



LEHIGH COUNTY AUTHORITY

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

Agendas & Minutes Posted:
www.lehighcountyauthority.org

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BOARD MEETING AGENDA – April 22, 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

- *March 25, 2019 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *Summary of 2019 Pay Increases (Information Only) (green)*

WATER

WASTEWATER

- *Suburban Division - Heidelberg Heights Sanitary Sewer Rehabilitation Project (Approval) (yellow)*
- *Suburban Division – Heidelberg Heights Corrective Action Plan (Discussion) (purple)*

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

7. Monthly Financial Review (2nd Board meeting per month) – **March 2019 report attached**

8. Monthly System Operations Overview (2nd Board meeting per month) - **March 2019 report attached**

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.

May 13, 2019

May 20, 2019

June 10, 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

March 25, 2019

The Regular Meeting of the Lehigh County Authority was called to order at 12:00 p.m. on Monday, March 25, 2019, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Jeff Morgan, Richard Bohner, Norma Cusick, Scott Bieber and Ted Lyons. Authority Staff present were Liesel Gross, Brad Landon, Charles Volk, Ed Klein, John Parsons, Chris Moughan, Susan Sampson, Phil DePoe and Lisa Miller.

REVIEW OF AGENDA

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

Liesel Gross noted there will be an Executive Session after the regular meeting to discuss a matter of potential litigation. There are no changes to the agenda.

Chairman Nagle stated that LCA received a Certificate of Achievement for Excellence in Financial Reporting from the Government Finance Officers Association (GFOA) for its Comprehensive Annual Financial Report for the Fiscal Year ended December 31, 2017. The Board congratulated the Staff for this achievement.

APPROVAL OF MINUTES

February 25, 2019 Regular Meeting Minutes

Richard Bohner offered a grammatical correction to the minutes. On a motion by Richard Bohner, seconded by Norma Cusick, the Board approved the minutes of February 25, 2019 meeting as corrected (7-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

Chairman Nagle announced that the Board received their packet in the mail prior to the meeting.

Information Technology Master Plan

Chris Moughan, Chief Information Officer presented a PowerPoint presentation regarding the Information Technology Master Plan and gave an overview of the project which will provide a more technical-level, detailed review of all current systems, current and future configurations/versions, database interdependencies, and security requirements, which will drive planning for replacement and upgrades to maintain a high level of system integrity for all users as the IT team continues to drive innovation and automation at LCA.

Mr. Moughan explained that as part of the Master Plan, an executive summary and a mission statement that works hand-in-hand with LCA's mission statement will be created. The consultant will conduct department discovery reports from an IT standpoint to find where each department can become more efficient. An overall report on their findings will be completed to help LCA define and

prioritize tasks based on those interviews with each department. Mr. Moughan is asking for approval of a Capital Project Authorization in the amount of \$70,000.00 which includes a Professional Services Authorization to EZ Micro Solutions in the amount of \$50,000.00.

Kevin Baker arrived at 12:16 p.m.

Chairman Nagle asked that when the work is finished, will additional approvals be needed to implement the recommendations. Mr. Moughan explained there is funding in the Capital Plan for this year and there is also money in the 5-year plan for this project, which includes estimated expenses to implement new plans and projects that may result from the IT Master Plan. Operationally, the Authority already has a contract with EZ Micro for maintenance of certain systems, and that expense is handled via the annual operations budget.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the Capital Project Authorization in the amount of \$70,000.00 which includes a Professional Services Authorization to EZ Micro Solutions in the amount of \$50,000.00 (8-0).

Final Draft Capital Plan (2020-2024) – All Divisions

Liesel Gross noted that a memorandum attached to the Board agenda packet describes the process and procedure of the capital plans along with the public comments received and also the updated plan details with changes. Individual project sheets that were changed were provided with the Board packet. Ms. Gross noted that the most significant change is the Suburban Wastewater Capital Plan where additional funding was added for the Heidelberg Heights Inflow & Infiltration program to address the overflows within the system. Chairman Nagle commented that the Board has reviewed the capital plans in draft and final stages, along with the comments from the Lehigh Valley Planning Commission and the City of Allentown, and recommends approval.

Jennifer McKenna, City of Allentown Compliance Office, commented that the Compliance Office is pleased to be invited to a capital planning meeting with LCA staff to better understand the planning process. Liesel Gross also noted that internally, the staff will review the next 10 years of projects included in the Allentown Division Water and Wastewater Master Plans and discuss a prioritization process.

Jeff Morgan commented that the additional funding for the Heidelberg Heights project is a great idea.

On a motion by Norma Cusick, seconded by Linda Rosenfeld, the Board approved the 2020-2024 Capital Plans – All Divisions (8-0).

Liesel Gross thanked the Board for the approval and recognized the staff for working through the revised planning process this year, including changes in the funding strategy and revisions to the planning timeline. The result is a plan that addresses key asset management and financial goals for the Authority and is responsive to the Board's request for a shift in the way the Authority funds the capital program.

Resolution No. 3-2019-1 – PennDOT Cost Reimbursement for Utility Relocations for the Rapid Bridge Replacement Project

Chuck Volk gave an overview of the project regarding the replacement of a PennDOT bridge which requires the relocation of an LCA manhole. Because the utilities are within the public right-of-way, the Authority would be responsible for the costs, but PennDOT is using a special program that may allow for some reimbursement. As part of the PennDOT Rapid Bridge Replacement project, the

Authority is requesting Board approval of Resolution No. 3-2019-1 to request 75% reimbursement of the project.

Chairman Nagle asked that the Resolution language be changed to add that the facilities are Authority "controlled" to clarify the Authority does not own the facilities due to the structure of the lease with Allentown.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved Resolution No. 3-2019-1 with the additional wording read by the Solicitor being added (8-0).

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross reported that there are no new action or discussion items since they have been discussed previously. Several items were raised by the Board for clarification or additional information.

Scott Bieber asked what the Mountain View Estates project, under Sewage Planning Modules, consists of. Chuck Volk said the project is in Lower Macungie Township near Reservoir 5 on in the Mountain Road area.

Richard Bohner questioned the status of the Authority's opposition filed with Lower Macungie Township regarding the proposed trucking terminal. Chuck Volk reported that Spotts, Stevens and McCoy reviewed the plan on behalf of the Authority and communicated our comments to the township and township engineer during the approval process of the plan. Mr. Volk said the plan was modified to include those comments and the Authority is satisfied with the result.

Chairman Nagle asked about the status of the Western Lehigh Interceptor (WLI) High Flow Emergency Declaration. Liesel Gross said this is reported on the Monthly System Operations Overview report by John Parsons.

Chairman Nagle also asked if LCA and the other municipalities had responded to the Pennsylvania Department of Environmental Protection (DEP) regarding their questions and comments about the Regional Flow Management Strategy. Ms. Gross stated that a joint response was developed by all the municipalities, the Authority and the City of Allentown, and the response was sent to DEP earlier in March. She will provide a copy of the response document to the Board.

Linda Rosenfeld asked if the Hamilton Street Cedar Creek Bridge project has been restarted. Chuck Volk stated that the Authority's work is complete and PennDOT has restarted their work on the project with a summer completion date.

Scott Bieber questioned if the Authority will receive flow development credits after completion of the rehabilitation of the Western Lehigh Interceptor to remove leakage into the sewer system. Liesel Gross responded that this will be determined when the project is complete and will require discussion with DEP about how to quantify the leakage removed that may be applicable for the flow development credit program.

MONTHLY FINANCIAL REVIEW

Ed Klein gave an overview and summary of the February 2019 financial report, highlighting variances between budgeted expenses and actual or forecasted expenses.

MONTHLY SYSTEM OPERATIONS OVERVIEW

John Parsons reviewed the Monthly System Operations Overview report for February 2019 which included a status report of the Western Lehigh Interceptor (WLI) High Flow Emergency Project as of March 15, 2019. The Phase I contract for the WLI emergency project was signed and a preconstruction meeting was held last week. Phase I work will begin this week. CCTV work is continuing at sections of the Spring Creek pump station and also downstream of the station. Remediation of joint repairs and sedimentation will also begin this week.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 12:53 p.m. The meeting reconvened at 1:00 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:00 p.m. to discuss potential litigation.

The Executive Session ended at 1:36 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 1:36 p.m.

Richard H. Bohner
Secretary



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MEMORANDUM

TO: LCA Board of Directors
FROM: Liesel Gross
DATE: April 22, 2019
RE: Non-Union Employees – Annual Performance Evaluation & Merit Increases

Each year, Lehigh County Authority (LCA) offers pay increases for all employees as follows:

Union Employees – SEIU (82 employees) – per contract, mix of step & general increases

- 2019 = January 1st general increase of 2.5% plus step increases for those who are below the qualified rate for their position.

Union Employees – Sheet Metal Workers (18 employees) – per contract, mix of general, career path & merit-based increases

- 2019 = January 1st general increase of 2.75% plus step increases for those who are below the qualified rate for their position, or 1.75% for those who are red-circled.

Non-Union Employees (64 employees) – merit-based increases following annual performance evaluation process, utilizing budgeted salary pool

- 2019 = budget assumptions included pool of 3% for merit-based increases

LCA's standard process has been to include this information with the preparation of the annual budget so that funds are included and approved with the budget. Then, following completion of the annual performance evaluations, a summary of results is shared with the Board of Directors. This process is scheduled to be completed by the end of the first calendar quarter every year, so that non-union employees receive pay increases with the first full paycheck in the second calendar quarter of the year.

In March, LCA managers began annual performance evaluations for all non-union employees, and the resulting merit-based pay increases will go into effect on April 8, 2019. A summary of the performance evaluation results and use of budgeted funds is attached.

Should the Board require additional details on the implementation of performance evaluations and use of budgeted payroll funds for merit increases, discussion can be held in Executive Session.

Lehigh County Authority - 2019 Merit Increases - Summary - Effective 4/8/2019

	<u>Total</u>	<u>Eligible 4/8/19*</u>	<u>Remainder*</u>
Non-Union Employees	63	58	
Base Salaries	\$ 4,267,376	\$ 3,956,268	\$ 311,108
Salary Increase Pool (3%)	\$ 128,021	\$ 118,688	\$ 9,333

Merit Increases - Total	\$ 119,106
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Increase Pool Remaining - Total	\$ 8,915
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Performance Results:

1 - Does Not Meet Expectations	0
2 - Meets Most Expectations/ Developing in Role	6
3 - Successfully Meets Expectations	37
4 - Exceeds Expectations	14
5 - Significantly Exceeds Expectations	1

Merit Increases

Lowest	1.50%
Average	3.04%
Highest	5.17%

Compa Ratio / Pay Range Position (Before)

Lowest	80.4%
Average	94.6%
Highest	122.7%

Compa Ratio / Pay Range Position (After)

Lowest	83.6%
Average	97.4%
Highest	124.5%

** Employees who were hired, promoted, or received a pay increase within the past 3 months (since January 1, 2019) are not eligible to receive a pay increase as part of this annual process. However, a pay increase may be awarded six months after such action occurred, upon recommendation of the employee's manager, prior to being incorporated into the standard annual evaluation process.*

MEMORANDUM

Date: April 22, 2019

To: Lehigh County Authority Board of Directors
From: Charles Volk, Chief Capital Works Officer
Subject: Suburban Division – Heidelberg Heights Sanitary Sewer Rehabilitation –
Construction Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Construction Phase	\$319,300
2	Construction Contract: Ankiewicz Enterprises, Inc.	\$269,300
3	Professional Services Authorization – Keystone Consulting Engineers	\$18,000

BACKGROUND:

This project is part of the Corrective Action Plan to reduce wet weather inflow and infiltration into the sanitary sewage collection system. Closed circuit video inspection (CCTV) data was used to prioritize the replacement of sewer main pipe and laterals that display a range of defects, including pipe breaks, offset joints, root intrusions, leaking lateral connections, and settlement damage. The goal of this project is to perform sewer pipe replacement of the original vitrified clay pipe in order to restore/extend system life, mitigate wet weather overflow/bypass events at the wastewater treatment plant, and help avoid further DEP Notices of Violation.

PROJECT OVERVIEW:

This project involves the replacement of approximately 1,120 feet of 8-inch sewer main and 26 residential sewer laterals in the Heidelberg Heights sanitary sewage collection system. Sewer laterals will be replaced to the property line with a cleanout assembly installed on each one. Existing manhole structures will be re-used and new frames and covers retrofitted, watertight manhole chimney wrap will be installed, and new watertight gaskets will be installed at manhole pipe connections. The contractor will be responsible for temporary measures, including bypass pumping, in order to minimize sanitary sewer service disruption. Roadway and easement area restoration is included.

FUNDING:

The Project will be funded by the LCA Suburban Heidelberg Heights Division.

BUDGET AMENDMENT:

Not required

PROJECT STATUS:

Board approval is requested for the Construction Phase.

THIS APPROVAL – CONSTRUCTION PHASE:

BIDDING SUMMARY:

This project consists of one contract. The project was advertised for bid via PennBid in March 2019, a pre-bid meeting was held on March 28, 2019 and bids were opened on April 9, 2019. Bids results are follows:

General Construction	
Bidder	Bid Amount
Ankiewicz Enterprises, Inc.	\$269,300
Barrasso Excavation, Inc.	\$289,240
R-III Construction Corp.	\$361,550
Doli Construction Corporation	\$372,530

Ankiewicz Enterprises, Inc. (Tamaqua, PA) specializes in site work and installation of water, sanitary sewer and storm sewer systems and has had numerous municipal clients. The firm's qualifications and experience statement indicates many projects of similar scope and type in eastern PA. The bid documents are in order and the firm appears qualified to perform the work.

PROFESSIONAL SERVICES:

Construction management is to be performed in-house by Capital Works staff, and construction inspection is to be performed by Keystone Consulting Engineers.

PROJECT SCHEDULE:

Based on contract award following the April 22, 2019 board meeting, it is anticipated that the project will be completed by mid-Summer 2019.

FUTURE AUTHORIZATIONS:

None

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	<u>SD-S-17</u>	BUDGET FUND:	<u>Suburban Div\Wastewater\Capital</u>
PROJECT TITLE:	<u>Suburban Division – Heidelberg Heights Sanitary Sewer Rehabilitation Project</u>	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment
THIS AUTHORIZATION:	<u>\$319,300</u>		
TO DATE (W/ ABOVE)	<u>\$319,300</u>		

DESCRIPTION AND BENEFITS:

Sanitary Sewer Rehabilitation Project:

This project involves the replacement of approximately 1,120 feet of 8-inch sewer main and 26 residential sewer laterals in the Heidelberg Heights sanitary sewage collection system. Sewer laterals will be replaced to the property line with a cleanout assembly installed on each one. Also, impacted manholes will be rehabilitated.

Previous Authorizations	
none	

REQUESTED THIS AUTHORIZATION	
Construction Phase	
Construction Contract - Ankiewicz Enterprises, Inc.	\$269,300
Construction Inspection Services – Keystone Consulting Engineers	\$18,000
Staff	\$12,000
Contingency	\$20,000
Total This Authorization	\$319,300

Future Authorization	
Annual sewage collection system rehabilitation projects	TBD

REVIEW AND APPROVALS:

<u>Project Manager</u>	<u>Date</u>	<u>Chief Executive Officer</u>	<u>Date</u>
<u>Chief Capital Works Officer</u>	<u>Date</u>	<u>Chairman</u>	<u>Date</u>



Lehigh County Authority

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PROFESSIONAL SERVICES AUTHORIZATION

Professional: KEYSTONE CONSULTING
ENGINEERS, INC.
One East Broad St., Suite 310
Bethlehem, PA 18018

Date: April 22, 2019

Requested By: Charles Volk

Approvals

Department Head: _____

Chief Executive

Officer: _____

Description of Services:

Suburban Division Facilities – Heidelberg Heights Sanitary Sewer Rehabilitation Project: Construction Inspection Services

Keystone Consulting Engineers, Inc. will perform construction phase inspection services for the construction of the Heidelberg Heights Sanitary Sewer Rehabilitation Project, in accordance with their proposal dated April 12, 2019. The scope of services includes the following:

Professional Services
1. Attend pre-construction conference
2. Attend progress meetings
3. Draft contractor payment application review
4. Perform full time field inspection services
5. Perform Substantial Completion inspection and issue punchlist to LCA
6. Perform Final Completion inspection

Cost Estimate (not to be exceeded without further authorization): \$18,000

Time Table and Completion Deadline: Assumes work will be substantially complete by mid-Summer 2019.

(For Authority Use Only)

Authorization Completion:

Approval: _____ Actual Cost: _____ Date: _____



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MEMORANDUM

TO: LCA Board of Directors
FROM: Liesel Gross
DATE: April 22, 2019
RE: Heidelberg Heights Sewer System – Draft Corrective Action Plan

On February 11, 2019, the Pa. Department of Environmental Protection (DEP) submitted a notice of violation to Lehigh County Authority (LCA) regarding bypasses and permit exceedances at the Heidelberg Heights wastewater treatment plant. As discussed with the LCA Board of Directors 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. The frequent bypasses are reported as part of LCA's monthly operational report, and several projects have been planned to address the issues in this community.

LCA staff met with DEP officials on March 6, 2019 to discuss the problems in the Heidelberg Heights sewer system. As a result of this discussion, LCA is preparing a comprehensive corrective action plan for submission to DEP by May 5, 2019. A draft of the plan is attached for Board review at the April 22, 2019 LCA Board meeting. Portions of the plan still under development include the project cost estimates and financing plan / rate impact.

Please note that the 2020-2024 Capital Plan for LCA's Suburban Wastewater Division, which was approved in March, included funding up to \$1.1 million to address I&I issues in this system. LCA staff believes this is a reasonable estimate for the work outlined in the corrective action plan, subject to additional review. As this corrective action plan is being finalized, the funding requirements for these projects will be further refined and will be reflected in future revisions of the capital plan.



LEHIGH COUNTY AUTHORITY

Heidelberg Heights Sewer System Heidelberg Township, Lehigh County Pennsylvania “CORRECTIVE ACTION PLAN”

**To address
Sanitary Sewer Overflows & Permit Violations**

May 2019



Prepared By:
Lehigh County Authority
PO Box 3348
1053 Spruce Road
Allentown, Pennsylvania 18106

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CORRECTIVE ACTION PLAN

1. Background

1.1. System Overview

The Heidelberg Heights wastewater system, owned and operated by Lehigh County Authority (LCA) was installed in the late 1970s by a developer and acquired by LCA in 1998. The sewerage system is entirely gravity-based (no pump stations) with a collection system that directs residential wastewater from 138 customers to the Heidelberg Heights Wastewater Treatment Plant (HHWWTP), located at 5132 Heidelberg Heights Road, for treatment before discharging to a unnamed tributary to Mill Creek. Please refer to Figure 1 in the Appendix.

1.2. History of Lehigh County Authority System Operation

LCA purchased the Heidelberg Heights wastewater system in September 1998 for \$1 from the private owner / operator who had abandoned the system many years prior to that. The community, including the residents, Heidelberg Township officials, and Pa. Department of Environmental Protection (DEP) officials requested LCA's intervention at the time to address major environmental noncompliance issues at the failed treatment plant. At the time of LCA's initial involvement, there was no operational wastewater treatment and raw sewage was discharging directly from the collection system through the non-functioning treatment plant to an unnamed tributary of Mill Creek, which flows into the Jordan Creek. LCA made immediate improvements within weeks of ownership to provide a nominal level of wastewater treatment. Over the course of the next two years, a brand new wastewater treatment plant with a Sequencing Batch Reactor (SBR) process (see section 2.2) was designed, permitted and constructed, with the new plant going online in October 2000.

Plant construction cost \$927,000 and resulted in a rate increase of 150% from \$264 per year to \$660 per year for the 138 properties served by the system. Over the years that followed, several other programs were initiated to address inflow and infiltration into the system including slip-lining work, direct sewer main replacements, public outreach regarding clearwater connections, and CCTV inspections of the system. The system operated within permit parameters for many years following LCA's construction of the new treatment plant. LCA also assumed ownership and operating responsibility of the water system that serves the Heidelberg Heights community in 2002, which provided some opportunities for operational efficiencies. As a result, LCA has maintained the sewer rates in this area with minimal increases.

1.3. Review of 2016-2018 System Performance

1.3.1. Introduction

As memorialized by the Notice of Violation (NOV) issued by the Department of Environmental Resources dated February 11, 2019, the Heidelberg Heights (HHWWTP) Wastewater Treatment Plant experienced significant difficulties complying with the conditions and numerical effluent limits stipulated in the National Pollution Discharge Elimination System (NPDES) permit during the calendar years 2016, 2017, and 2018. The predominant factor especially in 2018 that led to

these permit excursions was the extraordinary wet weather that had occurred during the period; with plant construction and operator error playing only minor roles in the compliance problems.

1.3.2. Headworks Bypasses

Over the past three years the HHWWTP collection system has exhibited significant Rainfall Derived Inflow and Infiltration (RDII) response to wet-weather events resulting in hydraulic overload conditions at the treatment facility. To prevent sanitary sewer overflows, the only feasible alternative was to initiate partial bypasses from the headworks process, discharging the storm flow to the chlorine contact tank to prevent the equalization tank from overflowing onto the grounds of the treatment facility. In 2016 there were four bypasses, in 2017 seven, and in 2018 twenty- one. The escalation in frequency of bypasses can be attributed to the increase in the amount of precipitation received and the increase in elevation of the groundwater in Lehigh County.

The primary cause of many of the bypasses in 2018, a key subject of the NOV, was the extraordinary weather that the Lehigh Valley encountered during the second half of the year. In the month of August 2018 the National Weather Service recorded 12.21 inches of precipitation for Allentown at the Lehigh Valley International Airport for the month, which was 331% of normal, and second highest on record for the month of August. Please refer to Figure 2 in the Appendix.

An additional contributing environmental factor was the Valley's groundwater elevation. As recorded by the USGS Observation Well number LE 644 in Lehigh County, based on the 28-year statistical daily median value, the groundwater level in Lehigh County was substantially above normal, the elevation rose up to 20 feet above normal during the month of August 2018. Please refer to Figure 3 in the Appendix. This is indicative of the high antecedent soil moisture levels that existed during the period which resulted in the undesirable collection system response to the storms. The elevated groundwater conditions have persisted through the end of the year until now and are still contributing to hydraulic overloads at the facility.

1.3.3. Sanitary Sewer Overflows

On June 18, 2018 and August 13, 2018 the plant staff reported overflows of the sludge holding tank at the facility. These discharges were considered Sanitary Sewer Overflows (SSOs) and were the result of syphoning of mixed liquor suspended solids from the sequencing batch reactors into the sludge holding tank after the waste activated sludge pump had been shut off. The established Standard Operating Procedure to prevent syphoning from occurring was to “shut the discharge valve after sludge wasting was completed”; however, LCA’s contract operator doing rounds at the facility forgot to close the valve and the SSOs occurred. The corrective action taken to prevent future reoccurrence of this problem was to install a Tideflex duckbill check valve on the discharge end of the line to prevent syphoning.

1.3.4. Effluent Limit Exceedances

The February 2019 NOV indicated that between February 2016 and September 2018 there had been twenty-eight exceedances of the effluent limitations established in NPDES Permit No. PA0036102. Upon comparison of the dates that the excursions occurred with the dates of the

bypasses it is apparent in most instances the additional pollutants in the plant effluent were the result of pumping stormwater and raw wastewater to the chlorine contact tank during bypasses. Please refer to Figure 4 in the Appendix. The increased flow and pollutant loading from the raw wastewater and stormwater discharged directly to the chlorine contact tank resulted in exceedance of various CBOD5, TSS, NH3-N, TRC, and Fecal Coliform limits.

The two exceptions to the correlation between the bypasses and the NPDES exceedances occurred in October 2016 and September 2018. The 2016 I-max TRC excursion was the result of operator error and the 2018 fecal coliform and ammonia-nitrogen excursions were the result of operating with one sequencing batch reactor out of service to facilitate a capital project to repair and recoat the carbon steel SBR tanks.

1.4. Corrective Action Plan Goals

At a meeting hosted by PaDEP, a series of long and short-term goals were discussed with the Department with the understanding that the following goals were to be met by LCA. The overarching program goal is the elimination, to the extent practical, all excess inflow and infiltration into the collection system and total compliance with NPDES permit requirements. The primary short-term goal is developing a public sewer system ordinance, Township adoption of the ordinance, and initiating private-side investigatory work facilitated by the ordinance. It is essential that the ordinance contains enforcement provisions to ensure compliance. The longer-term goals include replacement of original unlined VCP pipe in the collection system found to be leaking excessively, rehabilitation of manholes, removal of illegal connections, and working with Heidelberg Township to mitigate negative impacts from the storm drainage system.

2. System Description

2.1. Customer Base & Location

The Heidelberg Heights community is located in northern Lehigh County and is one of the few high-density residential areas within the rural township of Heidelberg Township. The development is located in the southeast section of the township, just north of the Route 309 corridor that runs through the township. While the water system in this area was designed to serve a larger section of the Heidelberg Heights community, the sewer system is smaller and primarily serves properties that are too small for on-lot systems. The customer breakdown is shown below:

Single Family Detached Homes	6
Single Family Attached Homes (twins and townhouses)	129
<u>Apartment Buildings</u>	<u>3 (10 apartment units served)</u>
Total Properties Served	138

While this area has been known to have a relatively high percentage of low-income homes, income-based grant opportunities have been difficult to secure. However, on February 15, 2019, the Pennsylvania Department of Housing HUD program released updated information that illustrates

that this area of Heidelberg Township does fall within Low-Moderate Income parameters to qualify for income-based grant funding (see section 3.3.6).

The impact of lower income levels in this area can be seen via LCA's collections activity in the Heidelberg Heights development for unpaid water and sewer bills. For example, in 2018 LCA applied \$2,518 in late fees for unpaid water and sewer bills in this neighborhood, affecting 77 out of the 138 customers in this system. LCA makes every effort to work with customers to ensure they remain in service despite having difficulty paying. However, this information reflects the challenges of managing system improvements in an environment where the customers cannot afford to pay the cost of these projects.

2.2. Wastewater Treatment Plant

2.2.1. Introduction

The HHWWTP, owned and operated by LCA, is located at 5132 Heidelberg Heights Road in Heidelberg Township, Lehigh County. The facility is permitted to discharge treated effluent to an unnamed tributary of Mill Creek, Watershed 2-C, in accordance with the limitations, monitoring requirements and other conditions set forth in NPDES Permit No. PA0036102 issued by the PaDEP, effective date July 1, 2015.

The original treatment plant and collection system was constructed in the late 1970s by a developer. Soon after purchasing the system in 1998, LCA upgraded the HHWWTP in the year 2000 to its current hydraulic configuration with the addition of a SBR activated sludge wastewater treatment facility.

A hydraulic capacity of 0.06 million gallons per day for the treatment facility has been established to determine "Hydraulic Overload" conditions in preparing the annual Municipal Wasteload Management Report as defined by Title 25 Pa. Code Chapter 94. An organic load of 100 lbs. per day of BOD5 has been established to determine "Organic Overload" conditions.

2.2.2. Headworks

Raw wastewater is delivered to the treatment facility at grade level through an 8-inch sewer pipe at the headworks of the facility. Pretreatment process equipment constructed at the headworks of the plant consists of: a singular comminutor, a manually cleaned static screen, an equalization basin, and several raw wastewater pumps. The comminutor was manufactured by Dynatec Machine Inc., model PH-8, with ¼ inch slots and is driven by a ½ horsepower electric motor. If the comminutor should happen to fail, the wastewater overflows a weir to the 24-inch by 18-inch hand-cleaned screen with 1-inch bar spacing. After passing through either the comminutor or the screen the wastewater flows by gravity directly into an equalization tank, 45.5 feet in length by 11 feet in width, with a side wall depth of 11 feet and a nominal volume of 26,000 gallons. The EQ-Tank serves two purposes: storage of raw sewage in order to equalize surges in flow; and as a wet well for the raw sewage pumps.

The four raw sewage pumps are Goulds Pump ¾ horsepower, 80 gallon per minute, model WS0732BF submersible pumps and provide for the conveyance of raw sewage to the two SBR tanks. The pumps are float switch activated; two pumps are dedicated to each SBR. Alternating relays ensure even wear of the pumps by alternating the lead pump after each activation. Upon

activation of the high-level float switch, all four pumps are started and operate until the EQ-Tank level drops below 81 inches, the point where the high-level switch is no longer made.

2.2.3. Secondary Treatment

Oxidation of biochemical oxygen demand, removal of total suspended solids and nitrification of the raw sewage at the HHWWTP are achieved through the use of Pure Stream Sequencing Batch Reactors (SBR), a fill and draw form of the activated sludge treatment system. In its simplest form, the SBR consists of a single vessel in which timed processes sequentially take place. It is a self-contained activated sludge treatment system incorporating both aeration and clarification in one vessel. At the HHWWTP two SBRs and a programmable logic controller enable the system to function in a manner where one tank is in the “FILL” and “REACT” cycles while the other tank is performing the “SETTLE” and “DECANT” cycles. The SBRs are each 37 feet in length by 12 feet in width, with a side wall depth of 11 feet and a nominal volume of 32,000 gallons each.

Dissolved oxygen and mixing are imparted to the Mixed Liquor Suspended Solids (MLSS) in an SBR by Roots blowers, model 56 URAI rated at 580 cubic feet per minute at 13 psi and driven by 15 HP motors. The three SBR blowers, two online at a time, discharge to individual air headers connected to coarse bubble diffusers constructed in each SBR tank. The SBR blowers are cycled on and off by the PLC based on the sequencing logic. There are two additional Roots blowers, model 33 URAI rated at 195 cfm at 13 psi and driven by 3 HP motors, each dedicated to the aeration and mixing of the E-Tank and sludge storage tank respectively.

Floating decanters provide the means for removal of the clarified liquid from the surface of each tank following the “SETTLE” sequence. The decant pumps, Goulds Pump 1 horsepower, 100 gallon per minute, model WS1032BF submersible pumps are mounted on the floating frame of the decanters and convey the clarified effluent to the chlorine contact tank for disinfection.

2.2.4. Disinfection

The chlorine contact tank is 9 feet in length by 9.3 feet in width, with a side wall depth of 9 feet and a nominal volume of 5,700 gallons. Sodium hypochlorite is introduced to the contact tank through a diffuser fed by a 5 gallon per day Stenner peristaltic metering pump drawing from a 300-gallon polyethylene chemical storage tank. Chlorine is typically dosed at a concentration of approximately 2 parts per million in order to achieve the destruction of pathogenic and indicator organisms. The NPDES permit contains relatively tight total residual chlorine limits of 0.1 mg/L as a monthly average and 0.25 mg/L as an instantaneous maximum, therefore sodium bisulfite is applied at the end of the chlorine contact tank to attain dechlorination. The sodium bisulfite injection system is comprised of a 45-gallon polyethylene chemical storage tank, a Stenner peristaltic metering pump with a rated capacity of 17 gallon per day and a diffuser. From the Chlorine contact tank, the dechlorinated effluent travels by gravity approximately 30 feet through a 4-inch PVC pipe and is discharged from Outfall 001 to an unnamed tributary of Mill Creek.

2.2.5. Solids Handling

In suspended growth processes such as the SBR, organic and inorganic wastes are consumed by microorganisms, resulting in the production of more microorganisms and their remains known

as activated sludge. If activated sludge inventories, commonly referred to as Mixed Liquor Suspended Solids (MLSS), are allowed to grow without limit, eventually the overabundance of MLSS will overload the system, be carried into the plant discharge, and will degrade effluent quality. At the HHWWTP Goulds Pump 1 horsepower, 80 gallon per minute, model WS1032BF submersible pumps are located in each SBR to pump Waste Activated Sludge (WAS) to a sludge holding tank located next to the EQ-Tank. Sludge wasting is operator activated based on analysis of MLSS samples and sludge settleability.

On a routine basis, the solids are separated from the liquid in the sludge holding tank by shutting down the aeration system and allowing the solids to settle to the bottom. The clear liquid is then pumped from the surface of the tank (decanted) by a Goulds Pump ½ horsepower, 90 gallon per minute, model WS0532BF submersible pump to the EQ-Tank to make room for additional wasting. When liquid/solids separation is no longer achievable to the extent required to facilitate sludge wasting, a local septage hauler is contracted to pump the sludge into a tank truck and haul it to LCA's Industrial Pretreatment Plant for final stabilization and disposal.

2.2.6. Standby Power

The HHWWTP is located in a rural portion of Lehigh County. Therefore, in the past power outages had been a concern relating to the continuous operation of the treatment facility. To provide power during times where there is a loss of commercial electrical service, LCA installed a Kohler 125 kW emergency generator and transfer switch. The generator automatically starts upon loss of power and is capable of providing enough power during an outage to run all of the unit process equipment at the facility.

2.3. Sewer Collection System

The Heidelberg Heights Sanitary Sewer Collection System consists of approximately 1,070 linear feet of 8-inch polyvinyl chloride sewer main pipe, 4,685 linear feet of 8-inch vitrified clay sewer main pipe, 700 linear feet of 8-inch transite asbestos sewer main pipe, 28 manholes, and 138 sewer laterals. The entire collection system is gravity based with no pump stations that directs wastewater to the HHWWTP for treatment before being discharged to a tributary of Mill Creek. Please refer to Figure 5 in the Appendix.

2.4. Current System Characterization

In 2017 LCA conducted a full-scale system characterization of the Heidelberg Heights Sanitary Sewer System based heavily upon Closed-Circuit Television (CCTV) inspections. At that time LCA began the development of a Computerized Maintenance Management System (CMMS) program to repair or replace public infrastructure found to be approaching failure. Within the subsequent years after, one major sewer main replacement project has been completed and another is anticipated to begin construction in the Spring of 2019. Following the CMMS scheduled CCTV program, in early March 2019 LCA began performing CCTV inspections of both the original and newly installed sewer mains. This data collected yielded that no new defects or problems had developed in the public system since 2017. LCA observed that within the newly replaced sewer main, a reduction in I&I has occurred. However, during the days following a heavy wet weather event, apparent illicit clearwater

connections have been observed in manholes, likely traceable to the privately owned portions of the system. Please refer to Figure 6 in the Appendix.

2.5. Current System Operation & Maintenance Program

2.5.1. HHWWTP Operation Program

2.5.1.1. Introduction

The LCA Suburban Operations Division is responsible for the operation and maintenance of the HHWWTP. The utilization of the Programmable Logic Controller (PLC)-controlled SBR activated sludge process facilitates unmanned operations, and the use of a PLC microcomputer provides for hundreds of process control changes to be made automatically in order to achieve secondary treatment and permit compliance. Operations staff relies on a landline dialup system for alarms to alert staff of plant problems during the majority of the time when the facility is unmanned. Nevertheless, the facility requires a significant amount of operator attention and housekeeping in order to maintain plant operations and regulatory compliance.

2.5.1.2. Staffing

The staff at the Suburban Operations Division consists of 18 employees and one supervisor. Three employees are committed to the operation of LCA's five small wastewater treatment plants, inclusive of the HHWWTP. One of the three employees responsible for the WWTP operations holds the position of Wastewater Plant Foreman and is on record as the operator in responsible charge for the facility. Two members of the wastewater plant crew are certified to the proper level in accordance with the state board of certification of water and wastewater system operators and regulations of the PaDEP.

The manpower and resources from the other functional groups in the Suburban Division are brought to bear as required by the work needs of the wastewater treatment plant. Additionally, outside contractors are utilized as required to supplement LCA's operations staff.

2.5.1.3. Facility Monitoring

Currently, LCA operators make rounds at the HHWWTP on Monday and Thursday of each week. The routine testing, process control, and housekeeping activities at the facility require approximately 2-manhours per visit. There is a checklist utilized to ensure all operator duties are completed during the visit. Please refer to Figure 7 in the Appendix.

On Monday and Friday of each week, a contract operator is utilized to complete rounds at the facility. The extent of the inspections performed by the contractor's employee is significantly less than those completed by the LCA operations staff.

During times when the facility is unmanned, a dialup system provides notification of problems at the facility. A text message of the facility ID and nature of the problem is sent to a beeper carried by the Wastewater Plant Foreman during the day and to the callout technician during off-hours. Alarms provided by the dialer are as follows: Power Fail, Surge

Pump Fail, Blower Fail, High SBR Tank, Comminutor Fail, High Surge Tank, High High Surge Tank, and Chemical Spill Alarm (Hypo).

2.5.1.4. Sampling and Testing

The NPDES permit for the facility requires Flow, pH, DO, and TRC be measured at least once per week. These parameters are measured upon each visit of LCA staff or contract operator to the plant. Most of the other NPDES analytes have testing frequencies of twice a month. The operators collect the required samples (either grab or composite) for analysis by LCA's Laboratory or a contract commercial wastewater laboratory. The only exception is the measurement of TDS concentration in the plant effluent; a grab sample for this analysis is collected once a quarter. Plant headworks bypasses at the facility are sampled and tested for all NPDES analytes.

Process control testing performed by LCA staff is comprised of measuring the DO and pH of MLSS in the SBRs; a 30-minute settleometer test for each reactor; and a colorimetric test of the effluent NH₃-N concentration. The results of all samples analyzed are taken into consideration during development of the plant operating strategy.

Finally, process control samples of the Mixed liquor Suspended Solids (MLSS) are collected and analyzed to determine the total suspended solids concentration.

2.5.1.5. Process Control

In smaller activated sludge facilities such as HHWWTP, the most commonly used method for maintaining the proper inventory of treatment microorganisms is to keep a constant Mix Liquor Suspended Solids (MLSS) concentration in the biological reactors. Through years of experience operating the HHWWTP, the treatment plant operators have determined that the summer MLSS concentration must be about 2,500 to 3,000 mg/L and the winter MLSS concentration must be approximately 4,000 to 5,000 mg/L in the SBR reactors in order to maintain compliance with BOD₅, TSS, and NH₃-N limits specified in the NPDES Permit.

If activated sludge inventories, namely MLSS, are allowed to grow without limit and eventually the overabundance of MLSS will overload the system, be carried into the SBR decant, and will degrade effluent quality. The means by which the MLSS is controlled at the proper concentration is through sludge wasting.

Based on total suspended solids analysis and settleometer test results, sludge wasting is manually undertaken by the operators upon each visit to the plant. Although the PLC has been programmed to activate the Waste Activated Sludge (WAS) pumps as part of each complete sequence, the system has experienced frequent siphoning of MLSS after the WAS pumps shut off which has resulted in overflows at the Sludge Holding Tank. Therefore sludge wasting is a manual operation in which, based on conditions, the operators move 500 to 1500 gallons of MLSS to the Sludge Holding tank by operating the WAS pumps. Upon completion of the wasting operation, the WAS pumps are valved off to prevent any unintentional siphoning movement of sludge.

2.5.1.6. Housekeeping

The accumulation of wastewater residuals in certain unit processes requires routine emptying and cleaning of these tanks. The treatment plant facilitate tank cleaning operations utilizing the LCA vacuum truck or via a contracted hauler.

About once per quarter, the EQ-Tank requires cleaning to remove accumulated feminine hygiene products, grit, and organics. About once a month the Chlorine Contact Tank requires cleaning in order to remove accumulations of solids which had carried over and collected on the floor of the vessel.

In late 2017, the SBR tanks were taken out of service, one at a time, to facilitate cleaning, repair, and painting of these carbon steel vessels. The 2019 capital improvement program contains budgeted funds for structural and mechanical rehabilitation work to be performed on the equalization/sludge holding tank at the HHWWTP.

2.5.2. HHWWTP Maintenance Program

2.5.2.1. Introduction

Plant maintenance at the HHWWTP, along with all of LCA's other water and wastewater infrastructure, has recently been migrated from a paper system to utilization of a Computerized Maintenance Management System (CMMS). The implementation of the Cityworks enterprise asset management system has enabled LCA to develop a long-term asset management strategy, build a business case for necessary personnel and resources, identify strategic capital investments, implement process improvements, enhance organizational efficiency, and build more resilient, sustainable, and cost-effective water and wastewater systems.

The Cityworks CMMS has allowed LCA to track work performed on any asset at any given time throughout its lifecycle. Users can easily search for active work orders and view them dynamically on the GIS map. The LCA staff can easily track overdue work orders and monitor preventative versus corrective maintenance.

2.5.2.2. Preventative Maintenance

Preventative Maintenance (PM) activities at the HHWWTP are scheduled based on equipment manufacturer's recommended scope and frequency. Each piece of process equipment at the facility has been captured in the CMMS as an asset and the required routine maintenance scheduled as specified in the equipment manufacturer's O&M manual. When the maintenance on a specific piece of equipment comes due, the system software posts the work order in the Wastewater Plant Foreman's CMMS dashboard queue. The Foreman then assigns the work order to the Technician he wants to complete the work. Upon completion of the PM activity, the Technician completes the work order closeout process by entering the man-hours required, materials used, and date completed. Final closeout of the work order is completed by the Foreman after review for accuracy and completeness.

Routine weekly plant inspections and maintenance activities are assigned through a plant inspection work order. The workflow for assignment, completion, and closeout is exactly the same as utilized for the PM work orders.

2.5.2.3. Corrective Maintenance

Scheduling of the completion of Corrective Maintenance (CM) work orders is handled by taking into consideration the priority of the work and the criticality of the equipment requiring repairs. Plant emergencies are immediately assigned to a Technician and the CMMS record keeping follows upon completion of the work.

For lower priority and less time-sensitive repairs, a work order is generated by the staff member discovering the problem. The CMMS software posts the work order in a Foreman's CMMS dashboard queue. The work is then scheduled based upon its criticality amongst other pending Suburban Division Operations work orders. Typically the timing for the completion of these work orders is decided at the weekly foremen's meeting. The Foreman then assigns the work order to the Technician he wants to complete the work. Upon completion of the CM activity the Technician completes the work order closeout process by entering the man-hours required, materials used, and date completed. Final closeout of the work order is completed by the Foreman after review for accuracy and completeness.

2.5.3. Sewer Collection System Operation Program

2.5.3.1. Introduction

The LCA Suburban Operations Division is responsible for the operation and maintenance of the Heidelberg Heights Sanitary Sewer Collection System.

2.5.3.2. Staffing

The staff at the Suburban Operations Division consists of 18 employees and one supervisor. To facilitate the operation and maintenance of the system, LCA has a dedicated Sewer Collection System Foreman that is in charge of the system. To assist the foreman, there are 7 Suburban Operation Division members with NASSCO certifications (MACP & LACP) and two that are certified in accordance with the state board of certification of water and wastewater system operators and regulations of the PaDEP.

The manpower and resources from the other functional groups in the Suburban Operation Division are brought to bear as required by the work needs found within the system. Additionally, outside contractors are utilized as required to supplement LCA's staff.

2.5.4. Sewer Collection System Maintenance Program

2.5.4.1. Introduction

Sewer system maintenance, along with all of LCA's other water and wastewater infrastructure, has recently been migrated from a paper system to utilization of a CMMS. The implementation of the CMMS has enabled LCA to develop a long-term asset management strategy, build a business case for necessary personnel and resources, identify strategic capital investments, implement process improvements, enhance organizational

efficiency, and build more resilient, sustainable, and cost-effective water and wastewater systems.

The CMMS has also allowed LCA to track work performed on any asset at any given time throughout its lifecycle. Users can easily search for active work orders and view them dynamically on a Geographical Information System (GIS) map. The LCA staff can easily track overdue work orders and monitor preventative versus corrective maintenance.

2.5.4.2. Preventative Maintenance

LCA's Preventative Maintenance (PM) activities on the collection system are based on a management, operations, and maintenance program that was developed for the needs of the Heidelberg Heights Sanitary Sewer System. The program consists of CCTV inspections on approximately 1.22 miles of sanitary sewer mains and 138 lateral connections every 5 years, 28 manhole Inspections every 3 years, and quarterly jetting of known problem areas. Activities such as nighttime weiring and smoke testing is performed on an as needed basis. All of this work will be captured in the CMMS as an asset with a required maintenance schedule. Additionally, when maintenance on a specific piece of infrastructure comes due, the system software posts the work order in the Foreman's CMMS dashboard queue. The Foreman then assigns the work order to the appropriate LCA Suburban Operation Division Staff Member (Technician) for execution and completion. During the final closeout process of PM work orders all the man-hours required, materials used, and date completed are collected and used by the Foreman for accuracy and completeness.

2.5.4.3. Corrective Maintenance

Scheduling and completion of Corrective Maintenance (CM) work orders are handled by, taking into consideration the priority of the work and the criticality of the infrastructure requiring repairs. Sewer emergencies are immediately assigned to a Technician and the CMMS record keeping follows upon completion of the work.

For lower priority and less time-sensitive repairs, a work order is generated by a Technician when discovering a problem within the sanitary sewer collection system. The CMMS software then posts the work order to the Foreman's CMMS dashboard queue to be reviewed and scheduled based upon its criticality amongst other pending Suburban Division Operations work orders. During weekly Foreman's meetings, the scheduling for the execution and completion of generated CM work orders are assigned to certain Technicians to complete. During the final closeout process of the CM work orders all the man-hours required, materials used, and date completed are collected and used by the Foreman for accuracy and completeness.

2.6. Previous Projects Completed to Address Inflow & Infiltration

In 2018, LCA completed a major sanitary sewer main rehabilitation project in Heidelberg Heights. The project consisted of the replacement of approximately 1,100 feet of original 8-inch VCP sewer main, 54 new sewer laterals, and installation of cleanouts on each replaced lateral at the property line. Roadway restoration and new manhole pipe seals were also included. The replaced

sewer main was prioritized based on number of defects per 100 feet of pipe, as gathered from CCTV work completed in 2017.

In 2019, LCA will complete another major sanitary sewer main rehabilitation project in Heidelberg Heights. The project consists of the replacement of approximately 1,100 feet of original 8-inch VCP sewer main, 25 new sewer laterals and installation of cleanouts on each replaced lateral at the property line. Also included are new manhole frames and covers, leak seal manhole chimney wrap, new manhole pipe seals, and roadway and easement restoration. The sewer main to be replaced was prioritized based on the next tier of pipe defects, as gathered from CCTV work completed in 2017.

3. Corrective Action Plan

3.1. Updated System Characterization

3.1.1. CCTV Inspection of Sanitary System

Following the completion of CCTV work in 2019 as described in Section 2.4, CCTV work will continue in five-year intervals according to the CMMS schedule. The data collected during these inspections will assist in determining if any additional impacts have occurred that would require additional rehabilitation.

3.1.2. Inspection of Public Laterals

Due to the lack of entry points (cleanouts) in the existing laterals, inspection of the existing laterals is nearly impossible to conduct. LCA anticipates inspecting portions of the private laterals during annual sewer main replacement projects. Conducting inspections at this time would allow for easier access to the private laterals. Additionally, LCA will be replacing the public portion of the lateral and installing an external cleanout to provide an external entry point to inspect laterals every five years as established by our CMMS program. In conjunction with LCA's inspection findings of the privately owned portions of the lateral, a database of reported findings will be established and used for corrective action to be addressed by the homeowner (see section 3.3.5).

3.1.3. Inspection of Manholes

Starting in 2019 LCA plans to begin collecting manhole inspection data through the use of our CMMS program. LCA will be conducting these inspections once every three years in an effort to provide not only data collection for possible failures in the structure, but additionally to aid in investigations of illicit private lateral clearwater connections. Furthermore, LCA will update and/or modify the timing and scope of yearly capital projects based upon these inspections.

3.1.4. Nighttime Weir Inspection

Starting in 2019 LCA will conduct nighttime weiring inspections during peak wet weather conditions to help trace the illicit private lateral clearwater connections to the public system. LCA anticipates conducting these inspections annually following peak wet weather events.

Furthermore, LCA will update and/or modify the timing and scope of yearly capital projects and initiate enforcement efforts based upon these inspections.

3.1.5. Smoke Testing

After the adoption of the Heidelberg Township Sewer Ordinance in 2019 (see section 3.3.5), will begin a program of smoke testing to locate sources of I&I from both public and private portions of the system. Moving forward, LCA anticipates conducting these inspections on an as needed basis, driven by observations and inspections detailed in section 3.1. Furthermore, LCA will update and/or modify the timing and scope of yearly capital projects based upon these inspections.

3.1.6. CCTV Inspection of Stormwater System

On March 13, 2019, LCA met with Heidelberg Township to discuss the challenges of the wastewater system in the Heidelberg Heights development. During this meeting, LCA and the township agreed to coordinate efforts to inspect the township's stormwater system in conjunction with LCA's inspection of the sanitary sewer system. Where there are areas of the stormwater system that require rehabilitation to prevent clearwater from entering the sanitary sewer system, LCA and the township will coordinate construction schedules to optimize project cost efficiency. This is an on-going discussion with no specific schedule established at this time, due to other priority programs the township is undertaking, including review of the township's sewer ordinance to support LCA's activities (see section 3.3.5).

3.2. Public Sewer System Improvements

Capital Improvements listed within the annual projects below are contingent and subject to change from updated system characterizations as outlined in section 3.1. Please refer to Figure 8 in the Appendix.

3.2.1. Capital Improvements – 2019

The 2019 Inflow and Infiltration remediation Project includes replacement of approximately 1,150 linear feet of 8-inch vitrified clay sanitary sewer pipe with new polyvinyl chloride pipe along Heidelberg Heights Road (from Glen Court east to the Wastewater Treatment Plant), replacement of 26 vitrified clay sewer laterals with new polyvinyl chloride pipe (to right-of-way or easement line), installation of a clean-out assembly on each lateral, restoration of 6 manholes, and pavement and turf restoration. Additionally, rehabilitation work is to be performed on the equalization/sludge holding tank at the Wastewater Treatment Plant. The partitioned steel tank was part of the original plant, installed in the mid-1970s, and has areas of corrosion and loss of structural integrity. The project consists of structural improvements, cleaning, sandblasting, and painting the interior and exterior exposed areas of the tank. The 4 SBR feed pumps will also be replaced as part of this project. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ (TBD) combined.

3.2.2. Capital Improvements – 2020

The 2020 Inflow and Infiltration remediation project includes replacement of approximately 900 linear feet of 8-inch vitrified clay sanitary sewer pipe with new polyvinyl chloride pipe along Glen Court (south of Heidelberg Heights Road), replacement of 12 vitrified clay sewer laterals with new polyvinyl chloride pipe (to right of way or easement line), installation of a clean-out assembly on each lateral, restoration of 4 manholes, and pavement and turf restoration. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ _ (TBD) combined.

3.2.3. Capital Improvements – 2021

The 2021 Inflow and Infiltration remediation project includes replacement of approximately 1,000 linear feet of 8-inch vitrified clay sanitary sewer pipe with new polyvinyl chloride pipe along Lake View Street and Thompson Drive (from Glen Court), replacement of 21 vitrified clay sewer laterals with new polyvinyl chloride pipe (to right of way or easement line), installation of a clean-out assembly on each lateral, restoration of 6 manholes, and pavement and turf restoration. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ _ (TBD) combined.

3.2.4. Capital Improvements – 2022

The 2022 Inflow and Infiltration remediation project includes replacement of approximately 1,170 linear feet of 8-inch vitrified clay sanitary sewer pipe with new polyvinyl chloride pipe along Heidelberg Heights Road (from Glen Court west to end manhole), replacement of 10 vitrified clay sewer laterals with new polyvinyl chloride pipe (to right of way or easement line), installation of a clean-out assembly on each lateral, restoration of 4 manholes, and pavement and turf restoration. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ _____(TBD) combined.

3.2.5. Capital Improvements – 2023

The 2023 Inflow and Infiltration remediation project includes the construction of headworks improvements at the Wastewater Treatment Plant. The improvements consist of the installation of mechanical fine screen, concrete headworks vault, heated screen enclosure, dumpster pad, and other associated improvements and supporting equipment. The screen shall replace a problematic communitor that has been the site of prior hydraulic overflows. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ _____(TBD) combined. It is anticipated that private side work will begin around this time for the replacement of private sewer laterals that are identified as contributing to the inflow and infiltration into the public system. The private lateral work is anticipated to be performed over a 2-year period.

3.2.6. Capital Improvements – 2024

Final replacement of original unlined VCP pipe will be completed in 2024, to address the balance remaining after consecutive annual sewer main rehabilitation projects. Engineer's estimate of probable cost, which includes construction, internal engineering and management, and outside inspection service is approximately \$ _____(TBD) combined. System-wide CCTV work will be performed for an updated baseline of system condition. The private side lateral replacement project will conclude in 2024.

3.3. Private Sewer Laterals & Illicit Clearwater Connections

3.3.1. Coordination with Heidelberg Township

On March 13, 2019, LCA met with Heidelberg Township to discuss the challenges of the wastewater system in the Heidelberg Heights development. During this meeting, LCA presented a proposed revision to the township's sewer ordinance to address several issues of importance that will support implementation of this Corrective Action Plan. Such provisions include:

- Authority delegated to LCA for inspection of private property for clearwater connections.
- Authority delegated to LCA to conduct other inspection work such as smoke testing and private sewer lateral inspections.
- Requirement for sewer lateral inspection and certification at the time of property sale.
- Enforcement provisions regarding resident noncompliance with inspections or failure to correct deficiencies or remove clearwater connections.

This sewer ordinance revision is being reviewed by the township and will be discussed and revised further in the months ahead. LCA and the township will work together to finalize the sewer ordinance by the end of 2019.

3.3.2. Public Outreach

Messaging will be developed to deliver to Heidelberg Heights Sanitary Sewer System customers in a layered approach, in cooperation with the Township, including placement of messages through the Township's newsletter and website: www.heidelberghigh.org

Detailed written correspondence will inform impacted customers to help them understand the Corrective Action Plan, including key messages to:

- Clearly define illicit clear water connections
- Outline ordinance & changes
- Identify actions required by residents (basement inspections, future private sewer lateral inspections)
- Alert customers of upcoming work, impact to service, smoke testing, etc.

A dedicated page will be developed for our customers to provide project updates/timeline/etc., if needed.

LCA will work with the Township office to host in-person educational meetings for residents to help them understand the CAP, new requirements of the Township ordinance, why these changes are necessary, benefits to residents and their responsibilities.

Public outreach will commence within three months of the Township public sewer system ordinance adoption, notifying customers of the anticipated inspection schedules.

3.3.3. Basement Inspection Program

The Township public sewer system ordinance will define illegal connections to the sanitary sewer system and prescribe an enforcement policy, which will contain notification and fine provisions. Following the development and adoption of a public sewer ordinance, LCA will commence its public outreach program (see section 3.3.2) to inform residents about the importance of prohibiting stormwater and groundwater from entering the sanitary sewer system. The township sewer ordinance will empower LCA with the authority to investigate private side sewer system components. The public outreach efforts will precede the initiation of a program to inspect each residence in the sewer service area for illegal connections - basement drains, sump pump connections, and roof drain connections. The inspection program for residential plumbing is anticipated to be performed by a third party, and will be coordinated with Heidelberg Township. Enforcement efforts will follow, based on the findings of the inspection program.

3.3.4. Private Sewer Lateral Inspection Program

Following the installation of cleanout assemblies on each residential sewer lateral, the building sewer on the private side will be inspected. The cleanout assemblies will facilitate the insertion of a camera into the line, which will be directed towards the residence. The CCTV work will identify cracks, separated joints, and other pipe defects; this data will be used to scope a private building sewer rehabilitation project, anticipated to be constructed within the 5-year Corrective Action Plan window as referenced in section 3.2.5.

3.3.5. Enforcement

The ban on basement drains, sump pumps, and roof drain connections to the sanitary sewer system will be enabled through the enforcement provisions of the Township's public sewer ordinance. The ordinance will empower LCA with enforcement authority to ban illegal connections and perform private side sewer system inspections. Upon completion of the initial round of system-wide plumbing inspections and enforcement, LCA will conduct inspections every 5 years of private side sewer components, or as needed based on system performance to identify any re-connections or new connections that have occurred. Disconnection of those illegal connections will be performed in accordance with the sewer ordinance.

The draft ordinance includes enforcement provisions for failure to comply with its requirements, including daily fines up to \$1,000.00. LCA may also implement water service shutoff's to achieve compliance in place of or in addition to these fines.

3.3.6. Private Financial Aid

Currently, LCA is seeking financial assistance for our customers through the Lehigh County Community Development Block Grant program. Recently, Housing and Urban Development (HUD) released new block group income data, which will go into effect on April 1, 2019 that would allow some customers in the community to take advantage of local grants to replace their

private infrastructure. For many years, Heidelberg Township did not have any low- to moderate-income (LMI) block groups but the newly released data reflects a new addition. This new block group addition will give customers in Heidelberg Township greater flexibility in qualifying projects that affect their privately owned systems.

4. High Flow Management Plan

High Flow Management Plan to be enclosed in the final document submission.

5. Proposed Financing & Rate Impact

This section TBD after final cost estimates are developed.

6. Reporting and Regulatory Review

LCA recommends the following approach to reporting and regulatory review for this Corrective Action Plan:

LCA will report annually to DEP about our progress toward completing the activities outlined in the CAP as part of our Annual Wasteload Management Report (Chapter 94 report). As needed, we will meet with DEP officials for system inspections or more detailed review of plant performance and bypasses while the CAP is in place from 2019 to 2024. We expect system performance to improve incrementally each year during the CAP timeline as projects are completed. The Consent Order & Agreement would remain in place until March 31, 2025 when LCA submits its Chapter 94 report detailing the completion of all projects outlined in the CAP for the period of 2019 to 2024.

Appendix

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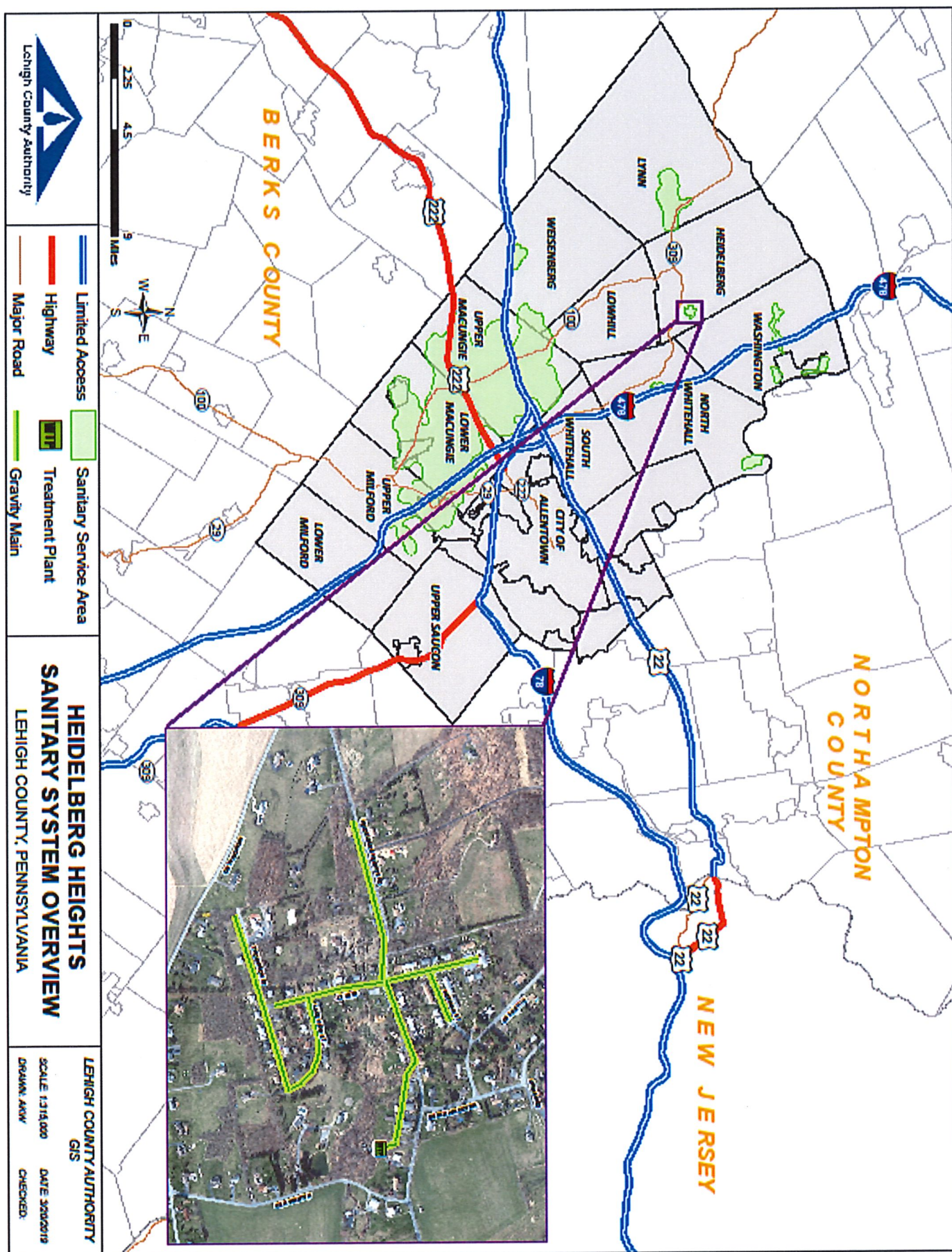
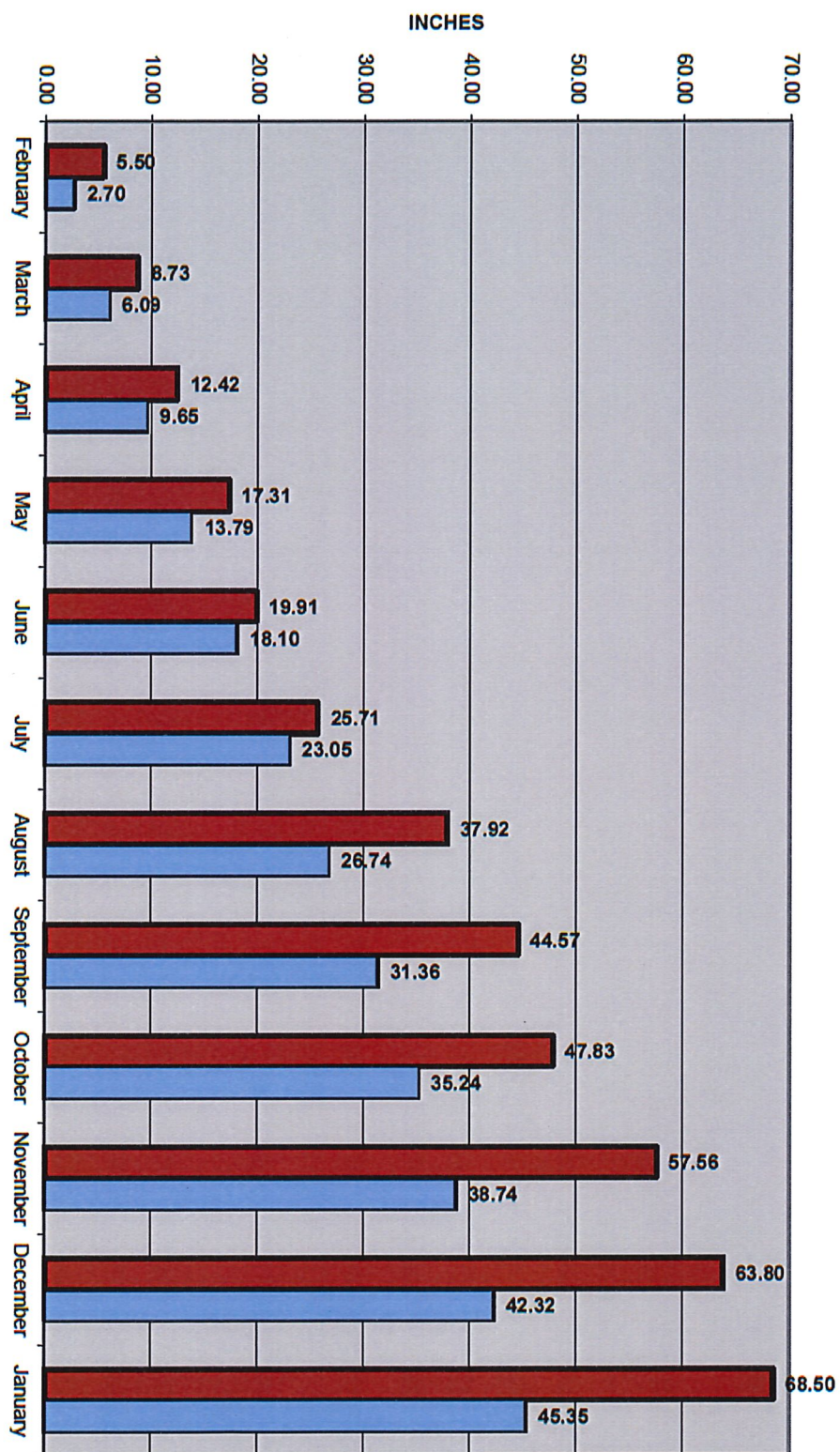


Figure 1



NWS METEOROLOGICAL DATA LEHIGH VALLEY AIRPORT
2018 -19 Accumulative Rainfall / Average Accumulative Rainfall

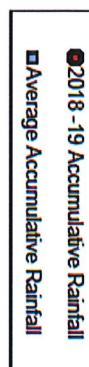


Figure 2



USGS 403429075392401 LE 644 Lehigh County Observation Well

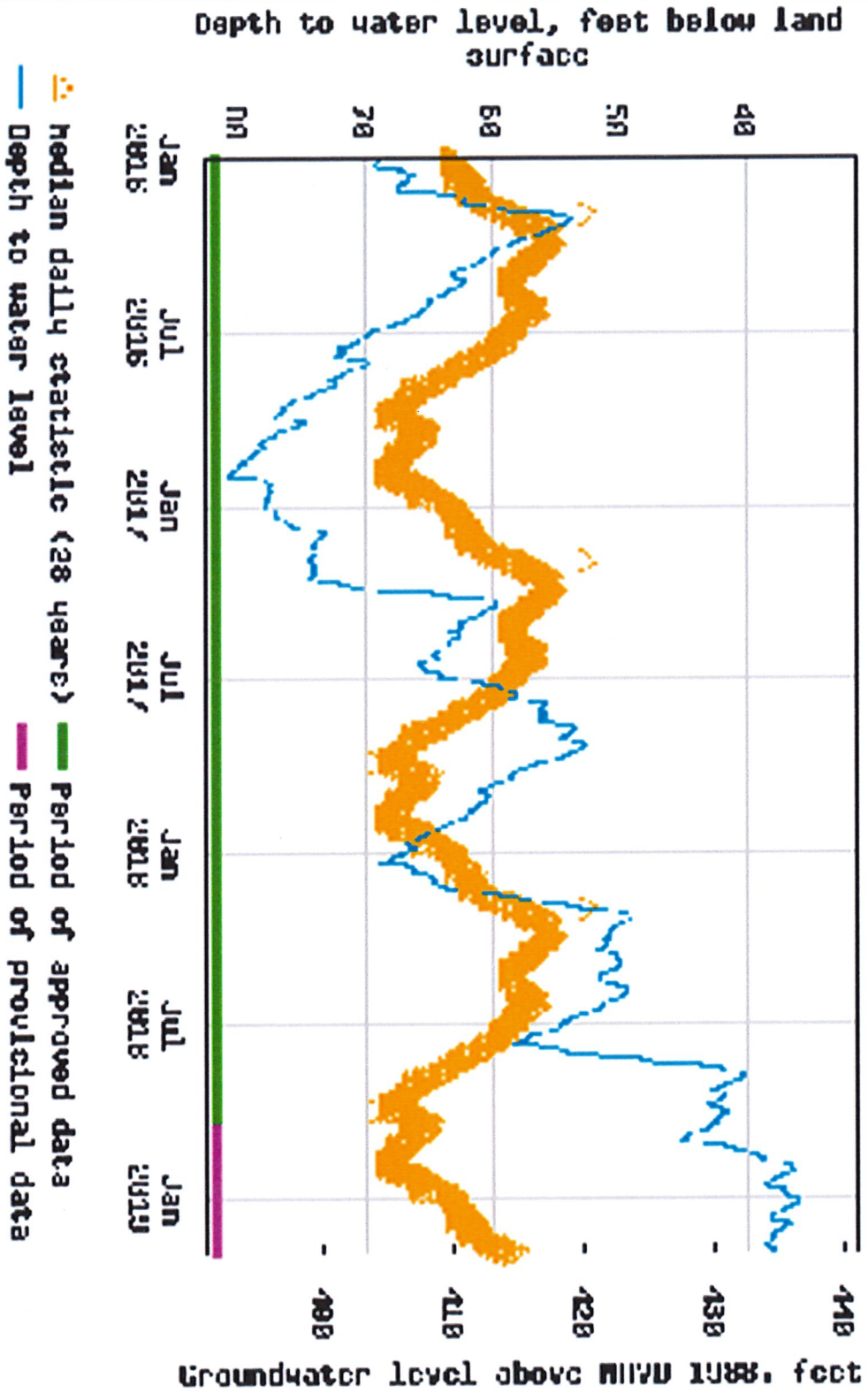


Figure 3

**LEHIGH COUNTY AUTHORITY
HEIDELBERG HEIGHTS WASTEWATER TREATMENT PLANT
PERMIT COMPLIANCE ASSESSMENT**

BASED ON NWS METEOROLOGICAL DATA - LEHIGH VALLEY INTERNATIONAL AIRPORT							USGS LE-644	NPDES PERMIT CONCENTRATION OR LOADING LIMIT
BYPASS DATE	DAY OF	PREVIOUS 72 HOURS	MONTHLY TOTAL	PERCENT OF NORMAL	12-MONTH SURPLUS/DEFICIT	OBSERVATION WELL	GROUNDWATER	VIOLATIONS RESULTING FROM BYPASSES
	EVENT (inches)	72 HOURS (inches)	TOTAL (inches)	NORMAL (%)	(inches)	(ft. from surface of land)		
March 31, 2017	143	0.75	5.26	155	-8.17	68.60		The bypasses on 3/31-4/3 and 4/7-8 caused the monthly average violations for CBOD and TSS and the 4/1-7 CBOD weekly average
April 7, 2017	003	1.49	2.62	74	-7.34	61.55		The fecal instantaneous max violation occurred during the 6/24-25 bypass
June 24, 2017	116	0.65	5.30	123	-3.75	65.08		The bypasses on 7/7 and 7/24-27 caused the CBOD and TSS monthly average and TSS weekly average violations. The instantaneous max fecal violation occurred during the 7/24-27 bypass
July 7, 2017	178	0.02	8.21	168	-2.26	60.82		The fecal instantaneous max violation occurred during the 8/12 bypass
July 24, 2017	085	1.46	8.21	168	-2.26	56.01		The CBOD weekly average and Nitrate-Nitrite monthly average violations due to No. 1 SBB tank down for painting, unrelated to the bypass
August 12, 2017	002	1.19	8.45	229	4.20	55.93		The CBOD weekly average and Nitrate-Nitrite monthly average violations due to No. 1 SBB tank down for painting, unrelated to the bypass
October 30, 2017	016	1.71	3.81	98	7.16	60.70		No Associated Violation
January 13, 2018	056	1.08	3.17	105	4.61	67.82		No Associated Violation
January 23, 2018	082	0.00	3.17	105	4.61	66.02		The fecal instantaneous max violation occurred during the 2/11-14 bypass
February 11, 2018	065	0.18	5.50	204	8.41	62.09		No Associated Violation
February 16, 2018	043	0.27	5.50	204	8.41	58.68		No Associated Violation
February 22, 2018	037	0.12	5.50	204	8.41	56.54		The fecal instantaneous max violation occurred during the 3/2-5 bypass
March 2, 2018	077	0.68	3.23	95	6.38	62.08		The fecal instantaneous max violation occurred during the 4/16-20 bypass.
April 16, 2018	138	0.20	3.69	104	7.45	51.39		The fecal and TRC instantaneous max violation during the 5/19-25 bypass
May 19, 2018	118	0.71	4.89	118	8.13	51.07		The fecal instantaneous max violation and the 6/1-2 bypass were the result of a water main break
June 1, 2018	TRACE	0.05	2.60	60	5.43	48.68		No Associated Violation
July 24, 2018	132	2.12	5.80	117	3.02	58.48		No Associated Violation
August 3, 2018	123	1.44	12.21	331	6.78	53.86		The fecal instantaneous max violation occurred during the 8/13-16 bypass
August 13, 2018	263	1.29	12.21	331	6.78	48.67		No Associated Violation
August 21, 2018	243	0.13	12.21	331	6.78	41.77		No Associated Violation
September 10, 2018	111	0.68	8.65	144	9.63	42.38		No Associated Violation
September 26, 2018	065	1.42	8.65	144	9.63	42.06		No Associated Violation
October 4, 2018	TRACE	0.35	3.25	84	9.07	41.74		No Associated Violation
October 12, 2018	000	1.48	3.25	84	9.07	42.37		No Associated Violation
November 3, 2018	005	3.45	9.73	278	17.25	44.41		No Associated Violation
November 25, 2018	001	1.67	9.73	278	17.25	37.80		No Associated Violation
December 21, 2018	114	0.48	8.24	174	21.61	37.82		No Associated Violation
December 28, 2018	106	0.00	8.24	174	21.61	37.12		No Associated Violation
January 1, 2019	001	1.04	4.70	155	23.14	38.29		The bypasses on 1/1, 1/20 & 1/24, caused the CBOD5, Average Monthly, CBOD5, Weekly Average, and TSS, Weekly Average violations
January 20, 2019	076	0.73	4.70	155	23.14	37.97		
January 24, 2019	150	0.10	4.70	155	23.14	37.88		
MONTH/YEAR								
VIOLATION								
REASON								
February-16	The violation was result of bypasses on the 2/3, 2/16, and 2/24							
August-16	All required documents had been uploaded 8/20/16, oversight by operator new to the DNR submission process							
October-16	The reason for the 144x violation is currently undetermined							
September-18	The violations were due to No. 1 SBB tank being out of service for cleaning and painting							

Figure 4

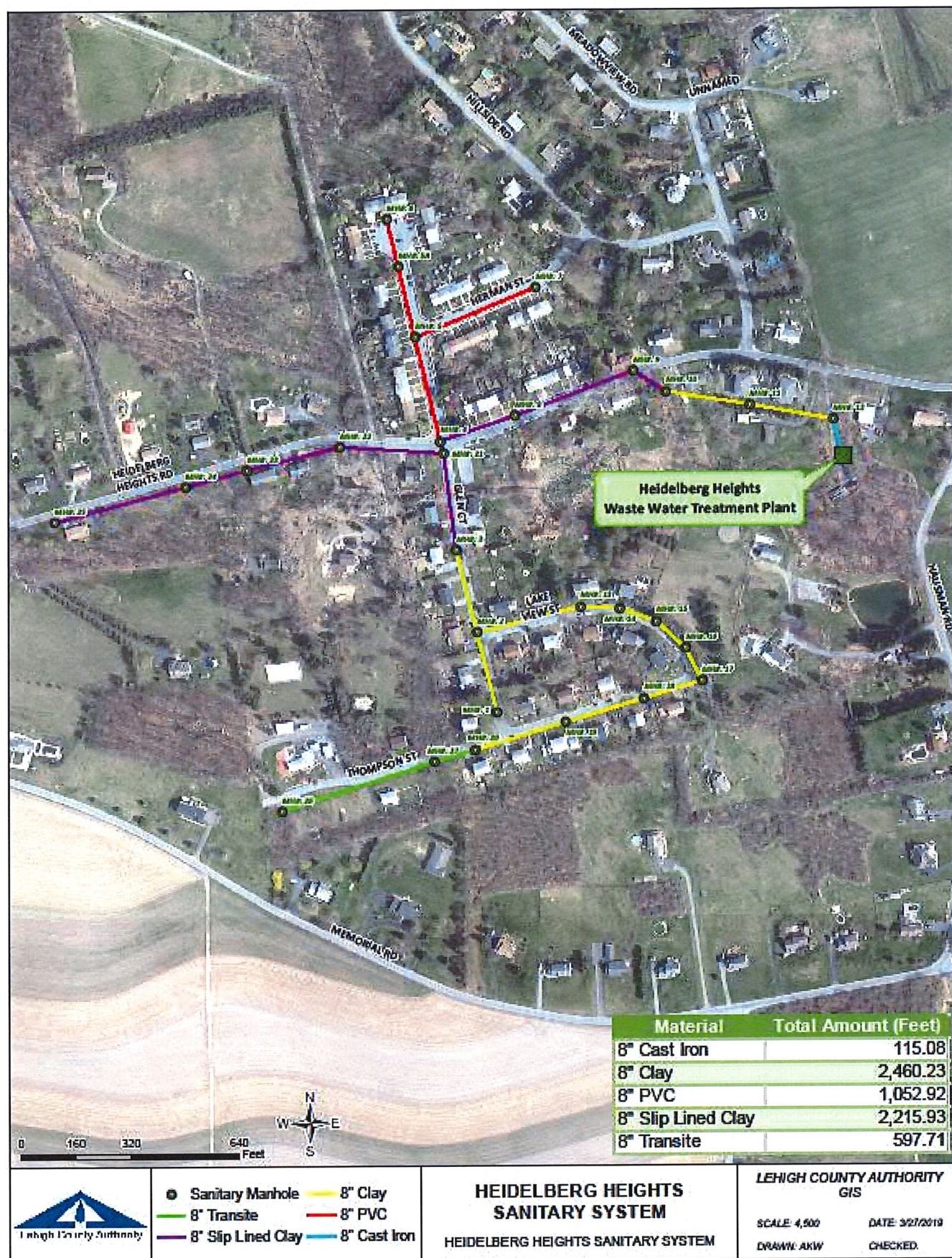


Figure 5

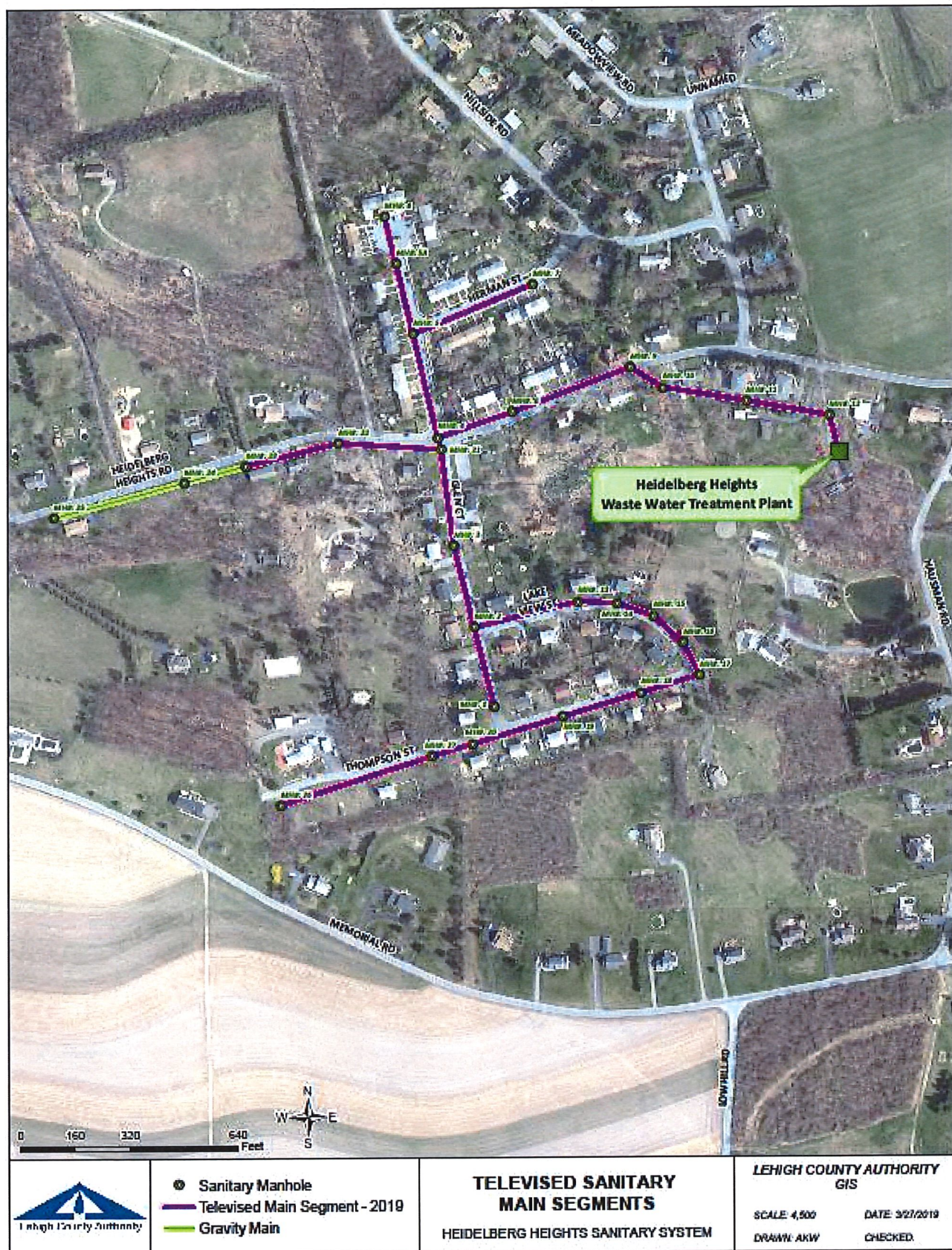


Figure 6

HEIDELBERG HEIGHTS WASTEWATER TREATMENT PLANT
DAILY CHECK REPORT

☐ Perform visual inspection of Treatment Plant equipment and process.

☐ Record and correct any deficiencies.

☐ Record totalizer reading.

☐ Run PH on effluent.

☐ Run DO on effluent. Test done on stream discharge.

☐ Run chlorine residual on effluent prior to addition of sodium thiosulfate.

☐ Run chlorine residual on effluent after adding sodium thiosulfate.

☐ Process control of SBR's.

☐ Run 30 minute settle test.

☐ Run PH

☐ Run DO

☐ Waste if necessary. Y / N *circle one*

☐ Record any changes made.

☐ Return all valves and equipment back to normal operating settings.

Comments:

Signature

 Date

 Time

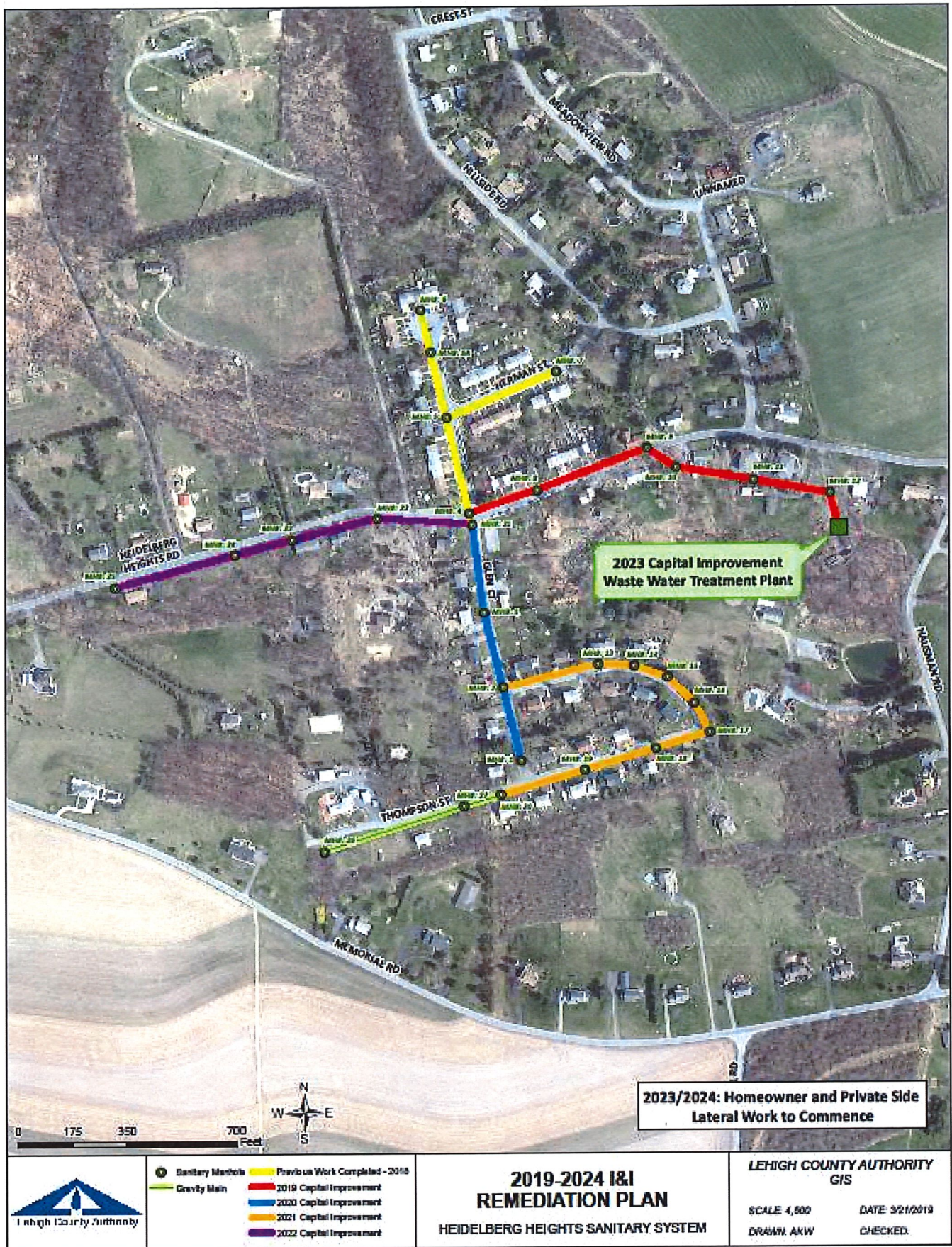


Figure 8

FINANCE & ADMINISTRATION**ACTION ITEMS****DISCUSSION ITEMS****INFORMATION ITEMS****1. Recently Purchased Investments – Certificates of Deposit (CDs)**

CERTIFICATES OF DEPOSIT						
2-Apr-19						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	American First CU	Brea, CA	125,000.00	3/15/19	9/15/20	2.550
WW Capac	Israel Discount Bank of New York	New York, NY	125,000.00	3/22/19	3/22/21	2.600
LLRI CR	Bar Harbor Bank and Trust	Bar Harbor, ME	245,000.00	3/29/19	3/29/21	2.600
WW Capac	The Jefferson Bank	Greenville, MS	245,000.00	3/29/19	3/29/21	2.500

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 – No Change
 Fields at Indian Creek, Phase 3, 57 residential units (sfd), UMiT/Emmaus, water & sewer – No Change
 Kohler Tract, 123 residential lots (sfa), UMiT, water and sewer – No Change
 Lower Macungie Twp. Community Center Expansion, 1 institutional lot, LMT – No Change
 Trexler Business Center, 1 lot with 6 commercial buildings, LMT – No Change
 Trexler Fields, Phase 1B/8/9, 100 residential lots (sfa), UMT – No Change

Water system plans are being reviewed for the following developments:

5329-5347-5357 Hamilton Blvd., 1 commercial lot, LMT – No Change
 5374/5392 Hamilton Blvd., 1 commercial lot, LMT – No Change
 8615/8783 Congdon Hill Drive, 2 industrial lots with warehouses, LMT – No Change
 Air Products & Chemicals (New Headquarters), 1 commercial lot, LMT/UMT – No Change
 Cedarbrook Road Industrial Park, 2 industrial lots, LMT – No Change
 Hidden Meadows, Phase 1C, 66 townhouses, UMT – No Change
 Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT – No Change
 Madison Village at Penn's View, 66 manufactured homes, 1 lot, LynnT, water and sewer – No Change
 Mill Creek Hotel, 1 commercial lot with 205 room hotel & restaurant, UMT – No Change

Millbrook Farms, Section VI, 45 residential lots (sfd), LMT – No Change
Ridings at Parkland, 63 residential units (sfd), NWT – No Change
Schoeneck Road, Lot 1, 1 lot warehouse, LMT – No Change
Stone Hill Meadows, Phase 2, 85 residential units (sfd), LMT – No Change
Towneplace Suites by Marriott, 91-room hotel, UMT – No Change
Trexler Business Center, Units 2 & 3, 2 commercial units, LMT
Weilers Road Twins, 82 residential lots (sfa), UMT – No Change
Woodmont Ridge, Phase II, 30 apartment units, UMT – No Change

Sewage Planning Modules Reviewed in Prior Month:
None.

3. Summary of 2019 Pay Increases

A summary of 2019 employee payroll increases will be provided to the Board for review at the April 22, 2019 meeting.

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 all LCA line relocation has been completed. 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.

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

The project is the replacement of 0.97-mile of aged and/or failing cast iron water main in multiple locations throughout the City, in accordance with our prioritization protocol. We propose to utilize the 1.1 mile credit of excess water main replacement length accumulated from previous years in order to satisfy the 2.0 miles of annual pipe replacement as outlined in the lease. This Project is required under the Operating Standards in the Concession Agreement and will be funded by the LCA Allentown Division. The reduced-scale project was re-bid following rejection of the bids for the original 2.2 mile project. The project was authorized by the Board on 9/10/18 and will be completed by December 2018. As of October 30, 2018 or contractor Doli Construction Corp has begun water main installation and is progressing. As of January 4, 2019 all water main construction, prelease valve and meter replacement has been completed. LCA anticipates paving restoration to begin in late April 2019. **(No Change)**

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 early 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: Carbon Dioxide Feed System**

The project consists of the addition of a carbon dioxide feed system at the Allentown Water Plant. With the present conversion from alum to polyaluminum chloride (PACI) as the plant's primary coagulant, proper treatment requires the raw water to be kept within a very small pH range for optimum treatment. The acid feed system will control pH within tight parameters to achieve treatment goals. A Major Permit Application was submitted to PaDEP. Approval for the construction phase was granted at the October 8, 2018 Board meeting. Construction of the pad

and piping began on 11/26/2018 and work has progressed to the point of punch list items. All work is to be completed by late March or early April. The contract with Matheson to supply the storage tank and CO2 feed system has been finalized and everything is to be installed by mid-April. The CO2 system is expected to be on-line and fully operational by the end of April, 2019. This project will be funded by the LCA Allentown Division.

6. Suburban Division - Water Main Replacement Program Cycle 4

The project consists of the replacement of approximately 1.36 miles of aged and/or failing Cast Iron water main throughout multiple location in the Suburban Division. The LCA Suburban Division will fund the project. The project bids were opened on July 18, 2018 and project authorization was awarded at the 7/23/18 board meeting. As of early December 2018 the project has been completed and LCA is awaiting final closeout documentation from our contractor that we should be obtaining by mid-April 2019.

7. Suburban Division - Water Main Replacement Program Cycle 5

The project consists of the replacement of approximately 1.25 miles of aged and/or failing Cast Iron water main throughout multiple location in the Suburban Division. The LCA Suburban Division will fund the project. Currently the project is under design by Gannett Fleming with an anticipation of placing it out for bid in Spring 2019. **(No Change)**

8. 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. Construction will be finished by Summer 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. Design of the pump station is completed. The Public Water Supply (PWS) permit has been issued by DEP. The Kern Tract was acquired for the pumping station at the end of January 2019. Two property owners previously granted waterline easements. However, one of these easements needed to be revised due to a change in the waterline route to the final pumping station site. The easement agreements reflecting the revised waterline route for two remaining permanent waterline easements were sent to the property owners. One of these properties, owned by Engelman, has proposed a counteroffer for their waterline easement, which staff is currently evaluating

Pumping station bids were opened on 4/23/19, and award of bids and construction phase services are to be requested for authorization at the 5/13/19 Board meeting.

Legal counsel will be retained during the zoning process to assist with obtaining a “Special Exception” from Upper Milford Township to use the Kern Tract as a pumping station site.

10. 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.

11. Suburban Division – Buss Acres Pump Station Replacement

The project consists of the consolidation and replacement of two well stations with a single new pump station and a new water storage tank to replace two antiquated hydropneumatic pump stations. The new station will be a variable frequency drive controlled double pumping system with full SCADA control. The design will 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. Design phase was authorized at the August 28, 2017 Board meeting. The Public Water Supply Permit was received from DEP at the end of December 2018. Zoning approval from Upper Milford Township for a "Special Exception" use for the upgrade project was denied in February 2019. The written opinion of the Township solicitor was received in early April 2019 and is being reviewed prior to pursuing an appeal or change in design. Legal counsel will be retained to assist with the appeal process. Bid phase will begin following township zoning approval.

12. Suburban Division – Watershed Monitoring Program

The project will include setting up a surface water flow-monitoring network for the Little Lehigh Creek. The work is in response to the Watershed Monitoring Plan that was developed and reported to LCA by Al Guiseppe (SSM, Inc.) in 2017. Flow monitoring in 2018 will focus on the Little Lehigh Creek only. In 2019, LCA will develop plans to add new monitoring wells to supplement existing groundwater data that is being collected. Total daily flow recordings at Schantz Spring that will need to include the spring field bypass and the tank overflows as well. SSM will assist LCA in calibrating surface flows under the bridges based on the recorded stream elevations. Authorization for the award of the project was approved at the 3/26/2018 Board meeting. LCA and Fybr are currently gaining PennDOT 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. We are still awaiting a response from PPL. In a response received from PPL on 3/22/2019, their main contact has switched positions but he plans to have his replacement reply about our approval by early April at the latest.

13. Suburban Division – Water Meter Reading Equipment Upgrade

The Project includes the replacement of 20,000 transceiver units. 10,000 units will be replaced in 2019 and the remaining will be replaced in 2020. 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 approximately 100% of the remaining old style radio units over a two-year period. The project is in bid phase. The pre-bid meeting will be held on 4/9/19, bids are to be opened on 4/25/19, and award of bid and construction phase services is to be requested at the 5/13/19 board meeting.

14. 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 the subsequent report will determine permanent safe well yield based on aquifer monitoring.

WASTEWATER

ACTION ITEMS

1. **Suburban Division - Heidelberg Heights Sanitary Sewer Rehabilitation Project – April 22, 2019**

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 is to be requested at the 4/22/19 Board meeting.

DISCUSSION ITEMS

1. **Suburban Division - Heidelberg Heights Corrective Action Plan – April 22, 2019**

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 for submission to DEP by May 5, 2019. A draft of the plan is attached for Board review at the April 22, 2019 Board meeting.

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 had now directed to “pause” the design phase of the project. Awaiting formal direction from the City now that the EPA has withdrawn the AO.

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

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

3. **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.

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

When the local PennDOT office submitted the resolution and agreement it requested to the Harrisburg office, it was informed that this bridge is owned by Lehigh County and not the Commonwealth. Penn DOT is handling all preconstruction activities and will administer the federal funding participation between the Commonwealth and the County. Since the bridge is owned by the County and not the State, the typical State cost sharing will not be offered on this project. The County does not have a cost sharing policy of their own. Consequently the recently submitted Resolution No. 3-2019-1, passed last month, won't be activated. LCA is trying to determine if there is any chance of some percentage of reimbursement through the County, but there is a chance there will not be any reimbursement for the water and sanitary sewer work required by SR 0145-08B bridge replacement project. There will be sewer main relocation work along with the potential need for new manholes as part of the sewer relocation required. Gannett Fleming is working on behalf of LCA on a sewer relocation plan and to minimize 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.

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

Project consists of sanitary sewer cleaning, inspections via CCTV, cured-in-place point repairs, pressure testing and chemical grout sealing of joints, and post construction inspection for sanitary sewer lines located in western and central Lehigh County previously identified as areas subject to leakage. This project is part of the SCARP program. Construction began in August 2016 and finished by Summer 2017. Additional scope work under existing contract has been performed and is anticipated to be closed out in early 2019. **(No Change)**

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

This project involves the following upgrades to the existing pumping station: Install a comminutor to reduce buildup of debris on the bar screens, replace the manually operated weir gates with new motorized weir gates, and upgrades to the SCADA system. The project is substantially complete and the comminutor is operational. During startup, an existing piece of equipment on one of the weir gates malfunctioned. Parts have been ordered to repair the weir gate.

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 Summer 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 will be completed in March 2019 for a structural improvements project to be constructed in Summer 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 will proceed in 2019 and finish in early 2020. **(No Change)**

11. Suburban Division – Sand Spring WWTP Upgrade Project

The Sand Spring WWTP was constructed in 1972 by the developer to serve the Sand Spring development, located in the Schnecksville area in North Whitehall Township. Sewer service is

provided to approximately 248 apartment units, 8 commercial properties, and an elementary school. Lehigh County Authority (LCA) acquired the system in 2005.

The plant, while meeting effluent limits, has reached the end of its useful life. The plant is constructed of in-ground steel tanks that are in poor condition, with areas of corrosion and loss of structural integrity. The mechanical and electrical systems are also at the end of their service life and in need of replacement. The proposed project includes replacement of the existing treatment facility in entirety with new technology and concrete tanks appropriate for the wastewater flows and loading characteristics. The new facility shall meet the effluent limits criteria established in the respective DEP and DRBC permits, including new or additional limits that may be imposed during the permitting process. Design phase was authorized in February 2017 and should be concluded by late 2018; progress has been delayed due to DEP permitting issues. DEP approval of the Water Quality Management Permit was received in late December 2018, and the project will proceed to bid phase in Spring 2019. **(No Change)**

12. Suburban Division – SCARP

On December 21, 2018, LCA and all of the municipalities named in the AO received a detailed letter from DEP requesting additional information about the Regional Flow Management Strategy (RFMS) including more specifics related to schedules for system characterization, sewer flow metering and monitoring, and other details related to each municipality's operations and maintenance program and inflow and infiltration source removal program. LCA led the effort to develop a full response to DEP, which was submitted on March 8, 2019. Among the commitments made by the municipalities in the response to DEP included submission of RFMS updates and information on system hydraulic restrictions within the annual Chapter 94 submissions, and other schedule commitments related to system characterization work, sewer flow metering and monitoring. DEP has not responded to date.

For the Western Lehigh Sewerage Partnership, the closeout of the EPA Administrative Order (see item 15 below) has no significant impact as the group remains committed to implementing the SCARP plan including inflow and infiltration source removal and conveyance capacity improvements to address dry-day and wet-weather flows for current and future customers. Additional project information is being developed to share with DEP within the next several months. **(No Change)**

13. Sanitary Sewer System Flow Metering for WLI

The installation of the 35 flow meters began in mid-December and was completed in January. It takes approximately one month to resolve metering issues and have confidence in the meter data. All meters will be installed and operating properly by the end of February. Data validation is ongoing so that useful data should begin to be available in April. As of April 15, 2019 data validation is still in process. **(No Change)**

14. 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 Breinigsville Line, which is south of Hamilton Boulevard. This area is referred to as Phase I 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. Once repaired, staff expects to have eliminated approximately 500,000 gallons per day of infiltration from the interceptor based on estimates. Repair work will begin while additional downstream inspection is ongoing. Phase II will include the interceptor from where the IRTL and the Breinigsville lines meet down to the point where the relief line ends. Phase III, which will

include a major long-term bypass, will start at the end of the relief line and go to the Spring Creek Pump Station. Phase IV will be the interceptor from Spring Creek Pump Station down to Meter Station 5. A pre-bid meeting was held for Phase I on 1/29/2019 and bids were due on 2/15/2019. The Phase I pre-construction meeting was held on 3/25/2019. Construction on Phase I will last an estimated 4-5 weeks. This project will continue on an expedited emergency basis as long as conditions warrant.

15. USEPA Administrative Order – Sanitary Sewer Overflows – Update

On March 11, 2019, EPA issued a letter stating that the requirements of the Administrative Order (AO) to eliminate sanitary sewer overflows have been met and the AO is therefore closed out. In August 2018, LCA joined the City of Allentown and 13 other municipalities to prepare and submit a regional flow management strategy (RFMS) to address the requirements of the AO. The RFMS included the following critical elements as requested by EPA: collection system operation and maintenance plan, system characterization, inflow and infiltration (I&I) source removal, flow modeling, and flow targets. In its letter accepting the RFMS and closing out the AO, EPA noted that oversight for the RFMS would fall to the Pa. Department of Environmental Protection (DEP) for ongoing enforcement oversight of the program through the Chapter 94 regulations. **(No Change)**

16. Suburban Division - Heidelberg Heights and Lynn Township Sewer System Updates

Excessive inflow and infiltration (I&I) and high wet-weather flows into the Heidelberg Heights and Lynn Township sewer systems have been ongoing and increasingly challenging to address. As noted in LCA's monthly operations report, treatment plant bypasses and sanitary sewer overflows have occurred more frequently in these systems and must be addressed. 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 will be developed further for submission to DEP. **(No Change)**

**LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS
MARCH 2019**

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUMMARY
MARCH 2019

MONTH					YEAR-TO-DATE					FULL YEAR					
Actual	Forecast	Prior Year	FC Var	PY Var	MARCH 2019	Actual	Forecast	Prior Year	FC Var	PY Var	Forecast	Budget	Prior Year	Bud Var	PY Var
					Income Statement										
(21,353)	(35,294)	16,881	13,941	(38,234)	Suburban Water	(8,604)	(92,882)	59,377	84,278	(67,981)	236,452	236,452	(51,208)	-	287,660
(329,372)	(384,831)	(142,397)	55,459	(186,975)	Suburban Wastewater	(66,630)	(519,846)	(241,156)	453,216	174,526	(969,731)	(969,731)	(658,072)	-	(311,659)
105,775	(38,449)	(159,956)	144,224	265,731	City Division	(229,855)	(658,347)	(744,345)	428,492	514,490	(4,036,377)	(4,036,377)	(6,009,928)	-	1,973,551
(244,950)	(458,574)	(285,472)	213,624	40,522	Total LCA	(305,089)	(1,271,075)	(926,124)	965,986	621,035	(4,769,656)	(4,769,656)	(6,719,208)	-	1,949,552
					Cash Flow Statement										
251,175	(458,194)	367,371	709,369	(116,196)	Suburban Water	1,251,642	(511,582)	959,873	1,763,224	291,769	(2,378,358)	(2,378,358)	4,418,568	-	(6,796,926)
(398,852)	(782,903)	(252,099)	384,051	(146,753)	Suburban Wastewater	(2,837,839)	(4,444,062)	1,475,957	1,606,223	(4,313,796)	(3,026,596)	(3,026,596)	3,082,460	-	(6,109,056)
2,433,899	2,206,499	2,016,305	227,400	417,594	City Division	4,067,710	3,492,697	3,076,307	575,013	991,403	2,127,423	2,127,423	3,907,778	-	(1,780,355)
2,286,222	965,402	2,131,577	1,320,820	154,645	Total LCA	2,481,513	(1,462,947)	5,512,136	3,944,460	(3,030,623)	(3,277,531)	(3,277,531)	11,408,805	-	(14,686,336)
					Debt Service Coverage Ratio										
1.33	1.28	1.49	0.05	(0.15)	Suburban Water	1.37	1.24	1.56	0.13	(0.19)	1.40	1.40	1.18	-	0.21
1.41	0.19	4.98	1.22	(3.57)	Suburban Wastewater	6.89	3.90	6.13	2.99	0.76	5.52	5.52	6.50	-	(0.98)
1.66	1.63	1.60	0.03	0.06	City Division	1.50	1.46	1.53	0.04	(0.03)	1.37	1.37	1.59	-	(0.22)

LEHIGH COUNTY AUTHORITY
MONTHLY FINANCIAL STATEMENTS - CONSOLIDATED
MARCH 2019

MONTH					YEAR-TO-DATE				FULL YEAR FORECAST			
Suburban Water	Suburban Wastewater	City Division	LCA TOTAL		Suburban Water	Suburban Wastewater	City Division	LCA TOTAL	Suburban Water	Suburban Wastewater	City Division	LCA TOTAL
				MARCH 2019 INCOME STATEMENT								
				Operating Revenues								
714,287	949,606	3,118,758	4,782,651	Charges For Services	2,216,136	3,781,930	9,091,975	15,090,041	9,772,570	14,905,873	37,022,206	61,700,649
10,620	-	-	10,620	Rent	32,203	-	-	32,203	87,860	-	-	87,860
2,968	-	27,742	30,710	Other Income	9,048	-	114,331	123,379	129,158	-	567,706	696,864
<u>727,875</u>	<u>949,606</u>	<u>3,146,500</u>	<u>4,823,981</u>	Total Operating Revenues	<u>2,257,387</u>	<u>3,781,930</u>	<u>9,206,306</u>	<u>15,245,623</u>	<u>9,989,588</u>	<u>14,905,873</u>	<u>37,589,912</u>	<u>62,485,373</u>
				Operating Expenses								
109,641	62,927	609,492	782,060	Salaries and Wages	270,670	144,666	1,473,543	1,888,879	1,020,940	420,095	5,653,796	7,094,831
87,569	38,153	478,871	604,593	General and Administrative	306,944	145,006	1,574,849	2,026,799	1,399,959	474,363	6,407,601	8,281,923
8,120	6,091	49,244	63,455	Utilities	78,787	68,623	399,700	547,110	592,750	338,035	2,095,255	3,026,040
40,117	22,513	117,467	180,097	Materials and Supplies	72,199	78,914	235,194	386,307	504,580	459,324	1,597,216	2,561,120
205,457	429,186	115,039	749,682	Miscellaneous Services	586,927	1,484,532	287,959	2,359,418	2,905,325	7,688,121	1,988,845	12,582,291
-	400,000	-	400,000	Treatment & Transportation	-	900,000	-	900,000	-	2,649,555	12,000	2,661,555
229,166	383,527	490,000	1,102,693	Depreciation and Amortization	687,498	1,150,581	1,470,000	3,308,079	2,750,000	4,540,765	5,880,000	13,170,765
<u>680,070</u>	<u>1,342,397</u>	<u>1,860,113</u>	<u>3,882,580</u>	Total Operating Expenses	<u>2,003,025</u>	<u>3,972,322</u>	<u>5,441,245</u>	<u>11,416,592</u>	<u>9,173,554</u>	<u>16,570,258</u>	<u>23,634,713</u>	<u>49,378,525</u>
<u>47,805</u>	<u>(392,791)</u>	<u>1,286,387</u>	<u>941,401</u>	Operating Income	<u>254,362</u>	<u>(190,392)</u>	<u>3,765,061</u>	<u>3,829,031</u>	<u>816,034</u>	<u>(1,664,385)</u>	<u>13,955,199</u>	<u>13,106,848</u>
				Non-Operating Revenues (Expenses)								
32,910	61,098	214,867	308,875	Tapping and Capital Recovery fees	48,035	92,954	226,962	367,951	467,000	800,000	324,000	1,591,000
9,508	-	580	10,088	Meter Sales	20,923	-	6,591	27,514	108,000	-	12,000	120,000
19,325	-	5,600	24,925	Inspection and Plan Reviews	20,760	-	9,600	30,360	144,000	25,000	207,000	376,000
-	-	-	-	Project Reimbursements	-	-	-	-	-	-	1,645,000	1,645,000
12,738	23,431	99,756	135,925	Interest Income	42,131	69,532	212,828	324,491	144,000	75,000	400,000	619,000
2,987	3,375	3,700	10,062	Other Income	18,703	24,140	11,725	54,568	24,000	1,000	22,000	47,000
(145,519)	(22,960)	(1,460,583)	(1,629,062)	Interest Expense	(412,330)	(51,941)	(4,387,099)	(4,851,370)	(1,466,582)	(206,346)	(18,956,576)	(20,629,504)
(1,107)	(1,525)	(44,532)	(47,164)	Other Expense	(1,188)	(10,923)	(75,523)	(87,634)	-	-	(1,645,000)	(1,645,000)
<u>(69,158)</u>	<u>63,419</u>	<u>(1,180,612)</u>	<u>(1,186,351)</u>	Total Non-Operating Revenues (Expenses)	<u>(262,966)</u>	<u>123,762</u>	<u>(3,994,916)</u>	<u>(4,134,120)</u>	<u>(579,582)</u>	<u>694,654</u>	<u>(17,991,576)</u>	<u>(17,876,504)</u>
(21,353)	(329,372)	105,775	(244,950)	Net Income Before Capital Contributions	(8,604)	(66,630)	(229,855)	(305,089)	236,452	(969,731)	(4,036,377)	(4,769,656)
-	-	-	-	Capital Contributions	-	-	-	-	-	-	-	-
<u>(21,353)</u>	<u>(329,372)</u>	<u>105,775</u>	<u>(244,950)</u>	NET INCOME	<u>(8,604)</u>	<u>(66,630)</u>	<u>(229,855)</u>	<u>(305,089)</u>	<u>236,452</u>	<u>(969,731)</u>	<u>(4,036,377)</u>	<u>(4,769,656)</u>

LEHIGH COUNTY AUTHORITY
MONTHLY FINANCIAL STATEMENTS - CONSOLIDATED
MARCH 2019

MONTH				YEAR-TO-DATE				FULL YEAR FORECAST				
Suburban Water	Suburban Wastewater	City Division	LCA TOTAL	MARCH 2019	Suburban Water	Suburban Wastewater	City Division	LCA TOTAL	Suburban Water	Suburban Wastewater	City Division	LCA TOTAL
				CASH FLOW STATEMENT								
				Cash Flows From Operating Activities								
727,875	949,606	3,146,500	4,823,981	Operating Revenues	2,257,387	3,781,930	9,206,306	15,245,623	9,989,588	14,905,873	37,589,912	62,485,373
(450,904)	(958,870)	(1,370,113)	(2,779,887)	Operating Expenses (ex D&A)	(1,315,527)	(2,821,741)	(3,971,245)	(8,108,513)	(6,423,554)	(12,029,493)	(17,754,713)	(36,207,760)
(134,535)	70,282	791,751	727,498	Non-Cash Working Capital Changes	(715,940)	(1,136,489)	(936,321)	(2,788,750)	-	-	-	-
142,436	61,018	2,568,138	2,771,592	Net Cash Provided by (Used in) Operating Activities	225,920	(176,300)	4,298,740	4,348,360	3,566,034	2,876,380	19,835,199	26,277,613
				Cash Flows From Financing Activities								
-	-	-	-	Lease Payments to City	-	-	-	-	-	-	-	-
-	-	-	-	Capital Contributions	-	-	-	-	-	-	-	-
-	-	-	-	Proceeds New Borrowing	-	-	-	-	-	-	-	-
(4,995)	(14,613)	-	(19,608)	Interest Payments	(21,049)	(43,594)	(5,348)	(69,991)	(1,466,582)	(206,346)	(14,956,576)	(16,629,504)
(30,022)	(41,017)	-	(71,039)	Principal Payments	(89,906)	(122,832)	-	(212,738)	(1,725,120)	(478,130)	-	(2,203,250)
(35,017)	(55,630)	-	(90,647)	Net Cash Provided by (Used in) Financing Activities	(110,955)	(166,426)	(5,348)	(282,729)	(3,191,702)	(684,476)	(14,956,576)	(18,832,754)
				Cash Flows from Capital and Related Activities								
64,730	64,473	224,747	353,950	Non-Operating Revenues	108,421	117,094	254,878	480,393	743,000	826,000	565,000	2,134,000
-	-	-	-	Project Reimbursement	-	-	-	-	-	-	1,645,000	1,645,000
-	-	(262,431)	(262,431)	Non-Operating Expenses	-	-	(262,431)	(262,431)	-	-	(516,200)	(516,200)
(181,459)	(484,979)	(196,311)	(862,749)	Capital Expenditures	(376,459)	(669,719)	(430,957)	(1,477,135)	(10,210,540)	(9,619,500)	(4,845,000)	(24,675,040)
(116,729)	(420,506)	(233,995)	(771,230)	Net Cash Provided By (Used In) Capital and Related Activities	(268,038)	(552,625)	(438,510)	(1,259,173)	(9,467,540)	(8,793,500)	(3,151,200)	(21,412,240)
				Cash Flows From Investing Activities								
247,747	-	-	247,747	Investments Converting To Cash	1,811,997	1,754,618	-	3,566,615	6,570,850	3,500,000	-	10,070,850
-	(7,165)	-	(7,165)	Purchased Invesments	(449,413)	(3,766,638)	-	(4,216,051)	-	-	-	-
12,738	23,431	99,756	135,925	Interest Income	42,131	69,532	212,828	324,491	144,000	75,000	400,000	619,000
260,485	16,266	99,756	376,507	Net Cash Provided By (Used In) Investing Activities	1,404,715	(1,942,488)	212,828	(324,945)	6,714,850	3,575,000	400,000	10,689,850
251,175	(398,852)	2,433,899	2,286,222	FUND NET CASH FLOWS	1,251,642	(2,837,839)	4,067,710	2,481,513	(2,378,358)	(3,026,596)	2,127,423	(3,277,531)
				DEBT SERVICE RATIO								
354,439	78,640	2,073,127	2,506,206	Total Cash Available For Debt Service	1,092,412	1,146,815	5,598,299	7,837,526	4,453,034	3,777,380	20,421,285	28,651,699
265,975	55,630	1,246,381	1,567,986	Debt Service	797,925	166,426	3,739,143	4,703,494	3,191,702	684,476	14,956,576	18,832,754
1.33	1.41	1.66	1.60	DSCR	1.37	6.89	1.50	1.67	1.40	5.52	1.37	1.52

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WATER
MARCH 2019

MONTH					MARCH 2019	YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var	INCOME STATEMENT	Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					Operating Revenues										
714,287	732,381	693,631	(18,094)	20,656	Charges For Services	2,216,136	2,224,143	2,115,486	(8,007)	100,650	9,772,570	9,772,570	9,089,776	-	682,794
10,620	7,322	14,114	3,298	(3,494)	Rent	32,203	21,966	21,141	10,237	11,062	87,860	87,860	91,546	-	(3,686)
2,968	763	16,818	2,205	(13,850)	Other Income	9,048	12,289	24,024	(3,241)	(14,976)	129,158	129,158	113,101	-	16,057
727,875	740,466	724,563	(12,591)	3,312	Total Operating Revenues	2,257,387	2,258,398	2,160,651	(1,011)	96,736	9,989,588	9,989,588	9,294,423	-	695,165
					Operating Expenses										
109,641	110,078	117,559	437	7,918	Salaries and Wages	270,670	280,234	296,576	9,564	25,906	1,020,940	1,020,940	1,035,186	-	14,246
87,569	89,663	61,277	2,094	(26,292)	General and Administrative	306,944	302,989	290,450	(3,955)	(16,494)	1,399,959	1,399,959	1,258,634	-	(141,325)
8,120	9,396	40,967	1,276	32,847	Utilities	78,787	98,188	122,479	19,401	43,692	592,750	592,750	437,255	-	(155,495)
40,117	42,048	16,922	1,931	(23,195)	Materials and Supplies	72,199	126,144	46,529	53,945	(25,670)	504,580	504,580	294,619	-	(209,961)
205,457	222,110	167,567	16,653	(37,890)	Miscellaneous Services	586,927	686,330	450,009	99,403	(136,918)	2,905,325	2,905,325	2,771,668	-	(133,657)
-	-	-	-	-	Treatment & Transportation	-	-	-	-	-	-	-	-	-	-
229,166	229,167	245,832	1	16,666	Depreciation and Amortization	687,498	687,501	737,496	3	49,998	2,750,000	2,750,000	2,949,984	-	199,984
680,070	702,462	650,124	22,392	(29,946)	Total Operating Expenses	2,003,025	2,181,386	1,943,537	178,361	(59,488)	9,173,554	9,173,554	8,747,345	-	(426,209)
47,805	38,004	74,439	9,801	(26,634)	Operating Income	254,362	77,012	217,114	177,350	37,248	816,034	816,034	547,078	-	268,956
					Non-Operating Revenues (Expenses)										
32,910	38,917	13,295	(6,007)	19,615	Tapping and Capital Recovery fees	48,035	116,751	33,165	(68,716)	14,870	467,000	467,000	221,405	-	245,595
9,508	9,000	4,500	508	5,008	Meter Sales	20,923	27,000	13,164	(6,077)	7,759	108,000	108,000	85,259	-	22,741
19,325	12,000	-	7,325	19,325	Inspection and Plan Reviews	20,760	36,000	8,381	(15,240)	12,379	144,000	144,000	180,579	-	(36,579)
-	-	-	-	-	Project Reimbursements	-	-	-	-	-	-	-	(0)	-	0
12,738	12,000	9,529	738	3,210	Interest Income	42,131	36,000	41,557	6,131	574	144,000	144,000	222,022	-	(78,022)
2,987	2,000	1,515	987	1,472	Other Income	18,703	6,000	5,385	12,703	13,318	24,000	24,000	30,205	-	(6,205)
(145,519)	(147,215)	(85,962)	1,696	(59,557)	Interest Expense	(412,330)	(391,645)	(258,955)	(20,685)	(153,375)	(1,466,582)	(1,466,582)	(1,334,604)	-	(131,978)
(1,107)	-	(434)	(1,107)	(673)	Other Expense	(1,188)	-	(434)	(1,188)	(754)	-	-	(3,152)	-	3,152
(69,158)	(73,298)	(57,557)	4,140	(11,601)	Total Non-Operating Revenues (Expenses)	(262,966)	(169,894)	(157,736)	(93,072)	(105,230)	(579,582)	(579,582)	(598,286)	-	18,704
(21,353)	(35,294)	16,881	13,941	(38,234)	Net Income Before Capital Contributions	(8,604)	(92,882)	59,377	84,278	(67,981)	236,452	236,452	(51,208)	-	287,660
-	-	-	-	-	Capital Contributions	-	-	-	-	-	-	-	-	-	-
(21,353)	(35,294)	16,881	13,941	(38,234)	NET INCOME	(8,604)	(92,882)	59,377	84,278	(67,981)	236,452	236,452	(51,208)	-	287,660

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WATER
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MONTH					MARCH 2019					YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var	CASH FLOW STATEMENT					Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					Cash Flows From Operating Activities														
727,875	740,466	724,563	(12,591)	3,312	Operating Revenues					2,257,387	2,258,398	2,160,651	(1,011)	96,736	9,989,588	9,989,588	9,294,423	-	695,165
(450,904)	(473,295)	(404,292)	22,391	(46,612)	Operating Expenses (ex D&A)					(1,315,527)	(1,493,885)	(1,206,041)	178,358	(109,486)	(6,423,554)	(6,423,554)	(5,797,361)	-	(626,193)
(134,535)	(150,000)	650,833	15,465	(785,368)	Non-Cash Working Capital Changes					(715,940)	(150,000)	(921,158)	(565,940)	205,218	-	-	(240,756)	-	240,756
142,436	117,171	971,104	25,265	(828,668)	Net Cash Provided by (Used in) Operating Activities					225,920	614,513	33,452	(388,593)	192,468	3,566,034	3,566,034	3,256,306	-	309,728
					Cash Flows From Financing Activities														
-	-	-	-	-	Capital Contributions					-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Proceeds New Borrowing					-	-	-	-	-	-	-	-	-	-
(4,995)	(12,215)	(85,962)	7,220	80,967	Interest Payments					(21,049)	(36,645)	(258,955)	15,596	237,906	(1,466,582)	(1,466,582)	(1,508,149)	-	41,567
(30,022)	(33,760)	(148,771)	3,738	118,749	Principal Payments					(89,906)	(101,280)	(417,580)	11,374	327,674	(1,725,120)	(1,725,120)	(2,076,353)	-	351,233
(35,017)	(45,975)	(234,733)	10,958	199,716	Net Cash Provided by (Used in) Financing Activities					(110,955)	(137,925)	(676,535)	26,970	565,580	(3,191,702)	(3,191,702)	(3,584,502)	-	392,800
					Cash Flows from Capital and Related Activities														
64,730	61,917	19,310	2,813	45,420	Non-Operating Revenues					108,421	185,751	60,095	(77,330)	48,326	743,000	743,000	517,448	-	225,552
-	-	-	-	-	Project Reimbursement					-	-	-	-	-	-	-	(0)	-	0
-	-	-	-	-	Non-Operating Expenses					-	-	-	-	-	-	-	5,089	-	(5,089)
(181,459)	(850,878)	(397,839)	669,419	216,380	Capital Expenditures					(376,459)	(2,552,634)	(520,707)	2,176,175	144,248	(10,210,540)	(10,210,540)	(5,348,970)	-	(4,861,570)
(116,729)	(788,961)	(378,529)	672,232	261,800	Net Cash Provided By (Used In) Capital and Related Activities					(268,038)	(2,366,883)	(460,611)	2,098,845	192,573	(9,467,540)	(9,467,540)	(4,826,433)	-	(4,641,107)
					Cash Flows From Investing Activities														
247,747	247,571	-	176	247,747	Investments Converting To Cash					1,811,997	1,342,713	2,022,010	469,284	(210,013)	6,570,850	6,570,850	17,125,196	-	(10,554,346)
-	-	-	-	-	Purchased Invesments					(449,413)	-	-	(449,413)	(449,413)	-	-	(7,774,021)	-	7,774,021
12,738	12,000	9,529	738	3,210	Interest Income					42,131	36,000	41,557	6,131	574	144,000	144,000	222,022	-	(78,022)
260,485	259,571	9,529	914	250,957	Net Cash Provided By (Used In) Investing Activities					1,404,715	1,378,713	2,063,567	26,002	(658,852)	6,714,850	6,714,850	9,573,197	-	(2,858,347)
251,175	(458,194)	367,371	709,369	(116,196)	FUND NET CASH FLOWS					1,251,642	(511,582)	959,873	1,763,224	291,769	(2,378,358)	(2,378,358)	4,418,568	-	(6,796,926)
					DEBT SERVICE RATIO														
354,439	341,088	349,109	13,351	5,330	Total Cash Available For Debt Service					1,092,412	986,264	1,056,262	106,148	36,150	4,453,034	4,453,034	4,236,532	-	216,502
265,975	265,975	234,733	-	31,242	Debt Service					797,925	797,925	676,535	-	121,390	3,191,702	3,191,702	3,584,502	-	(392,800)
1.33	1.28	1.49	0.05	(0.15)	DSCR					1.37	1.24	1.56	0.13	(0.19)	1.40	1.40	1.18	-	0.21

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WATER
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FORECAST VARIANCES - MONTH

INCOME STATEMENT	Actual	Forecast	Variance	Comments
Operating Revenues				
Charges For Services	714,287	732,381	(18,094)	Lower large industrial revenues and lower fire service revenues service revenues
Rent	10,620	7,322	3,298	
Other Income	2,968	763	2,205	
Total Operating Revenues	727,875	740,466	(12,591)	
Operating Expenses				
Salaries and Wages	109,641	110,078	437	
General and Administrative	87,569	89,663	2,094	
Utilities	8,120	9,396	1,276	
Materials and Supplies	40,117	42,048	1,931	
Miscellaneous Services	205,457	222,110	16,653	Lower maintenance spending
Treatment & Transportation	-	-	-	
Depreciation and Amortization	229,166	229,167	1	
Total Operating Expenses	680,070	702,462	22,392	
Operating Income	47,805	38,004	9,801	
Non-Operating Revenues (Expenses)				
Tapping and Capital Recovery fees	32,910	38,917	(6,007)	
Meter Sales	9,508	9,000	508	
Inspection and Plan Reviews	19,325	12,000	7,325	
Project Reimbursements	-	-	-	
Interest Income	12,738	12,000	738	
Other Income	2,987	2,000	987	
Interest Expense	(145,519)	(147,215)	1,696	
Other Expense	(1,107)	-	(1,107)	
Total Non-Operating Revenues (Expenses)	(69,158)	(73,298)	4,140	
Net Income Before Capital Contributions	(21,353)	(35,294)	13,941	
Capital Contributions	-	-	-	
NET INCOME	(21,353)	(35,294)	13,941	

FORECAST VARIANCES - MONTH

CASH FLOW STATEMENT	Actual	Forecast	Variance	Comments
Cash Flows From Operating Activities				
Operating Revenues	727,875	740,466	(12,591)	
Operating Expenses (ex D&A)	(450,904)	(473,295)	22,391	
Non-Cash Working Capital Changes	(134,535)	(150,000)	15,465	
Net Cash Provided by (Used in) Operating Activities	142,436	117,171	25,265	
Cash Flows From Financing Activities				
Capital Contributions	-	-	-	
Proceeds New Borrowing	-	-	-	
Interest Payments	(4,995)	(12,215)	7,220	
Principal Payments	(30,022)	(33,760)	3,738	
Net Cash Provided by (Used in) Financing Activities	(35,017)	(45,975)	10,958	
Cash Flows from Capital and Related Activities				
Non-Operating Revenues	64,730	61,917	2,813	
Project Reimbursement	-	-	-	
Non-Operating Expenses	-	-	-	
Capital Expenditures	(181,459)	(850,878)	669,419	Favorable timing effect on capital project spending
Net Cash Provided By (Used In) Capital and Related Activities	(116,729)	(788,961)	672,232	
Cash Flows From Investing Activities				
Investments Converting To Cash	247,747	247,571	176	
Purchased Investments	-	-	-	
Interest Income	12,738	12,000	738	
Net Cash Provided By (Used In) Investing Activities	260,485	259,571	914	
FUND NET CASH FLOWS	251,175	(458,194)	709,369	

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WASTEWATER
MARCH 2019

MONTH					MARCH 2019	YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var		Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					INCOME STATEMENT										
					Operating Revenues										
949,606	924,236	1,103,958	25,370	(154,352)	Charges For Services	3,781,930	3,432,708	3,400,154	349,222	381,776	14,905,873	14,905,873	16,777,260	-	(1,871,387)
-	-	-	-	-	Rent	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Other Income	-	-	-	-	-	-	-	-	-	-
949,606	924,236	1,103,958	25,370	(154,352)	Total Operating Revenues	3,781,930	3,432,708	3,400,154	349,222	381,776	14,905,873	14,905,873	16,777,260	-	(1,871,387)
					Operating Expenses										
62,927	55,008	44,243	(7,919)	(18,685)	Salaries and Wages	144,666	140,024	105,108	(4,642)	(39,558)	420,095	420,095	460,904	-	40,809
38,153	49,531	23,922	11,378	(14,231)	General and Administrative	145,006	158,593	91,867	13,587	(53,139)	474,363	474,363	490,478	-	16,115
6,091	8,170	18,248	2,079	12,157	Utilities	68,623	64,510	61,232	(4,113)	(7,391)	338,035	338,035	290,197	-	(47,838)
22,513	38,278	12,900	15,765	(9,613)	Materials and Supplies	78,914	124,834	23,096	45,920	(55,818)	459,324	459,324	265,176	-	(194,148)
429,186	436,774	476,533	7,588	47,347	Miscellaneous Services	1,484,532	1,535,675	1,497,723	51,143	13,191	7,688,121	7,688,121	7,549,847	-	(138,274)
400,000	400,796	243,685	796	(156,315)	Treatment & Transportation	900,000	917,388	731,055	17,388	(168,945)	2,649,555	2,649,555	4,519,146	-	1,869,591
383,527	378,397	397,865	(5,130)	14,338	Depreciation and Amortization	1,150,581	1,135,191	1,193,595	(15,390)	43,014	4,540,765	4,540,765	4,774,380	-	233,615
1,342,397	1,366,954	1,217,395	24,557	(125,002)	Total Operating Expenses	3,972,322	4,076,215	3,703,677	103,893	(268,645)	16,570,258	16,570,258	18,350,129	-	1,779,871
(392,791)	(442,718)	(113,438)	49,927	(279,353)	Operating Income	(190,392)	(643,507)	(303,522)	453,115	113,130	(1,664,385)	(1,664,385)	(1,572,870)	-	(91,515)
					Non-Operating Revenues (Expenses)										
61,098	66,667	(12,601)	(5,569)	73,699	Tapping and Capital Recovery fees	92,954	150,001	112,155	(57,047)	(19,201)	800,000	800,000	902,732	-	(102,732)
-	-	-	-	-	Meter Sales	-	-	-	-	-	-	-	-	-	-
-	2,083	500	(2,083)	(500)	Inspection and Plan Reviews	-	6,249	500	(6,249)	(500)	25,000	25,000	36,898	-	(11,898)
-	-	-	-	-	Project Reimbursements	-	-	-	-	-	-	-	-	-	-
23,431	6,250	242	17,181	23,189	Interest Income	69,532	18,750	723	50,782	68,809	75,000	75,000	219,054	-	(144,054)
3,375	83	45	3,292	3,330	Other Income	24,140	249	165	23,891	23,975	1,000	1,000	1,565	-	(565)
(22,960)	(17,196)	(17,145)	(5,764)	(5,815)	Interest Expense	(51,941)	(51,588)	(51,176)	(353)	(765)	(206,346)	(206,346)	(197,000)	-	(9,346)
(1,525)	-	-	(1,525)	(1,525)	Other Expense	(10,923)	-	-	(10,923)	(10,923)	-	-	(48,452)	-	48,452
63,419	57,887	(28,959)	5,532	92,378	Total Non-Operating Revenues (Expenses)	123,762	123,661	62,367	101	61,395	694,654	694,654	914,797	-	(220,143)
(329,372)	(384,831)	(142,397)	55,459	(186,975)	Net Income Before Capital Contributions	(66,630)	(519,846)	(241,156)	453,216	174,526	(969,731)	(969,731)	(658,072)	-	(311,659)
-	-	-	-	-	Capital Contributions	-	-	-	-	-	-	-	-	-	-
(329,372)	(384,831)	(142,397)	55,459	(186,975)	NET INCOME	(66,630)	(519,846)	(241,156)	453,216	174,526	(969,731)	(969,731)	(658,072)	-	(311,659)

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FINANCIAL STATEMENTS - SUBURBAN WASTEWATER
MARCH 2019

MONTH					MARCH 2019					YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var	CASH FLOW STATEMENT					Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					Cash Flows From Operating Activities														
949,606	924,236	1,103,958	25,370	(154,352)	Operating Revenues					3,781,930	3,432,708	3,400,154	349,222	381,776	14,905,873	14,905,873	16,777,260	-	(1,871,387)
(958,870)	(988,557)	(819,530)	29,687	(139,340)	Operating Expenses (ex D&A)					(2,821,741)	(2,941,024)	(2,510,082)	119,283	(311,659)	(12,029,493)	(12,029,493)	(13,575,749)	-	1,546,256
70,282	65,000	(359,694)	5,282	429,976	Non-Cash Working Capital Changes					(1,136,489)	(1,235,000)	(158,837)	98,511	(977,652)	-	-	76,879	-	(76,879)
61,018	679	(75,267)	60,339	136,285	Net Cash Provided by (Used in) Operating Activities					(176,300)	(743,316)	731,236	567,016	(907,536)	2,876,380	2,876,380	3,278,389	-	(402,009)
					Cash Flows From Financing Activities														
-	-	-	-	-	Capital Contributions					-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Proceeds New Borrowing					-	-	-	-	-	-	-	-	-	-
(14,613)	(17,196)	(14,552)	2,583	(61)	Interest Payments					(43,594)	(51,588)	(43,459)	7,994	(135)	(206,346)	(206,346)	(171,690)	-	(34,656)
(41,017)	(39,844)	(40,153)	(1,173)	(864)	Principal Payments					(122,832)	(119,532)	(120,245)	(3,300)	(2,587)	(478,130)	(478,130)	(499,265)	-	21,135
(55,630)	(57,040)	(54,705)	1,410	(925)	Net Cash Provided by (Used in) Financing Activities					(166,426)	(171,120)	(163,705)	4,694	(2,721)	(684,476)	(684,476)	(670,956)	-	(13,520)
					Cash Flows from Capital and Related Activities														
64,473	68,833	(12,056)	(4,360)	76,529	Non-Operating Revenues					117,094	156,499	112,820	(39,405)	4,274	826,000	826,000	941,195	-	(115,195)
-	-	-	-	-	Project Reimbursement					-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Non-Operating Expenses					-	-	-	-	-	-	-	4,585	-	(4,585)
(484,979)	(801,625)	(110,313)	316,646	(374,666)	Capital Expenditures					(669,719)	(1,704,875)	(185,116)	1,035,156	(484,603)	(9,619,500)	(9,619,500)	(2,740,221)	-	(6,879,279)
(420,506)	(732,792)	(122,369)	312,286	(298,137)	Net Cash Provided By (Used In) Capital and Related Activities					(552,625)	(1,548,376)	(72,296)	995,751	(480,329)	(8,793,500)	(8,793,500)	(1,794,442)	-	(6,999,058)
					Cash Flows From Investing Activities														
-	-	-	-	-	Investments Converting To Cash					1,754,618	1,750,000	980,000	4,618	774,618	3,500,000	3,500,000	3,615,209	-	(115,209)
(7,165)	-	-	(7,165)	(7,165)	Purchased Investments					(3,766,638)	(3,750,000)	-	(16,638)	(3,766,638)	-	-	(1,564,795)	-	1,564,795
23,431	6,250	242	17,181	23,189	Interest Income					69,532	18,750	723	50,782	68,809	75,000	75,000	219,054	-	(144,054)
16,266	6,250	242	10,016	16,024	Net Cash Provided By (Used In) Investing Activities					(1,942,488)	(1,981,250)	980,723	38,762	(2,923,211)	3,575,000	3,575,000	2,269,468	-	1,305,532
<u>(398,852)</u>	<u>(782,903)</u>	<u>(252,099)</u>	<u>384,051</u>	<u>(146,753)</u>	FUND NET CASH FLOWS					<u>(2,837,839)</u>	<u>(4,444,062)</u>	<u>1,475,957</u>	<u>1,606,223</u>	<u>(4,313,796)</u>	<u>(3,026,596)</u>	<u>(3,026,596)</u>	<u>3,082,460</u>	<u>-</u>	<u>(6,109,056)</u>
					DEBT SERVICE RATIO														
78,640	10,762	272,613	67,878	(193,973)	Total Cash Available For Debt Service					1,146,815	666,933	1,003,615	479,882	143,200	3,777,380	3,777,380	4,361,760	-	(584,380)
55,630	57,040	54,705	(1,410)	925	Debt Service					166,426	171,120	163,705	(4,694)	2,721	684,476	684,476	670,956	-	13,520
<u>1.41</u>	<u>0.19</u>	<u>4.98</u>	<u>1.22</u>	<u>(3.57)</u>	DSCR					<u>6.89</u>	<u>3.90</u>	<u>6.13</u>	<u>2.99</u>	<u>0.76</u>	<u>5.52</u>	<u>5.52</u>	<u>6.50</u>	<u>-</u>	<u>(0.98)</u>

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - SUBURBAN WASTEWATER
MARCH 2019

FORECAST VARIANCES - MONTH

INCOME STATEMENT	Actual	Forecast	Variance	Comments
Operating Revenues				
Charges For Services	949,606	924,236	25,370	Higher revenues from Pre-treatment plant and higher WLI revenues
Rent	-	-	-	
Other Income	-	-	-	
Total Operating Revenues	949,606	924,236	25,370	
Operating Expenses				
Salaries and Wages	62,927	55,008	(7,919)	
General and Administrative	38,153	49,531	11,378	
Utilities	6,091	8,170	2,079	
Materials and Supplies	22,513	38,278	15,765	
Miscellaneous Services	429,186	436,774	7,588	
Treatment & Transportation	400,000	400,796	796	
Depreciation and Amortization	383,527	378,397	(5,130)	
Total Operating Expenses	1,342,397	1,366,954	24,557	
Operating Income	(392,791)	(442,718)	49,927	
Non-Operating Revenues (Expenses)				
Tapping and Capital Recovery fees	61,098	66,667	(5,569)	
Meter Sales	-	-	-	
Inspection and Plan Reviews	-	2,083	(2,083)	
Project Reimbursements	-	-	-	
Interest Income	23,431	6,250	17,181	
Other Income	3,375	83	3,292	
Interest Expense	(22,960)	(17,196)	(5,764)	
Other Expense	(1,525)	-	(1,525)	
Total Non-Operating Revenues (Expenses)	63,419	57,887	5,532	
Net Income Before Capital Contributions	(329,372)	(384,831)	55,459	
Capital Contributions	-	-	-	
NET INCOME	(329,372)	(384,831)	55,459	

FORECAST VARIANCES - MONTH

CASH FLOW STATEMENT	Actual	Forecast	Variance	Comments
Cash Flows From Operating Activities				
Operating Revenues	949,606	924,236	25,370	
Operating Expenses (ex D&A)	(958,870)	(988,557)	29,687	
Non-Cash Working Capital Changes	70,282	65,000	5,282	
Net Cash Provided by (Used in) Operating Activities	61,018	679	60,339	
Cash Flows From Financing Activities				
Capital Contributions	-	-	-	
Proceeds New Borrowing	-	-	-	
Interest Payments	(14,613)	(17,196)	2,583	
Principal Payments	(41,017)	(39,844)	(1,173)	
Net Cash Provided by (Used in) Financing Activities	(55,630)	(57,040)	1,410	
Cash Flows from Capital and Related Activities				
Non-Operating Revenues	64,473	68,833	(4,360)	
Project Reimbursement	-	-	-	
Non-Operating Expenses	-	-	-	
Capital Expenditures	(484,979)	(801,625)	316,646	Lower capex - favorable timing
Net Cash Provided By (Used In) Capital and Related Activities	(420,506)	(732,792)	312,286	
Cash Flows From Investing Activities				
Investments Converting To Cash	-	-	-	
Purchased Investments	(7,165)	-	(7,165)	
Interest Income	23,431	6,250	17,181	
Net Cash Provided By (Used In) Investing Activities	16,266	6,250	10,016	
FUND NET CASH FLOWS	(398,852)	(782,903)	384,051	

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - CITY DIVISION
MARCH 2019

MONTH					MARCH 2019 INCOME STATEMENT	YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var		Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					Operating Revenues										
3,118,758	3,085,185	2,985,857	33,573	132,901	Charges For Services	9,091,975	9,030,555	8,582,831	61,420	509,144	37,022,206	37,022,206	35,897,463	-	1,124,743
-	-	-	-	-	Rent	-	-	-	-	-	-	-	-	-	-
27,742	47,309	55,092	(19,567)	(27,350)	Other Income	114,331	141,927	172,780	(27,596)	(58,449)	567,706	567,706	519,893	-	47,813
3,146,500	3,132,494	3,040,949	14,006	105,551	Total Operating Revenues	9,206,306	9,172,482	8,755,611	33,824	450,695	37,589,912	37,589,912	36,417,356	-	1,172,556
					Operating Expenses										
609,492	601,150	575,773	(8,342)	(33,719)	Salaries and Wages	1,473,543	1,478,450	1,447,220	4,907	(26,323)	5,653,796	5,653,796	5,410,578	-	(243,218)
478,871	473,967	363,783	(4,904)	(115,088)	General and Administrative	1,574,849	1,591,901	1,386,658	17,052	(188,191)	6,407,601	6,407,601	6,623,682	-	216,081
49,244	49,605	174,445	361	125,201	Utilities	399,700	398,815	503,895	(885)	104,195	2,095,255	2,095,255	1,985,067	-	(110,188)
117,467	113,102	76,255	(4,365)	(41,212)	Materials and Supplies	235,194	272,306	286,472	37,112	51,278	1,597,216	1,597,216	1,196,225	-	(400,991)
115,039	135,737	128,108	20,698	13,069	Miscellaneous Services	287,959	352,211	258,696	64,252	(29,263)	1,988,845	1,988,845	1,753,015	-	(235,830)
-	1,000	-	1,000	-	Treatment & Transportation	-	3,000	-	3,000	-	12,000	12,000	9,827	-	(2,173)
490,000	490,000	466,667	-	(23,333)	Depreciation and Amortization	1,470,000	1,470,000	1,400,001	-	(69,999)	5,880,000	5,880,000	5,600,004	-	(279,996)
1,860,113	1,864,561	1,785,031	4,448	(75,082)	Total Operating Expenses	5,441,245	5,566,683	5,282,942	125,438	(158,303)	23,634,713	23,634,713	22,578,398	-	(1,056,315)
1,286,387	1,267,933	1,255,917	18,454	30,470	Operating Income	3,765,061	3,605,799	3,472,669	159,262	292,392	13,955,199	13,955,199	13,838,958	-	116,241
					Non-Operating Revenues (Expenses)										
214,867	197,000	8,212	17,867	206,655	Tapping and Capital Recovery fees	226,962	251,000	49,952	(24,038)	177,010	324,000	324,000	563,921	-	(239,921)
580	1,000	544	(420)	36	Meter Sales	6,591	3,000	4,316	3,591	2,275	12,000	12,000	8,397	-	3,603
5,600	17,250	850	(11,650)	4,750	Inspection and Plan Reviews	9,600	51,750	60,521	(42,150)	(50,921)	207,000	207,000	44,961	-	162,039
-	-	-	-	-	Project Reimbursements	-	-	-	-	-	1,645,000	1,645,000	372,527	-	1,272,473
99,756	93,333	40,394	6,423	59,362	Interest Income	212,828	159,999	104,567	52,829	108,261	400,000	400,000	1,047,648	-	(647,648)
3,700	1,833	2,970	1,867	730	Other Income	11,725	5,499	10,470	6,226	1,255	22,000	22,000	47,662	-	(25,662)
(1,460,583)	(1,479,715)	(1,402,734)	19,132	(57,849)	Interest Expense	(4,387,099)	(4,439,145)	(4,208,202)	52,046	(178,897)	(18,956,576)	(18,956,576)	(19,329,507)	-	372,931
(44,532)	(137,083)	(66,109)	92,551	21,577	Other Expense	(75,523)	(296,249)	(238,638)	220,726	163,115	(1,645,000)	(1,645,000)	(2,604,496)	-	959,496
(1,180,612)	(1,306,382)	(1,415,873)	125,770	235,261	Total Non-Operating Revenues (Expenses)	(3,994,916)	(4,264,146)	(4,217,014)	269,230	222,098	(17,991,576)	(17,991,576)	(19,848,886)	-	1,857,310
105,775	(38,449)	(159,956)	144,224	265,731	Net Income Before Capital Contributions	(229,855)	(658,347)	(744,345)	428,492	514,490	(4,036,377)	(4,036,377)	(6,009,928)	-	1,973,551
-	-	-	-	-	Capital Contributions	-	-	-	-	-	-	-	-	-	-
105,775	(38,449)	(159,956)	144,224	265,731	NET INCOME	(229,855)	(658,347)	(744,345)	428,492	514,490	(4,036,377)	(4,036,377)	(6,009,928)	-	1,973,551

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - CITY DIVISION
MARCH 2019

MONTH					MARCH 2019					YEAR-TO-DATE					FULL YEAR				
Actual	Forecast	Prior Yr	FC Var	PY Var	CASH FLOW STATEMENT					Actual	Forecast	Prior Yr	FC Var	PY Var	Forecast	Budget	Prior Yr	Bud Var	PY Var
					Cash Flows From Operating Activities														
3,146,500	3,132,494	3,040,949	14,006	105,551	Operating Revenues					9,206,306	9,172,482	8,755,611	33,824	450,695	37,589,912	37,589,912	36,417,356	-	1,172,556
(1,370,113)	(1,374,561)	(1,318,364)	4,448	(51,749)	Operating Expenses (ex D&A)					(3,971,245)	(4,096,683)	(3,882,941)	125,438	(88,304)	(17,754,713)	(17,754,713)	(16,978,394)	-	(776,319)
791,751	800,000	953,483	(8,249)	(161,732)	Non-Cash Working Capital Changes					(936,321)	(700,000)	(946,041)	(236,321)	9,720	-	-	311,458	-	(311,458)
2,568,138	2,557,933	2,676,067	10,205	(107,929)	Net Cash Provided by (Used in) Operating Activities					4,298,740	4,375,799	3,926,629	(77,059)	372,111	19,835,199	19,835,199	19,750,420	-	84,779
					Cash Flows From Financing Activities														
-	-	-	-	-	Capital Contributions					-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Proceeds New Borrowing					-	-	-	-	-	-	-	18,735,000	-	(18,735,000)
-	-	-	-	-	Interest Payments					(5,348)	-	-	(5,348)	(5,348)	(14,956,576)	(14,956,576)	(13,321,283)	-	(1,635,293)
-	-	-	-	-	Principal Payments					-	-	-	-	-	-	-	(18,735,000)	-	18,735,000
-	-	-	-	-	Net Cash Provided by (Used in) Financing Activities					(5,348)	-	-	(5,348)	(5,348)	(14,956,576)	(14,956,576)	(13,321,283)	-	(1,635,293)
					Cash Flows from Capital and Related Activities														
224,747	217,083	12,576	7,664	212,171	Non-Operating Revenues					254,878	311,249	125,259	(56,371)	129,619	565,000	565,000	664,941	-	(99,941)
-	-	-	-	-	Project Reimbursement					-	-	-	-	-	1,645,000	1,645,000	372,527	-	1,272,473
(262,431)	(258,100)	(255,780)	(4,331)	(6,651)	Non-Operating Expenses					(262,431)	(258,100)	(255,780)	(4,331)	(6,651)	(516,200)	(516,200)	(511,560)	-	(4,640)
(196,311)	(403,750)	(456,952)	207,439	260,641	Capital Expenditures					(430,957)	(1,096,250)	(824,368)	665,293	393,411	(4,845,000)	(4,845,000)	(8,094,916)	-	3,249,916
(233,995)	(444,767)	(700,156)	210,772	466,161	Net Cash Provided By (Used In) Capital and Related Activities					(438,510)	(1,043,101)	(954,889)	604,591	516,379	(3,151,200)	(3,151,200)	(7,569,008)	-	4,417,808
					Cash Flows From Investing Activities														
-	-	-	-	-	Investments Converting To Cash					-	-	-	-	-	-	-	4,000,000	-	(4,000,000)
-	-	-	-	-	Purchased Investments					-	-	-	-	-	-	-	-	-	-
99,756	93,333	40,394	6,423	59,362	Interest Income					212,828	159,999	104,567	52,829	108,261	400,000	400,000	1,047,648	-	(647,648)
99,756	93,333	40,394	6,423	59,362	Net Cash Provided By (Used In) Investing Activities					212,828	159,999	104,567	52,829	108,261	400,000	400,000	5,047,648	-	(4,647,648)
<u>2,433,899</u>	<u>2,206,499</u>	<u>2,016,305</u>	<u>227,400</u>	<u>417,594</u>	FUND NET CASH FLOWS					<u>4,067,710</u>	<u>3,492,697</u>	<u>3,076,307</u>	<u>575,013</u>	<u>991,403</u>	<u>2,127,423</u>	<u>2,127,423</u>	<u>3,907,778</u>	<u>-</u>	<u>(1,780,355)</u>
					DEBT SERVICE RATIO														
2,073,127	2,036,773	1,738,580	36,354	334,547	Total Cash Available For Debt Service					5,598,299	5,452,319	4,981,485	145,980	616,814	20,421,285	20,421,285	20,696,843	-	(275,558)
1,246,381	1,246,381	1,087,310	-	159,071	Debt Service					3,739,143	3,739,143	3,261,930	-	477,213	14,956,576	14,956,576	13,047,721	-	1,908,855
<u>1.66</u>	<u>1.63</u>	<u>1.60</u>	<u>0.03</u>	<u>0.06</u>	DSCR					<u>1.50</u>	<u>1.46</u>	<u>1.53</u>	<u>0.04</u>	<u>(0.03)</u>	<u>1.37</u>	<u>1.37</u>	<u>1.59</u>	<u>-</u>	<u>(0.22)</u>

LEHIGH COUNTY AUTHORITY
FINANCIAL STATEMENTS - CITY DIVISION
MARCH 2019

FORECAST VARIANCES - MONTH

INCOME STATEMENT	Actual	Forecast	Variance	Comments
Operating Revenues				
Charges For Services	3,118,758	3,085,185	33,573	Higher wastewater revenues
Rent	-	-	-	
Other Income	27,742	47,309	(19,567)	
Total Operating Revenues	3,146,500	3,132,494	14,006	
Operating Expenses				
Salaries and Wages	609,492	601,150	(8,342)	
General and Administrative	478,871	473,967	(4,904)	
Utilities	49,244	49,605	361	
Materials and Supplies	117,467	113,102	(4,365)	
Miscellaneous Services	115,039	135,737	20,698	Lower spending on maintenance
Treatment & Transportation	-	1,000	1,000	
Depreciation and Amortization	490,000	490,000	-	
Total Operating Expenses	1,860,113	1,864,561	4,448	
Operating Income	1,286,387	1,267,933	18,454	
Non-Operating Revenues (Expenses)				
Tapping and Capital Recovery fees	214,867	197,000	17,867	Higher water tapping fees and higher wastewater allocation fees
Meter Sales	580	1,000	(420)	
Inspection and Plan Reviews	5,600	17,250	(11,650)	
Project Reimbursements	-	-	-	
Interest Income	99,756	93,333	6,423	
Other Income	3,700	1,833	1,867	
Interest Expense	(1,460,583)	(1,479,715)	19,132	
Other Expense	(44,532)	(137,083)	92,551	Lower expensed capex
Total Non-Operating Revenues (Expenses)	(1,180,612)	(1,306,382)	125,770	
Net Income Before Capital Contributions	105,775	(38,449)	144,224	
Capital Contributions	-	-	-	
NET INCOME	105,775	(38,449)	144,224	

FORECAST VARIANCES - MONTH

CASH FLOW STATEMENT	Actual	Forecast	Variance	Comments
Cash Flows From Operating Activities				
Operating Revenues	3,146,500	3,132,494	14,006	
Operating Expenses (ex D&A)	(1,370,113)	(1,374,561)	4,448	
Non-Cash Working Capital Changes	791,751	800,000	(8,249)	
Net Cash Provided by (Used in) Operating Activities	2,568,138	2,557,933	10,205	
Cash Flows From Financing Activities				
Capital Contributions	-	-	-	
Proceeds New Borrowing	-	-	-	
Interest Payments	-	-	-	
Principal Payments	-	-	-	
Net Cash Provided by (Used in) Financing Activities	-	-	-	
Cash Flows from Capital and Related Activities				
Non-Operating Revenues	224,747	217,083	7,664	
Project Reimbursement	-	-	-	
Non-Operating Expenses	(262,431)	(258,100)	(4,331)	
Capital Expenditures	(196,311)	(403,750)	207,439	Lower capex on favorable timing
Net Cash Provided By (Used In) Capital and Related Activities	(233,995)	(444,767)	210,772	
Cash Flows From Investing Activities				
Investments Converting To Cash	-	-	-	
Purchased Investments	-	-	-	
Interest Income	99,756	93,333	6,423	
Net Cash Provided By (Used In) Investing Activities	99,756	93,333	6,423	
FUND NET CASH FLOWS	2,433,899	2,206,499	227,400	

CASH & INVESTMENT SUMMARY
MARCH 2019
YTD CHANGES IN CASH BALANCES

	Suburban Water	Suburban Wastewater	City Division
CURRENT MONTH			
CASH			
Operating	9,353,928.35	4,223,592.07	18,254,360.73
Capital	5,946,869.47	5,992,809.60	43,148.19
Restricted	1,571,864.36	337,652.13	38,352,386.80
Escrow	4,948,095.06	-	6,361.33
Total Cash	21,820,757.24	10,554,053.80	56,656,257.05
INVESTMENTS			
Operating	2,626,769.38	-	-
Capital	2,760,850.24	8,467,724.32	-
Restricted	25,525.94	-	3,940,640.00
Total Investments	5,413,145.56	8,467,724.32	3,940,640.00
TOTAL CASH & INVESTMENTS	27,233,902.80	19,021,778.12	60,596,897.05
BEGINNING OF YEAR			
CASH			
Operating	8,283,969.69	5,314,951.71	18,017,729.33
Capital	5,772,084.72	7,739,379.19	42,935.90
Restricted	1,564,965.39	337,562.23	34,521,520.50
Escrow	4,990,657.44	-	6,361.22
Total Cash	20,611,677.24	13,391,893.13	52,588,546.95
INVESTMENTS			
Operating	3,356,991.39	-	-
Capital	3,393,212.74	6,455,704.16	-
Restricted	25,521.88	-	3,940,640.00
Total Investments	6,775,726.01	6,455,704.16	3,940,640.00
TOTAL CASH & INVESTMENTS	27,387,403.25	19,847,597.29	56,529,186.95
YTD CHANGE IN BALANCES			
CASH			
Operating	1,069,958.66	(1,091,359.64)	236,631.40
Capital	174,784.75	(1,746,569.59)	212.29
Restricted	6,898.97	89.90	3,830,866.30
Escrow	(42,562.38)	-	0.11
Total Cash	1,209,080.00	(2,837,839.33)	4,067,710.10
INVESTMENTS			
Operating	(730,222.01)	-	-
Capital	(632,362.50)	2,012,020.16	-
Restricted	4.06	-	-
Total Investments	(1,362,580.45)	2,012,020.16	-
TOTAL CASH & INVESTMENTS	(153,500.45)	(825,819.17)	4,067,710.10
CASH WITHOUT ESCROW	1,251,642.38	(2,837,839.33)	4,067,709.99

<p>Lehigh County Authority</p> <p>System Operations Review - March 2019</p> <p>Presented: April 22, 2019</p>
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<u>Critical Activities</u>	<u>System</u>	<u>Description</u>	<u>Mar-19</u>	<u>2019 Totals</u>	<u>2018 Totals</u>	<u>Permit</u>
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			Daily Avg (MGD)	Daily Avg (MGD)	Daily Avg (MGD)	Daily Max (MGD)
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Water Production	Allentown	Total	21.30	21.14	21.48	39.0
		Schantz Spring	7.82	8.00	6.90	9.0
		Crystal Spring	3.91	3.89	3.88	4.0
		Little Lehigh Creek	9.57	9.24	10.69	30.0
		Lehigh River	0.00	0.00	0.02	28.0
	Central Lehigh	Total	9.23	8.96	9.46	19.04 MGD Avg
		Feed from Allentown	7.08	6.96	6.74	7.0 MGD Avg 10.5 MGD Max
		Well Production (CLD)	2.15	2.01	2.71	8.54 MGD Avg
		Sum of all (12) other Suburban Water Systems	0.19	0.18	0.18	1.71 Sum of all wells
Wastewater Treatment		Kline's Island	40.04	40.11	36.08	40.0
		Pretreatment Plant	5.93	6.04	5.46	5.75 (design capacity)
		Sum of all (5) other Suburban WW Systems	0.20	0.20	0.20	0.36

		<u>Mar-19</u>	<u>2019 Totals</u>	<u>2018 Totals</u>	<u>2017 Totals</u>
Precipitation Totals (inches)		3.89	11.51	66.96	50.18
Compliance Reports Submitted to Allentown		38	86	285	291
Notices of Violation (NOVs)	(Allentown + Suburban)	0	1	1	3
Sanitary Sewer Overflows (SSOs)/Bypasses	(Allentown + Suburban)	8	13	78	22
Main Breaks Repaired	Allentown	3	12	33	19
	Suburban	0	1	23	12
Customer Service Phone Inquiries	(Allentown + Suburban)	2,067	6,149	26,440	27,313
Water Shutoffs for Non-Payment	(Allentown + Suburban)	213	402	1,838	1,577
Injury Accidents	(Allentown + Suburban)	0	3	14	8
Emergency Declarations	Allentown	0	(1) @ \$15,176	(5) @ \$76,469	(2) @ \$51,235
	Suburban	0	(1) @ \$19,335	(1) @ \$21,197	(1) @ \$72,554

<u>Significant Repairs/Upgrades:</u>	Clearview Farms Water System is now run by SCADA, eliminating extra drives to the site.
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Description of NOV's and/or SSO's: There were two (2) bypass during March: Heidelberg Heights WWTP on 3/22/19 - 3/25/19 and Lynn WWTP on 3/22/2019 - 3/23/2019. There were six (6) SSOs during March. One was in the City system on 3/20/19 and the other five (5) were in the suburban system. Four (4) suburban SSOs were found on 3/14/19 and the fifth occurred on 3/29/2019. There were no NOV's during March, 2019.

Other Highlights: The Allentown Water Plant received an Area Wide Optimization Award for the 12th straight year as a result of their continuing excellence in meeting AWWA Partnership for Safe Water guidelines. Per Tim Carlson, Water Plant Manager: "The AWOP Award is earned by achieving strict treatment parameters. We strive to keep our clarifier turbidities < 1 NTU and filter turbidities < 0.1 NTU at least 95% of the time. By analyzing performance limiting factors, we try to mitigate those factors through plant improvements and/or revised SOPs."

Western Lehigh Interceptor High Flow Emergency Project

Status as of 4/12/2019

The Iron Run Trunk Line (IRTL) between the Industrial Pretreatment Plant (PTP) and Manhole (MH) U6, is the main area of recurring SSOs that led to the development of the emergency project. U6 is located SW of the intersection of Trexlertown Road and SR 222. The IRTL is Phase 1.

The emergency contract for Phase 1 was awarded to Standard Pipe Services (SPS) out of Delaware. The Notice to Proceed was issued on 3/27/2019 and work began on 3/29/2019. The contract calls for the work to be done within 60 days, but we anticipate things will get done sooner than that if the weather cooperates.

The Pretreatment Plant will hold back flow using the FEB on Monday, Wednesday and Friday of each week until Phase 1 is completed. Tuesday and Thursday will need to be used to release FEB flow. SPS plans to perform CCTV work five (5) days per week, weather permitting, long-term until their work is completed.

Phase 2 is the WLI section between U6 and L274. Phase 3 is the WLI section between L274 and the Spring Creek Pump Station (SCPS). Due to consistently high flows, Phase 3 has been impossible to CCTV. Another contract is being bid that will provide for a contractor to set up a full-scale bypass over the entire length of Phase 3. A prebid meeting was held on 4/11/2019 and bids are due for this work on 4/19/2019. After the bypass is set up, SPS will CCTV the remaining problematic areas. All defects that are discovered will be corrected by SPS before the bypass is disassembled.

As the remediation work proceeds in Phases 1-3, SPS will continue to CCTV downstream of the SCPS. SPS will continue to CCTV downstream of SCPS with the eventual goal of televising all the way to Park Pump Station with appropriate repairs to follow.

On 4/4/2019, Steve Pletchen from PaDEP contacted LCA and requested that we submit a Corrective Action Plan (CAP) for the entire WLI Emergency Project. The CAP is currently being prepared with the intent of submission by mid-April.