for this year.

User Rate Adequacy

For Phase 1, using the rate proposed, multiplied by the billing units derived in the table - "Billing Basis (For Phase 1) (page 24)," total revenue of \$531,395 is estimated. Comparing this revenue to the total expense of \$509,861, as shown on Table - "Phase 1-Operation & Maintenance Costs" (page 22), indicates an overall coverage of 4.2%.The extra revenue collected from the rate that applies to the non-WLI signatories that use LLRI-I is being applied to their capital cost for the Park Pump Station Rehabilitation. See section 3 of the Executive Summary for more detail.

For Phase 2, using the rate proposed, multiplied by the billing basis derived in the table – "Phase 2 – Cost Allocation" (p.26), total revenue of \$5,971 is estimated. Comparing this revenue to the total expense of \$5,971 as shown on Table - "Phase 2-Operation & Maintenance Costs" (page 23), indicates an overall coverage of 0%.

LITTLE LEHIGH RELIEF INTERCEPTOR

PHASES 1 AND 2

TABLES

PHASE 1 - OPERATION & MAINTENANCE COSTS

ITEM	2019 BUDGETED LCA COSTS	2020 ESTIMATED LCA COSTS
DEBT SERVICE & FINANCING EXPENSES:	\$ -	
OPERATING AND MAINTENANCE CHARGES:		
Personnel		
Personnel Subtotal	\$32,319.65	\$57,384
Purchase of Services		
General Services	\$35,427.42	\$51,057
Employee Benefits	\$13,513.54	\$34,416
Utilities	\$162,400.00	\$228,117
Maintenance Services	\$135,300.00	\$9,799
Miscellaneous Services	\$11,700.00	\$4,735
Engineering	\$5,000.00	\$0
Rental Charges	\$6,497.11	\$9,758
Compliance - PA DEP Tank Registration		\$125
Purchases of Services Subtotal	\$ 369,838	\$ 338,008
Materials and Supplies		
Fuel	\$3,000	\$1,618
Misc. Materials & Supplies	\$11,700	\$6,649
Misc. Equipment	\$44,000	\$6,203
Materials and Supplies Subtotal	\$ 58,700	\$ 14,469
TOTAL OPERATING & MAINTENANCE COSTS	\$460,858	\$409,861
Pay-as-you-go Capital Project Funding	0	\$ -
Reserve Amount for Future Projects	\$100,000	\$ 100,000
TOTAL LCA EXPENSES	\$ 560,858	\$ 509,861
Less: Miscellaneous Revenue	(1,000)	0.00
TOTAL LCA CHARGES	\$ 559,858	\$ 509,861

PHASE 2 - OPERATION & MAINTENANCE COSTS

ITEM	2019 BUDGETED LCA COSTS	2020 ESTIMATED LCA COSTS
DEBT SERVICE & FINANCING EXPENSES:	\$ -	
OPERATING AND MAINTENANCE CHARGES:		
Personnel		
Personnel Subtotal	\$ 17,866	\$1,518
Purchase of Services		
General Services	\$ 19,584	\$1,185
Employee Benefits	\$ 7,470	\$1,171
Maintenance Services & Misc. Services	\$ 14,920	\$1,160
Utilities	\$ 120.00	\$70
Rental Charges	\$ 3,592	\$51
Purchases of Services Subtotal	\$ 45,685	\$ 3,637
Materials and Supplies		
Fuel	\$ 350	\$244
Misc. Materials & Supplies	1,500.00	\$572
Equipment	15,000	\$0
Materials and Supplies Subtotal	\$ 16,850	\$ 816
TOTAL OPERATING & MAINTENANCE COSTS	\$ 80,401	\$ 5,971
TOTAL LCA EXPENSES	\$ 80,401	\$ 5,971
Less: Miscellaneous Revenue	(1,000)	\$0.00
TOTAL LCA CHARGES	\$ 79,401	\$ 5,971

BILLING BASIS (For Phase 1)

<u>Municipality</u>	<u>Flow (gpd)</u>	<u>% Share</u>
Salisbury	446,226	3.35
South Whitehall	829,766	6.23
Lower Macungie-Phase II & Brookside	320,161	2.40
LCA Signatories	<u>11,718,103</u>	<u>88.01</u>
Total	<u><u>13,314,257</u></u>	100.00

LCA SIGNATORY BREAKDOWN BILLING BASIS (For Phase 1 and Phase 2)

<u>Signatory</u>	<u>Billable Flow (gpd)</u>	<u>% Share</u>
Alburtis	133,873	2.08
Lower Macungie	1,483,006	22.99
Macungie	186,634	2.89
Upper Macungie	4,441,000	68.85
Upper Milford	167,552	2.60
Weisenberg	31,626	0.49
Lowhill	6,323	<u>0.10</u>
Subtotal	6,450,014	100.00
 Infiltration/Inflow	 <u>5,268,089</u>	
Total	<u><u>11,718,103</u></u>	

PHASE 1 - COST ALLOCATION

AMONG ALL USERS

Municipality	Flow % Share	Costs
Salisbury	3.35	\$ 17,088
South Whitehall	6.23	31,775
Lower Macungie - Phase II & Brookside	2.40	12,260
LCA Signatories	88.01	448,738
Total	100.00	\$ 509,861
<u>Annual Cost</u>	<u>Billing Basis (gpd)</u>	<u>Unit Costs \$/1000 gals.</u>
\$509,861	13,314,257	\$0.1046
(See Table "Phase I- Operation and Maintenance Costs")		
\$167,510	13,314,257	\$0.0345
(\$3.35M amortized over 20 years at 0% for Park Pump Station Rehabilitation)		
<u>Total costs</u>		<u>Total Rate</u>
\$677,371	13,314,257	\$0.1394

Note: To determine unit cost: Divide total annual cost by converted billing basis
 (Converted billing basis = ((13,910,892/1000)*365)

AMONG LCA SIGNATORIES

Signatory	Flow % Share	Costs
Alburtis	2.08	\$ 9,314
Lower Macungie	22.99	103,175
Macungie	2.89	12,984
Upper Macungie	68.85	308,967
Upper Milford	2.60	11,657
Weisenberg	0.49	2,200
Lowhill	0.10	440
Total	100.00	\$ 448,738
<u>Annual Cost</u>	<u>Billing Basis (gpd)</u>	<u>Unit Costs \$/1000 gals.</u>
\$ 448,738	6,450,014	\$ 0.1906

Note: To determine unit cost divide annual cost by billing basis times number of days in year
 divided by 1,000.

PHASE 2 - COST ALLOCATION

<u>Signatory</u>	<u>Flow % Share</u>	<u>Costs</u>
Alburtis	2.08	\$ 124
Lower Macungie	22.99	1,373
Macungie	2.89	173
Upper Macungie	68.85	4,111
Upper Milford	2.60	155
Weisenberg	0.49	29
Lowhill	0.10	6
Total	100.00	\$ 5,971

<u>Annual Cost</u>	<u>Billing Basis (gpd)</u>	<u>Unit Costs \$/1000 gals.</u>
\$5,971	6,450,014	\$ 0.003

Note: To determine unit cost, divide annual cost by billing basis times number of days divided by 1,000.

APPENDIX A (Revised 11/30/16) USER CHARGE SAMPLING AND ANALYSIS PROCEDURES

The purpose of this document is to assist signatory municipalities using the Western Lehigh Interceptor (WLI) regarding sampling and analysis of non-residential users of their respective wastewater collection system. This document also describes the billing process and how test results are applied to the process.

LCA'S ROLE AS THE AGENT FOR THE MUNICIPALITIES

As the agent of the requesting municipality, Lehigh County Authority (LCA) will provide sampling and coordinate analysis of all designated users. Results reports with calculated averages used for billing ("Monitoring Data") and if applicable, additional sampling/analysis costs will be sent to the municipalities the month following sample collection. Difficulties encountered with an appropriate sampling site location, customer service or other inquiries will be directed to the municipality. LCA will be available to assist in addressing concerns.

MUNICIPALITIES ROLE

Using Monitoring Data provided by LCA and flow data (provided by LCA or municipality), the municipality will prepare monthly and/or quarterly reports for billing purposes, depending on user flow and monitoring frequency. Prepared reports will be submitted to LCA by the end of the month following the previous quarter. Agreed upon summary figures will be used for final billing to the municipality.

WLI USERS—LIST OF CUSTOMER TYPES

1. Residential Users
2. Non-residential Users
 - a. Non-sampled Users
 - b. Sampled Users
 - i. Sampled-low flow
 - c. Restaurant
 - i. Restaurant-low flow

NON-RESIDENTIAL TYPES TABLE

Non-Residential Type	Abbreviation	Description
Non-Sampled User	N	Industrial/commercial user assumed to have residential (flow) strength, such as banks and office buildings.
Sampled User	S	Industrial/commercial user whose flow strength has the potential to surpass the Extra Strength Limit (ESL) (based on technical literature on type of operation at facility, spot tests, and experience of other wastewater utilities).
Sampled-Low Flow User	S-LF	Used when a typically sampled site has quarterly flow less than 25,000 per annual average.
Restaurant	R	Commercial user whose facility processes food--has direct service connection to the municipal sewer system. Does not include facilities where food is served, but prepared elsewhere.
Restaurant-Low Flow	R-LF	Used when a typically sampled restaurant site has an annual average flow of less than 25,000 gallons per billing period.

Parameter	Average Strength Limit (ASL) (ppm)	Extra Strength Limit (ESL) (ppm)
BOD (Biochemical oxygen demand)	250	300
TSS (Total suspended solids)	275	360
TKN (Total Kjeldahl nitrogen)	35	85
FOG (Fats, oils & grease)	N/A	50

WASTEWATER STRENGTH TABLE BY PARAMETER

INITIAL DESIGNATION DETERMINATION

The initial sample type designation of a non-residential user is based on the probability of high strength discharge, as determined from technical literature, spot tests, experience of other utilities, or from the information provided by the user.

Types of businesses to sample:

Restaurants

Manufacturing

Brewing and distilling operations

Water Bottlers

Food processing

Soft drink/juice processing/bottling

Grocery stores that process meat or other food preparation

The municipality shall have a process in place where-by they identify new users and notify LCA of any new non-residential users and add them to the monthly/quarterly billing report in the appropriate section of the report—Sampled/Restaurants or Non-sampled (non-residential users). LCA may contact the municipality to discuss and arrange initial monitoring of facilities not listed on the billing report or listed as non-sampled when it appears as though they have the potential for producing extra strength waste.

During the municipal review process for a new Sampled User or new Restaurant, a sampling location will be required to be shown on the drawings and approved by the municipality. The municipality will also make the determination if a grease interceptor/grease trap is required. For existing buildings, LCA will review the proposed sampling location and determine if the installation of a sampling manhole and/or a grease interceptor is necessary.

The municipality shall furnish LCA with the following information for all Sampled and Restaurant Users and of the interceptor prior to the selection of the sample site:

1. User designation—Sampled User (S) or Restaurant (R)
2. Name of company
3. Property address
4. Municipal building identification code (if applicable) or account number
5. Business contact information—responsible person and phone number
6. Number of normal working days or days of operation
7. Description of business operations
8. Sampling location

This information will be used for scheduling and reporting. Please promptly provide updates to LCA to ensure proper scheduling and correct information for reports.

ANNUAL DESIGNATION

By December 15 of each year, the municipality shall furnish LCA with an annual average flow report for non-residential users. For this calculation, average the prior year QTR 4, the current year QTRs 1, 2, and 3 flows. This is an example of a basic report design:

SITE ID	BUSINESS NAME	2015 QTR 4	2016 QTR 1	2016 QTR 2	2016 QTR 3	ANNUAL AVG FLOW
4	Company X	200,000	200,000	200,000	200,000	200,000

Notes: Unless the site has flow >1,000,000 in a billing period, the annual average flow calculated in December of the prior monitoring year sets the monitoring frequency for the non-residential user for the next monitoring year. Do not change the monitoring frequency of sites based on the flow of one billing period or at any other time throughout the year.

Low Flow Sites: All industrial/commercial sites that were previously sampled but now have an annual average flow per billing period <25,000 gallons will be excluded from monitoring. These sites will be listed as either S-LF or R-LF indicating low flow. LF sites will be placed back on the schedule for monitoring if the annual average flow per billing period exceeds 25,000 gallons. Low flow sites should be moved to the non-sampled portion of your quarterly billing report with LF added to the site type and ID number to make them easier to track. Use Average Strength billing parameters for LF sites regardless of previously reported test results. Treat LF sites like any other non-sampled site while the flow remains low (less than 25,000 annual average).

SAMPLING FREQUENCY

SAMPLING FREQUENCY BASED ON ANNUAL AVERAGE FLOW

Annual Average Flow per Billing Cycle	Sample Frequency-Sampled User	Sample Frequency-Restaurant
<25,000 gals	Not sampled	Not sampled
25,000 to 99,999 gals	One day per year	3-days per year (Wed, Thurs, Fri or Thurs, Fri, Sat) plus FOG for 1 day
100,000 to 999,999 gals	Work week per year	
> 999,999 gals	Work week per billing period	3-days per billing period (Wed, Thurs, Fri or Thurs, Fri, Sat) plus FOG for 1 day
Notes: Any new Sampled User will initially be sampled for a work week. Scheduling will be required per billing period, if a site has a flow >1,000,000 gallons per billing period and has exceeded one of the extra strength limits.		

The discharge from each Sampled User will be analyzed at least once per year. Each sample will be analyzed for pH, BOD (biochemical oxygen demand), TSS (total suspended solids), and TKN (total Kjeldahl nitrogen). Fats-Oils-Grease (FOG) concentration will be analyzed if food products are produced at the facility or at the request of the municipality.

LCA may sample the non-residential location at any time during the calendar year, but will try to schedule sampling in the same quarter each year.

Initial sampling for any new Sampled User will be for a work week (providing flow is greater than 25,000 gallons per billing period). The Table for sampling frequency by annual flow does not apply for initial monitoring. This also does not apply to Restaurant Users, which are sampled for 3 consecutive days with quarterly flow >25,000 gallons.

The discharge from each Restaurant will be analyzed at least 3 consecutive days annually, either Wednesday-Thursday-Friday or Thursday-Friday-Saturday. Each daily sample will be analyzed, at a minimum, for pH, BOD, TSS, and TKN. FOG concentration will be analyzed at least one day during the sampling period.

REQUESTED ADDITIONAL SAMPLING AND ANALYSIS

A municipality may request additional sampling and analysis of any Sampled or Restaurant User. Sample collection and analysis costs will be noted on the results reports to the municipality. Billing for additional Monitoring Data will be addressed in the final bill of the year.

The Monitoring Data will be used for billing purposes for that billing period and all successive billing periods until new Monitoring Data become available after the completion of the next monitoring event.

NON-SAMPLED USER SAMPLING AND ANALYSIS

A municipality may request sampling and analysis of any non-residential user not included in the Sampled or Restaurant User definition. Test costs and sample collection costs will be billed to the municipality with the results reports.

While the municipality may use the results of the sampling and analysis for billing, LCA will not use the results for purposes of billing the municipality. However, results greater than the extra strength limits may indicate that the user should be added to the municipality's Sampled list.

BILLING COMPUTATION

With the exception of pH, results for each parameter will be averaged and used for billing purposes. The acceptable pH range is 6.5-10.5 pH units upstream of the LCA Wastewater Pretreatment Plant, or 5.0-12.0 pH units below the plant. The municipality will be notified if any result is out of range so that they can determine the cause and initiate corrective action.

To calculate pounds:

If all average results—other than pH—are less than the ESL (BOD-300ppm, TSS-360ppm, and TKN-85ppm), the ASL (BOD-250ppm, TSS-275ppm, and TKN-35ppm) will be used for billing calculations. If any average result is greater than the ESL, the result will be used for billing that parameter and ASL will be used for any parameter average result less than the ESL. The calculation for pounds is: $\text{flow} \times 8.34 \times \text{ppm}$.

Example: Average results are: BOD-400, TSS-300, and TKN-100. The BOD result is greater than the ESL of 300--calculate using 400. TSS is less than the ESL of 360--calculate using the ASL of 275. The TKN is greater than the ESL of 85--calculate using the result of 100.

SAMPLING AND ANALYSIS CHARGES

If a user in the Sampled User or Restaurant category is sampled and found to discharge flow with strength below the ESL, sampling and analysis charges will be waived.

If a user is found to discharge greater than the ESL (a result greater than any one of the billing parameters not including FOG), sampling and analysis charges will be billed to the municipality for annual sampling, or any repeated sampling found to exceed any extra strength limit.

The limit for FOG (fats-oils-grease) analysis is 50 ppm. If result is greater than this limit, the municipality will be billed for sample collection and analysis.

APPENDIX B
(10/22/15)
ESTIMATED QUATERLY BILL PROCEDURES

Estimated Quarterly Bills

- Four quarterly bills will be estimated.
- The estimated quarterly bill amount will be calculated in October for the following year.
- The estimated quarterly bill will be based on a 4 quarter average and the following year's User Charge Report.
- Signatories will be notified of the following year's quarterly estimated bill amount in September or October of each year.
- Quarterly estimated bills will be issued on or about the first of the following months: April, July, November, and January.
- Quarterly estimated bills will be due 30 days after the billing date.
- LCA will enforce the 5% penalty for late payment. The penalty shall be 5% of the payment due if not paid within 30 days from the billing date and an additional 5% of the payment due if not paid within 60 days, and thereafter an additional 1% per month or fraction thereof.
- Signatories must provide actual quarterly data in a timely manner.
- Actual bills will be calculated during the year but no later than May of the following year.
- Adjustments for reconciliation of the prior year's quarterly estimated bills and reconciliation of the City bill will be issued no later than July of each year.

FINANCE & ADMINISTRATION

ACTION ITEMS

1. 2020 Budget Review – October 7, 2019 (discussion) and October 21, 2019 (approval)

The Board will receive a second presentation on the 2020 Budget and review the schedule for the remainder of the process for approval at the last meeting in October.

2. WLI User Charge Report – October 7, 2019

The WLI User Rates will be presented to the Board for review and preliminary approval. The rates will be presented to the municipal signatories for comment, and final rates incorporated into the 2020 Budget.

3. Document Control/Records Retention Procedure – October/November TBD

The Staff will recommend Board approval of a Resolution establishing its intent to institute a document control procedure and authorizing the Staff to develop the procedure and alter it as is necessary. This Resolution will ensure Authority compliance with the Pennsylvania Municipal Records Act regarding document retention and disposition schedules. This Resolution and procedure will serve as a starting point for additional document management programs and procedures that are important for proper filing, organization, retention and control of both electronic and paper records.

DISCUSSION ITEMS

INFORMATION ITEMS

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

CERTIFICATES OF DEPOSIT						
24-Sep-19						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	United Community Bank of North Dakota	Leeds, ND	245,000.00	8/28/19	8/27/21	1.900
LLRI CR	Webbank	Salt Lake City, UT	245,000.00	9/23/19	9/23/21	1.750

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

2. Developments

Water system construction is occurring in the following developments:

5354 Hamilton Blvd., 1 commercial lot, LMT
 Air Products & Chemicals, 1 commercial lot, UMT
 Hidden Meadows, Phase 1C, 66 townhouses, UMT
 Kohler Tract, 123 residential lots (sfa), water and sewer, UMiIT

Lower Macungie Twp. Community Center Expansion, 1 institutional lot, LMT
Stone Hill Meadows, Phase 2, 85 residential units (sfd), LMT
Trexler Business Center, 1 lot with 6 commercial buildings, LMT
Trexler Fields, Phase 1B/8/9, 100 residential lots (sfa), UMT
Woodmont Ridge, Phase II, 30 apartment units, UMT
Fields at Indian Creek, Phases 4 & 5, 86 residential units (sfd), water and sewer, UMiT &
Emmaus - New

Water system plans are being reviewed for the following developments:

5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT
5374/5392 Hamilton Blvd., 1 commercial lot, LMT
5420 Crackersport Road, 1 commercial lot, UMT
8615/8783 Congdon Hill Drive, 2 industrial lots with warehouses, LMT
Cedarbrook Road Industrial Park, 2 industrial lots, LMT
Estates at Maple Ridge, 30 residential units (sfd), UMiT
Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT
Madison Village at Penn's View, 66 manufactured homes, 1 lot, water and sewer, LynnT
Mill Creek Hotel, 1 commercial lot with 205 room hotel & restaurant, UMT
Millbrook Farms, Section 6, 42 residential units, LMT & UMiT
Mountain View Estates, 27 residential units (sfd), LMT
Ridings at Parkland, 53 residential units (sfd), NWT
Schoeneck Road, Lot 1, 1 lot warehouse, LMT
Towneplace Suites by Marriott, 91-room hotel, UMT
Weilers Road Twins, 82 residential lots (sfa), UMT
Wrenfield Townhouses, 98 townhouse units, UMT
749 Rt 100, 1 industrial lot with warehouse, UMT

Sewage Planning Modules Reviewed in Prior Month:

Route 100 Logistics Warehouse, Upper Macungie Township, 1,200 gpd.
Shoppes at Trexler Plaza, Upper Macungie Township, 1,784 gpd.
UMT Community Center, Upper Macungie Township, 6,761 gpd.
Jaindl Commercial Park North, Lower Macungie Township, 4,200 gpd.
Barry Isett & Associates New Office, Upper Macungie Township, 1,150 gpd.

WATER

ACTION ITEMS

DISCUSSION ITEMS

INFORMATION ITEMS

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

As part of the Pennsylvania Rapid Bridge Replacement Program, the replacement of the Cedar Creek Bridge on Hamilton Street has required the relocation of approximately 500 linear feet of water main. The construction phase was approved at the December 2016 Board meeting and the construction phase at the January 2018 meeting. As of February 22, 2018, the contractor has completed a majority of the relocation work for LCA's facilities; however, they were pulled off the site due to construction conflicts. As of March 22, 2019 the original LCA water line relocation scope of work has been completed, however an additional relocation of a LCA sanitary sewer line has been added to the original scope and agreement as of April 15, 2019 with an anticipated completion of April 26, 2019. LCA anticipated submitting all final paper work to the state for reimbursement in the very near future. It is anticipated that this work will be reimbursed 100% by the state and that the construction related activities. **(No Change)**

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

The project is the replacement of 0.97-mile of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with our prioritization protocol. We propose to utilize the 1.1-mile credit of excess water main replacement length accumulated from previous years in order to satisfy the 2.0 miles of annual pipe replacement as outlined in the lease. This Project is required under the Operating Standards in the Concession Agreement and will be funded by the LCA Allentown Division. The reduced-scale project was re-bid following rejection of the bids for the original 2.2-mile project. The project was authorized by the Board on 9/10/18 and will be completed by December 2018. On October 30, 2018 the contractor (Doli Construction) began water main installation. As of January 4, 2019 all water main construction, prelease valve and meter replacement was completed. In April 2019, Doli began final restoration throughout the project with an anticipated completion by mid-Summer 2019. As of August 23, 2019 Doli has finished all restoration work on the project except cross walk areas on 4th and Chew streets. Project is now 100% completed.

3. **Allentown Division – Water Main Replacement Program Cycle 5**

The project is the replacement of 2-mile of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with our prioritization protocol. Currently Gannett Fleming is designing the 2-miles of required water main replacement. At this time, the construction phase of this project is not budgeted for unless monies become available in 2019. **(No Change)**

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

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

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

The Water Filtration Plan (WFP) supplies water to residential and commercial customers in the City of Allentown, as well as wholesale water to surrounding communities. One of the critical elements at the WFP is the High Service Pumping System (HSPS), which is the primary means

of conveying treated water into the distribution system. The HSPS has experienced regular failures of aging electrical components. The July 2017 Allentown Water Master Plan categorizes the pump variable frequency drives (VFDs) in very poor condition and notes that the VFDs are no longer supported by the manufacturer. This project will replace two of the existing VFDs and add a third VFD. This project is currently unfunded, but may be supported through a PENNVest loan pending ongoing discussion with the City of Allentown. Board approval was granted at the 8/12/19 Meeting for the design phase of this project to ensure loan application timelines can be met - in the event an agreement can be reached. If funding is available, project completion is expected by late 2021. **(No Change)**

6. Suburban Division - Water Main Replacement Program Cycle 5

The project consists of the replacement of approximately 1.4 miles of aged and/or failing Cast Iron water mains throughout multiple location in the Suburban Division. The construction phase of this project was approved at the May 20, 2019 meeting. As of July 9, 2019 construction had begun and is progressing along very smoothly. As of August 27, 2019 all water mains have been installed and the contractor is completing the new water service lateral installations at the present time. This project is funded by the LCA Suburban Division. **(No Change)**

7. Suburban Division – Mechanical Asset Management Upgrade Project

This next phase of Asset Management upgrade work focuses on mechanical components, along with some HVAC and electrical system improvements at ten locations in the Suburban Division. The upgrade locations were determined from asset management data collected from internal interviews conducted by Capital Works with senior Operations staff, and based on risk rating. Also as part of the design phase of this project was the condition assessment of seven (7) hydropneumatic tanks that were placed into service in the 1970s and are reaching the end of their service lives. Design phase was authorized in April 2018, the project was advertised for bid in September 2018, bids were opened on October 11, 2018, and award of bids was authorized at the October 22, 2018 Board meeting. This project is being closed out as construction was completed in Summer 2019. **(No Change)**

8. Suburban Division – CLD Auxiliary Pump Station Project

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

9. 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. Costs are being shared between the LCA Suburban Division and the developer of the Kohler Tract. Pumping station bids were opened on 4/25/19. Board approval for the construction phase of the project was granted at the 5/13/19 meeting. A preconstruction meeting was held on 6/25/19. Construction should be completed by September of 2020.

A voice vote approving a “Special Exception” use of the Kern Tract as a pumping station site was received from the Upper Milford Township Zoning Hearing Board in September 2019. The written opinion will be sent after the comment period has passed.

10. 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 2019 will focus on the Little Lehigh Creek only. In 2019, LCA will develop plans for subsequent years to add new monitoring wells to supplement existing groundwater data that is being collected. Total daily flow recordings at Schantz Spring that will need to include the spring field bypass and the tank overflows as well. SSM will assist LCA in calibrating surface flows under the bridges based on the recorded stream elevations. Authorization for the award of the project was approved at the 3/26/2018 Board meeting. LCA and Fybr are currently gaining PennDOT and PPL approvals that will allow us to mount our equipment on their bridges and poles, which has turned out to be a very slow process. Agreement received from PPL on April 22, 2019. Equipment is to be mounted and flow data is to be received by late summer/early fall 2019. In 2018, USGS selected the Delaware River Basin to pilot the National Next Generation Integrated Water Observing System (NGWOS). The Little Lehigh Watershed was picked as a targeted area of the NGWOS Project and additional surface water and ground water monitoring stations will be developed. USGS and LCA are currently working together on new gaging locations in the LL watershed. Automatic data collection and migration directly to LCA Main Office is currently being developed by Fybr and is to start in September. Three stations are currently operational and another three will be within a few more weeks. Calibrations of the operational stations are currently underway and this process will take at least 6-8 months. (No change)

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

This Project addresses the needs of three satellite water systems that currently are operating on one source of supply and have no redundant water supply. The Madison Park North system has only one well, and an additional well is planned to be developed and constructed. The Clear View Farms and Mill Creek systems have one operating well each, but have at least one other existing well that has water supply or quality issues and cannot be presently utilized. An engineer has been retained to assist with the development of a second well for Madison Park North and the rehabilitation of an existing well at Clear View Farms. An agreement is in place with an adjoining property owner to Madison Park North to drill a test well on their property, in coordination with DEP guidelines. The "step drawdown test" was performed on 3/26/19 and indicated that the test well is a viable backup source to Well 1. A Pre-Drilling and Aquifer Test Plan has been submitted to DEP for review and approval. Clear View Farms Well No. 2 was successfully rehabilitated to restore diminished well capacity for use as a secondary source.

12. Suburban Division – Buss Acres Pump Station Replacement Construction

The project consists of the consolidation and replacement of two well stations with a single new pump station and a new water storage tank to replace two antiquated hydro pneumatic pump stations. The new station will be a variable frequency drive controlled double pumping system with full SCADA control. The design will include radon reduction elements and also accommodate the future installation of additional radon removal equipment, to be implemented upon DEP's mandate of a regulatory limit. The project is in construction phase. The Notice to Proceed was issued to the contractors on 9/24/19

13. Suburban Division – Water Meter Reading Equipment Upgrade

LCA's capital program includes the replacement of 20,000 transceiver units, and 10,000 units will be replaced in 2019 with the remaining to be replaced in 2020 under separate authorization. The new units have a 20-year battery life and are compatible with the new meter reading software purchased in 2017. This project will replace 100% of the remaining old style radio units over a two-year period. Construction phase services for the first round of 10,000 units was approved at the 5/13/19 Board meeting. Construction began in July 2019 and is expected to be concluded by December of 2019. The project is currently 75% complete. This project is funded by the LCA Suburban Division. A change order was issued to the contractor for the installation of the remaining transceiver units that were originally scheduled for replacement in 2020, in order

to expedite the completion of the work under the program and take advantage of favorable contract unit pricing.

WASTEWATER

ACTION ITEMS

1. **Trexlerstown Wastewater Storage Facility – October 21, 2019**

As part of the Western Lehigh service area's Sewer Capacity Assurance & Rehabilitation Program (SCARP), a conveyance capacity "bottleneck" was identified in the Trexlerstown area of the Western Lehigh Interceptor, and this area was assigned a high priority due to occurrence of sanitary sewer overflows and basement backups in the vicinity. A parallel interceptor was originally conceived to run approximately from Cetronia Rd to Spring Creek Rd. The concept was modified to focus on providing storage capacity in the system for this area, due to concerns about downstream hydraulic impacts. This project is an interim solution to address local impacts of the system bottleneck, and will become part of the future long-term solution to alleviate regional conveyance capacity challenges. A pre-design feasibility study is to be performed to evaluate various engineering alternatives, including an "in-line" parallel storage tank, conventional concrete tank (flow equalization basin), or a hybrid option. LCA issued a Request for Proposals in August 2019 to four pre-qualified engineering firms. A pre-proposal meeting was held on 9/5/19, and proposals were received on 9/20/19. Following review and follow-up interviews (if required), authorization to award the pre-design feasibility study is anticipated to be requested at the 10/21/19 Board meeting.

DISCUSSION ITEMS

INFORMATION ITEMS

1. **Allentown Division – Kline's Island WWTP: Phase 1 AO Design Improvements**

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

2. **Allentown Division – Sanitary Sewer Collection System: I&I Source Reduction Program Plan**

This project includes the design of the City of Allentown's I&I Source Reduction Program Plan. In 2014, Video Pipe Services complete various CCTV inspections throughout twenty Primary and Secondary Basins. All pipe segments that called for complete pipe replacement have already been repaired. The remaining source reduction activities within the twenty Basins have been organized into a 5-Year Plan, with each year focusing on a different geographic region of the City's sewer collection system. Design has been approved for all five years, with the first project commencing in 2020 and the last project finishing in 2024. Board approval for the construction of the "Year 1 Project" will be requested in Q1 of 2020. This project is considered an AO expense under terms of the Lease and is City funded. **(No Change)**

3. **Allentown Division – Kline's Island WWTP: Max Monthly Flow Capacity Evaluation**

DEP has noted that the KIWWTP has been performing at a high level and meeting its permitted effluent quality limits during a period of prolonged wet weather since early 2018. This study will provide the basis for confirming the plant's maximum monthly average that can be sustained during prolonged periods of wet weather – while remaining in full compliance with effluent quality requirements of the plant's permit. Approval of the study was granted at the 8/26/19 Board

Meeting. The Draft study will be completed by early October 2019. This project is considered an AO expense under terms of the Lease and is City funded.

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

This project involves the replacement of the existing Substation No. 2. The equipment was installed in 1977 and has reached the end of its useful life. The City has reviewed this and has approved this project as a Major Capital Project. Approval of the design engineer was granted at the May 8, 2017 Board Meeting. The project was advertised in early May 2018 and bids were due on June 8, 2018. Approval of the construction contract (Base Bid) was granted at the July 9, 2018 Board Meeting. The construction phase of the project began in August of 2018 and was completed in May 2019. This Major Capital Project was funded by the LCA Allentown Division. The project is now 100% complete.

5. Allentown Division – Kline’s Island WWTP: Sodium Hypochlorite Disinfection

This project involves the replacement of the existing gas chlorination system at the WWTP. The use of gas chlorination for sewage disinfection, while reliable, is outdated and contains inherent risks. In addition, the existing equipment has reached the end of its useful life. Switching to sodium hypochlorite was also identified in the recently completed WWTP Master Plan. The design started in March of 2019. Approval of the construction contract will be requested at a Board Meeting in early 2020. The construction phase of the project will begin in Q1 of 2020 and will be completed by Q4 of 2020. This project will be funded by the LCA Allentown Division. **(No Change)**

6. Allentown Division – Lehigh Street (Rte. 145) Water and Sewer Main Relocation Project

As part of the Pennsylvania Rapid Bridge Replacement Program, the proposed replacement of the Lehigh Street Bridge near the intersection with MLK Boulevard has required the relocation of existing City water and sewer lines that are located within the PennDOT right of way. PennDOT initially indicated that LCA would be eligible for 75% reimbursement for all projects costs associated with the utility relocations, and the LCA board adopted Resolution No. 3-2019-1 in March 2019 to authorize the negotiation of the PennDOT cost reimbursement. Following the submission of project incorporation paperwork to PennDOT by LCA’s design engineer, the local PennDOT office submitted the resolution and agreement to the Harrisburg office, and was later informed that this bridge is owned by Lehigh County and not the Commonwealth. Although PennDOT is handling all preconstruction activities and will administer the federal funding participation between the Commonwealth and the County, the cost reimbursement agreement with PennDOT does not apply. LCA’s engineer is working on behalf of LCA on a final sewer relocation design that minimizes the extent of the relocation. There will be less water infrastructure relocation work required since the existing water main is attached under the bridge and will be reattached after the new bridge is constructed. LCA staff will pursue water and sewer relocation cost reimbursement from the County out of the federal (80%) and state (15%) funds being applied to this project. Design work will be finalized by Summer 2019 **(No Change)**.

7. Suburban Division – Park Pump Station Force Main Rehabilitation

The Park Pump Station and Force Main line were constructed in 1980 to provide wet weather relief to the Little Lehigh Creek Interceptor, which conveys wastewater from ten municipalities from outlying areas to the Kline’s Island Wastewater Treatment Plant (KIWWTP). The force main consists of 8,715 linear feet of prestressed concrete cylinder pipe (PCCP) of various sizes (2,615’ of 24”; 2,695’ of 30”; and 3,405’ of 36”), and connects with the 54” sanitary sewer interceptor that runs to KIWWTP. PCCP is particularly sensitive to deterioration due to hydrogen sulfide gas from wastewater, and corrosion of exposed reinforcing steel can result in structural degradation and pipe failure. An internal investigation of the pipe is required to assess the condition of the PCCP pipe and identify damage areas, in order to determine the locations and extent of rehabilitation needed to restore the level of service, prolong service life, and mitigate the risk of failure. Capital Works is planning a limited manned inspection of the force

main pipe at 5 air release valve (ARV) locations, 100 feet in both directions from the ARV manhole, which will be used as the initial evaluation of the representative condition of the pipe. Using this data, the need for performing a complete pipeline condition assessment will be determined, possibly utilizing a new electromagnetic technology for performing an internal pipe condition assessment that entails minimal interruption of operation of the pump station and force main. LCA and Arcadis are currently waiting for a “normal flow” dry weather period to use the PTP Flow Equalization Basin (FEB) at the pretreatment plant to hold back flow in order to perform a temporary shut-down of the Park Pump Station to perform the force main inspection. **(No Change)**

8. Suburban Division – Park Pump Station Upgrade

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

9. Suburban Division – Heidelberg Heights Wastewater Treatment Plant Improvements

As part of an asset management approach to maintaining the level of service and mitigating risk of failure at the Heidelberg Heights Wastewater Treatment Plant, a condition assessment evaluation is being performed for the Equalization/Sludge Holding tank. The steel tank is part of the original plant, installed in the mid-1970s, and is compartmentalized to serve as both a raw sewage equalization tank (for sequenced pumping to the newer SBR tanks), and for storing liquid sludge (for pump and haul removal). The exposed portions of this tank display areas of corrosion, and the tank was drained and cleaned and a thorough assessment was performed to determine structural integrity and remaining service life, and a study provided to LCA. Design phase services were completed in March 2019, the project was advertised for bid in early April, and a pre-bid meeting was held on 4/16/19. Bids were opened on 5/2/19 and award of bid and construction phase services was authorized at the 6/10/19 meeting. A pre-construction meeting was held on 7/19/19, and construction is anticipated to be completed in Fall 2019. **(No Change)**

10. Suburban Division – Wynnewood WWTP Upgrade Project

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

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and was concluded in late Summer 2018. The DEP Part 2 Water Quality Management Permit was received in March 2018. The project was advertised for bid in August 2018, bids were opened in September 2018, and bids were authorized for award at the October 22, 2018 Board meeting. Construction work mobilized in early 2019 and is anticipated to finish in early 2020. **(No Change)**

11. Suburban Division – SCARP

Since the U.S. Environmental Protection Agency (EPA) lifted the Administrative Order regarding the regional sewer system in March 2019, LCA, the City of Allentown, and other municipalities have continued to work on elements of the Regional Flow Management Strategy that was submitted to both EPA and the Pa. Department of Environmental Protection (DEP) while awaiting further direction from DEP. LCA and the Western Lehigh Sewerage Partnership (WLSP) installed flow meters throughout the WLSP service area in early 2019, which will continue until October. In September 2019, Arcadis was authorized to use the flow metering data to recalibrate the hydraulic flow model to allow for updated flow projections and project planning including the evaluation of the Trexlertown Wastewater Storage Facility Project.

Since August 2018, exceptionally high rainfall amounts have caused the system to experience high flows exceeding capacity limits during several months of this time period. In August 2019, DEP has begun communicating with LCA, the City and the other municipalities regarding this high-flow situation, the need for Act 537 planning, and other related matters. A meeting has been scheduled for October among the parties to discuss DEP's recommended approach in addition to remaining tasks in the Regional Flow Management Strategy.

12. WLI High Flow Emergency Declaration

LCA began the Emergency Response protocol to deal with the high flows within the Western Lehigh Interceptor (WLI) on November 28, 2018. The Emergency Declaration was presented to and approved by the Board on December 10, 2018, retroactive to November 29, 2018. Through December 28, 2018, the entire Iron Run Trunk Line (IRTL) has been televised from outside the Pretreatment Plant (PTP) down to the confluence with the Brienigsville Line, which is south of Hamilton Boulevard. This area is referred to as Phase 1 and the total distance televised in this reach was 7,115', and includes 93 manholes. In this section, LCA has identified 18 defects within that reach, the majority of which are joint leaks, along with heavy sediment in several areas. Phase 1 is completed. Phase 2 is approximately 95% completed. Phase 3, which includes the mile-long bypass is approximately 99% completed. The bypass system will start being dismantled during the week of 9/23/2019. Minor grouting and other repairs still need to be finished but that is possible without the use of the bypass system. Phases 2-3 are to be completed by late September or early October. Phases 4-6 have all been CCTV'd now with the exception of a few problematic sections. The end of Phase 6 is Park Pump Station, which was the original endpoint goal of the project. The remaining work for 2019 is under development.

13. Suburban Division - Lynn Township Corrective Action Plan

Excessive inflow and infiltration (I&I) and high wet-weather flows into the Lynn Township sewer system has been ongoing and increasingly challenging to address. As noted in LCA's monthly operations reports, treatment plant bypasses and sanitary sewer overflows have occurred in this system and must be addressed. On 6/4/19 a meeting was held with DEP, Lynn Township and LCA representatives as a result of a hydraulic overload at the wastewater treatment plant, based on 2018 Chapter 94 Report monthly plant flows. At the meeting, DEP directed LCA to submit an amendment to the pre-existing Corrective Action Plan (originally submitted by Lynn Township Sewer Authority) to include an updated system condition assessment and an outline of steps to be taken to mitigate I/I flows and maintain NPDES permit compliance. Staff have developed Corrective Action Plans (CAPs) that include structural and non-structural initiatives and involves coordination with the host municipality. The framework for the CAPs was shared with the Board in February and are being developed further for submission to DEP. A meeting was held at Lynn Township with DEP in June 2019 to discuss the Lynn Township CAP and Township sewer planning/growth issues, and DEP directed LCA to submit a CAP amendment by the end of August 2019. The CAP amendment contained an updated sewer system condition assessment and a plan to further mitigate I/I flows. Updated CCTV work of the entire system was substantially completed in August 2019, and the inspection data summarized in the CAP amendment will be used to scope a capital repair project. The Lynn Township Board of

Supervisors adopted a sewer system rules and regulations ordinance on 9/12/19, which gives LCA the authority to inspect private laterals and facilities for illegal connections and perform follow-up enforcement.

14. Suburban Division - Heidelberg Heights Sanitary Sewer Rehabilitation Project

High wet-weather flows caused by excessive inflow and infiltration into the sewage collection system have challenged the Heidelberg Heights sanitary sewage system and has been the cause of numerous wastewater treatment plant bypasses over the past two years. This project includes the replacement of approximately 1,100 lf of VCP sewer main and 26 residential sewer laterals to address high priority areas of the system to continue to work toward eliminating leakage. The pre-bid meeting was held on 3/28/19, bids were opened on 4/9/19, and award of bid and construction phase services was requested at the 4/22/19 Board meeting. Construction is anticipated to begin in late Summer 2019. **(No Change)**

15. Suburban Division - Heidelberg Heights Corrective Action Plan

On February 11, 2019, the Pa. Department of Environmental Protection (DEP) submitted a notice of violation to LCA regarding bypasses and permit exceedances at the Heidelberg Heights wastewater treatment plant. As discussed with the LCA Board during several meetings in 2018, this small satellite system is challenged by high groundwater levels and significant infiltration and inflow (I&I) of clear water into the sewer system during rain events. LCA staff met with DEP officials on March 6, 2019 to discuss the problems and, as a result, LCA is preparing a comprehensive corrective action plan (CAP) for submission to DEP by May 5, 2019. A draft of the plan was attached for Board review at the April 22, 2019 Board meeting. The final CAP was submitted to DEP on 4/29/19. The Heidelberg Heights Board of Supervisors approved of the advertisement for adoption of a sewer system rules and regulations ordinance on 9/19/19, which will give LCA the authority to inspect private laterals and facilities for illegal connections and perform follow-up enforcement.

16. Suburban Division – Sand Spring WWTP Upgrade Project Construction

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

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and final design was delayed due to DEP Part 2 Water Quality Management and NPDES permitting issues. DEP approval of the Water Quality Management Permit was received in late December 2018, the design was finalized in late Spring 2019, and the project was advertised for bid in July 2019. Bids were opened on 8/13/19 and construction phase authorization was approved at the 8/26/19 Board meeting. A pre-construction meeting will be held following execution of contract documents. **(No Change)**