



## LEHIGH COUNTY AUTHORITY

**LCA Main Office:**  
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**Agendas & Minutes Posted:**  
[www.lehighcountyauthority.org](http://www.lehighcountyauthority.org)

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### BOARD MEETING AGENDA – September 11, 2017

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](http://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

- *August 28, 2017 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

#### **FINANCE AND ADMINISTRATION**

- *2018-2022 Capital Plans – Review of Public Comments Received (Discussion only) – no attachment*

#### **WATER**

- *Allentown Division – Water System Master Plan Presentation – Executive Summary attached (blue)*

#### **WASTEWATER**

- *CH2M Contract Extension (green)*
- *Allentown Division – Kline's Island WWTP Phase 1 AO Design Improvements (yellow)*

6. Monthly Project Updates / Information Items (1<sup>st</sup> Board meeting per month) – **September 2017 report attached**

7. Monthly Financial Review (2<sup>nd</sup> Board meeting per month)

8. Monthly System Operations Overview (2<sup>nd</sup> Board meeting per month)

9. Staff Comments

10. Solicitor's Comments

11. Public Comments / Other Comments

12. Executive Sessions

13. Adjournment

#### **UPCOMING BOARD MEETINGS**

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

September 25, 2017

October 9, 2017

October 23, 2017

#### **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**

### **August 28, 2017**

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The Regular Meeting of the Lehigh County Authority was called to order at 12:01 p.m. on Monday, August 28, 2017, Chairman Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Jeff Morgan, Richard Bohner, Norma Cusick, Scott Bieber, Ted Lyons and Deana Zosky. Authority Staff present were Brad Landon, Ed Klein, Pat Mandes, Chuck Volk, Chris Moughan, John Parsons, 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.

Brad Landon stated that no agenda changes have been reported to him and there will not be an Executive Session.

#### **APPROVAL OF MINUTES**

##### **August 14, 2017 Regular Meeting Minutes**

Richard Bohner suggested a correction on page 2, 3<sup>rd</sup> paragraph, 3<sup>rd</sup> sentence, the word *an* should be changed to *and*. On a motion by Richard Bohner, seconded by Deana Zosky, the Board approved the Minutes of the August 14, 2017 meeting as corrected (5-0). Norma Cusick, Scott Bieber, and Ted Lyons abstained.

#### **PUBLIC COMMENTS**

None.

#### **ACTION AND DISCUSSION ITEMS**

##### **Suburban Division – Wastewater Tapping Fees**

Ed Klein gave a background on the development of the wastewater tapping fees. After a review of the projects and debt service from consultant Dave Busch, a table of new rates was established. This was a new process resulting in some increases and decreases as a result of the readjustment of project costs between capacity and collection. Mr. Klein noted that some of these fees may change at the end of the year because of the Administrative Order work and costs.

Pat Mandes added that there are tapping fee regulations in Pennsylvania and any fees are calculated specifically by the law. Also, the Western Lehigh rates have been submitted to LCA's signatory partners asking for comments but the Authority has not received any comments.

Chuck Volk noted that when the Sand Spring project is complete, the Consultant will need to revisit these costs. Ed Klein said that he will.

Deana Zosky questioned whether the fees are for a one-year operating budget subject to Administrative Order change. Mr. Klein replied yes. Ms. Zosky asked for more clarification on rate structure vs. tapping fees. Mr. Klein provided that explanation. Ms. Zosky said she is trying to understand if the difference between what the law allows and our projects leaves us out of pocket expenses somehow. Pat Mandes said that if we don't get all the projected future hookups, we don't get necessarily get all the money back through tapping fees, but then the user rates are adjusted to reflect the difference so that debt service is always covered. Ms. Zosky asked what happens if a developer says they are hooking up 10 properties and hooks up 20 instead, for example. Ms. Mandes explained that tapping fees apply per connection and so additional fees would be applied to the developer to address the additional hookups.

Ms. Zosky asked if the consultant looked at forecasting for new growth. Ed Klein explained that growth has been outpacing the forecast.

Brad Landon noted that the blanks in the Resolution should be marked to include Exhibits A through G and the effective date 9/1/2017.

On a motion by Scott Bieber, seconded by Linda Rosenfeld, the Board approved Resolution No. 8-2017-1 which establishes the various components of the Lehigh County Authority capital recovery fees for various Suburban Division wastewater systems (8-0).

### **2018-2022 Draft Capital Plans**

Chuck Volk presented the 2018-2022 draft Capital Plans for the Suburban Division – Water, Suburban Division – Wastewater, Allentown Division and the Administrative Projects along with a PowerPoint presentation highlighting key projects in each division. Mr. Volk noted this presentation is for information only, not approval. Approval will be sought in September after time for comments from the City and other parties. Ed Klein reviewed the financial analysis highlights in each division.

Administrative project costs will be allocated based on system revenue ( $\frac{2}{3}$  City Division and  $\frac{1}{3}$  Suburban Division) and funded out of operating cash. The Board asked if this sharing ratio gets reanalyzed and is it part of the agreement with the City of Allentown. Mr. Klein explained it's not part of the agreement but the allocation mirrors the internal services costs and is consistent.

Chuck Volk explained how some of the projects roll into the following year, but those projects may be used as placeholders. Deana Zosky noted that doing that means borrowing capital money is then based on a completely different amount. The closer, tighter we get with estimated costs and actual construction times, the better.

Scott Bieber said that he is against bringing another trunk line down the Little Lehigh Creek, if that is suggested in any of the capital projects. Chuck Volk commented that Arcadis is preparing a report on this and will present at another meeting.

Jeff Morgan asked about the Western Lehigh Interceptor and said he thought Jim Shelton from Arcadis said this interceptor has been hydraulically overloaded since 2009 during dry weather so why is this part of the Administrative Order work, which is a wet weather issue. Pat Mandes said dry weather and wet weather flows are interrelated at the work Arcadis is doing will accommodate both areas of concern.

Phil DePoe gave an overview of the Allentown Division Capital Plan. He informed the Board that the LCA funded projects have been reduced by \$4 million from the prior draft that was distributed and anything that was in the Indenture Report projects are not being funded currently.

John Parsons described the Indenture Report from Arcadis, noting that the list of projects is getting longer and longer each year but the budget is very limited this year as well as in upcoming years, so cut backs must be made. Phil DePoe explained that Phases 2 & 3 of the roof project will be now be split up over a five year period. Mr. DePoe noted and reviewed the reductions in the Allentown Division Capital plan.

The Board questioned if they have received the Indenture Report and said that it would be a good idea to have a copy. The Indenture Report goes to the trustee for the bondholders, M & T Bank, to review what LCA is working on to ensure the system is properly maintained in protection of the bonds. This is a requirement of the bonds for the lease.

Ed Klein explained the \$33 million gap in operating cash to fund the City Division Capital Plan. He noted that the Authority will be unable to borrow this amount and meet debt service requirements.

Chuck Volk received questions on the capital plans from the Lehigh Valley Planning Commission and has addressed their questions. Approval of the capital plans is scheduled for the September 25<sup>th</sup> Board meeting.

The Board asked for an explanation of the filter upgrades. John Parsons described the project.

**2018 Budget**

Ed Klein gave an overview of the 2018 Budget development process. He noted that final budget approval is set for the October 25, 2017 Board meeting.

**Suburban Division – Buss Acres Pumping Station Replacement**

Chuck Volk gave an overview of the project. The hydropneumatic tanks at both facilities have exceeded their useful life and are no longer compliant with regulatory requirements for pressure vessels. The project involves consolidating both stations on the largest well station parcel (Gary Drive) with a single new pump station and a new larger water storage tank. Mr. Volk said that the design provisions will be incorporated to facilitate the addition of radon mitigation equipment in the future should there be the establishment of a regulatory limit. The design engineer will also evaluate the feasibility and costs to provide fire protection to customers in Buss Acres. Mr. Volk is asking for approval of the Capital Project Authorization – Design Phase in the amount of \$167,405.00 which included the Professional Services Authorization – Design Phase to Buchart Horn in the amount of \$92,405.00.

On a motion by Ted Lyons, seconded by Norma Cusick, the Board approved the Capital Project Authorization – Design Phase in the amount of \$167,405.00 which included the Professional Services Authorization – Design Phase to Buchart Horn in the amount of \$92,405.00 (8-0).

**Suburban Division – Emergency Declaration**

John Parsons gave an overview of the emergency declaration regarding the water main break that occurred at 7450/7491 Hamilton Boulevard. He noted that there was an unusual corrosive aspect for a 20-year-old pipe and some petroleum smell in the trench. The total cost to complete the project was \$73,415.73. Mr. Parsons explained that this was the best approach to fix the pipe and to eliminate a hardship for customers.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the Emergency Declaration in the amount of \$73,415.73 (8-0).

Mr. Parsons said a condition assessment will be done to determine the root cause. The petroleum odor was also reported to the appropriate authorities. The Board asked Mr. Parsons to report back to them regarding the findings of the cause.

**Allentown Division – Wastewater Treatment Plant: Miscellaneous Improvements**

Phil DePoe gave an overview of the project regarding the Kline's Island Wastewater Treatment Plant clarifier equipment replacement for the Construction Phase. This project will be funded by the LCA Allentown Division. Mr. DePoe is asking for the approval of the Capital Project Authorization in the amount of \$879,592.00 which includes the Professional Services Authorization to D'Huy Engineering in the amount of \$19,400.00 and the General Contract Award to Blooming Glen Contractors in the amount of \$785,192.00.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the Capital Project Authorization in the amount of \$879,592.00 which includes the Professional Services Authorization to D'Huy Engineering in the amount of \$19,400.00 and the General Contract Award to Blooming Glen Contractors in the amount of \$785,192.00 (8-0).

**Suburban Division – 2017 SCARP Improvement Implementation Plan**

Pat Mandes mentioned that Jim Shelton from Arcadis was present at the August 14<sup>th</sup> meeting with a presentation of an overview of the planning process. Ms. Mandes said the objective is to prepare a draft and final version of the 2017 SCARP Improvement Implementation Plan for submission to PADEP and USEPA. Ms. Mandes is asking for approval of the Capital Project Authorization – Amendment No. 27 in the amount of \$75,000.00 which includes the Professional Services Authorization – Amendment No. 28 to Arcadis. The work covered by this amendment includes preparation of a summary of the work that has been completed

on the project to address the USEPA Administrative Order to eliminate sanitary sewer overflows including the investigative and planning phases for future reference and for preparation of the Capital Improvements Implementation Plan to be submitted to the EPA and DEP by the interim deadline of December 31, 2017.

Deana Zosky stated her concerns about the Improvement Implementation Plan not being a detailed enough to measure performance. Pat Mandes said there will be key performance indicators in the guidance manual. Ms. Mandes stated that measuring peak flows after the source removal projects will help in refining the design of future system improvements in Western Lehigh. Deana Zosky questioned whether EPA will see the key performance indicators or just a general plan. Pat Mandes explained the design standard is determined by the previous metering and modeling work and will be included in the EPA submission. Deana Zosky asked for clarification that if there is one plan for all partners then how will the partners reimburse the Authority. Ms. Mandes explained that the costs for the LCA improvements work is wrapped into the WLI rates based on their flows and loads so that LCA will be reimbursed. Also, the partners are paying for their own Source Removal Work so LCA will not be reimbursed for that work. Ms. Zosky asked that the Authority make sure that the work be included in the budget process so future amendment processes are not needed. Ms. Mandes explained the current request is a capital project amendment, not a budget amendment. All SCARP projects were included in the approved 2017 budget. The Capital Project Authorization Amendment is used to keep track of the entire project cost which began in 2008 and to ensure each phase of work is approved.

On a motion by Norma Cusick, seconded by Jeff Morgan, the Board approved the Capital Project Authorization – Amendment No. 27 in the amount of \$75,000.00 which includes the Professional Services Authorization – Amendment No. 28 to Arcadis (8-0).

### **MONTHLY FINANCIAL REVIEW**

The monthly financial review for July 2017 was prepared by Ed Klein and attached to the agenda. Mr. Klein asked if there were any questions or items that needed further explanation; there were none.

### **MONTHLY SYSTEM OPERATIONS OVERVIEW**

John Parsons gave an overview of the monthly System Operations Overview report for July 2017. Mr. Parsons reviewed the sanitary sewer overflows for July. Under the “Other Highlights” section, Mr. Parsons stated that the Suburban Division water hydrant flushing program is 100% complete and a report will be provided at a future Board meeting.

### **STAFF COMMENTS**

Lisa Miller reminded the Board of the upcoming LCA company picnic and asked the Board to RSVP if they have not yet done so.

### **SOLICITOR’S COMMENTS**

Brad Landon reported on Red Maple Acres litigation. The Common Pleas Court decision was rendered in favor of the Authority on the issue dealing with the Authority, but the plaintiffs appealed to Commonwealth Court. Recently the appellate court dismissed the case at that level based on failure to file certain documents. Time will tell if the plaintiffs appeal that decision.

### **PUBLIC COMMENTS / OTHER COMMENTS**

Scott Bieber inquired about who the two municipalities are that are not in agreement with the memorandum of understanding on the Administrative Order work amongst the City signatories proposed by the City. Deana Zosky stated it was Emmaus and Salisbury. Mr. Bieber was concerned about how this will work regarding payment. Pat Mandes said that there will be more discussion on the approach and the MOU as the parties try to work through the issues.

**EXECUTIVE SESSION**

None.

**ADJOURNMENT**

There being no further business, the Chairman adjourned the meeting at 1:55 p.m.

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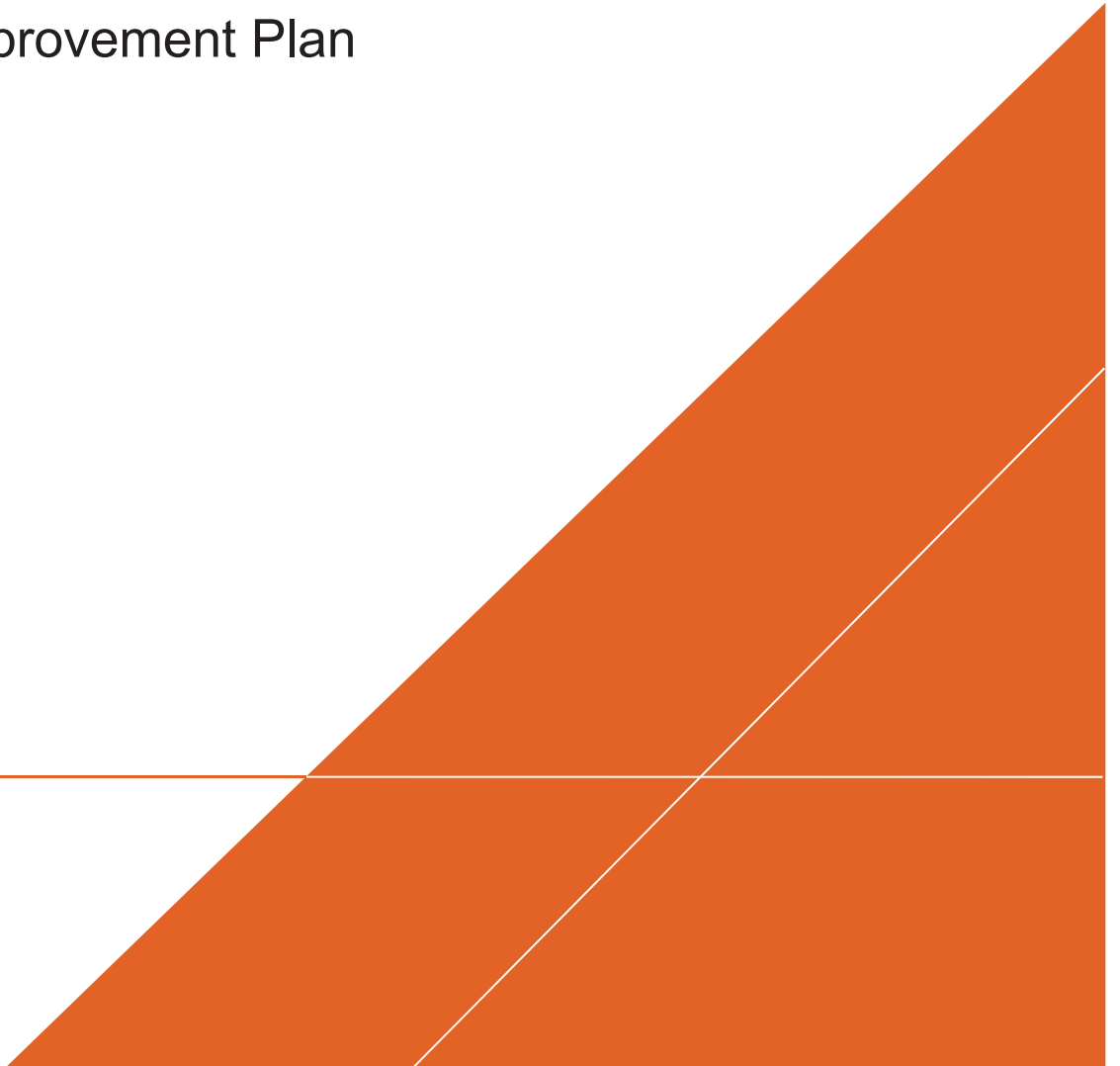
Richard H. Bohner  
Secretary

Lehigh County Authority

# **ALLENTOWN WATER MASTER PLAN**

## Capital Improvement Plan

July 2017





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## APPENDICES

Appendix A – Condition Assessment Report

Appendix B – Process Optimization Report

Appendix C - CIP Schedule and Project Costs

Appendix D - Near Term Project Descriptions (Years 0-10)

Appendix E - Potential Environmental Permits (Years 0-10)

# 1 INTRODUCTION AND OVERVIEW

## 1.1 Background and Purpose

The Lehigh County Authority (LCA), which leases and operates the Allentown water system (including the Water Filtration Plant, ten reservoirs/storage tanks, and five distribution pumping stations), has contracted Arcadis to develop an Allentown Water System Master Plan. The Master Plan assessed the current condition and remaining useful life of the water system infrastructure (excluding the distribution system piping) and water treatment processes and identifies prioritized projects which reduce risk, improve reliability of service and enhance operational efficiency. The Capital Improvement Plan (CIP) encompasses a 50-year planning period and addresses short- and long-term needs of the water system so that LCA can continue to deliver high quality service in a financially responsible manner.

## 1.2 Project Approach

This section summarizes the approach for the development of the Master Plan:

- Task 1 – Condition Assessment – In May 2016, the project team conducted an on-site condition assessment of the Water Filtration Plant, reservoirs, storage tanks, and pump stations. Baseline condition, remaining useful life, criticality and a risk score were assigned for each asset and documented in a spreadsheet tool. The Condition Assessment Report is included in Appendix A.
- Task 2 – Water Plant Process Optimization – The performance of the Water Filtration Plant processes was assessed and included evaluation of major unit processes and identification of factors which limit performance. Existing and anticipated future regulatory requirements were reviewed and any potential treatment changes that may be necessitated by future regulatory developments were identified. The Process Optimization Report is included in Appendix B.
- Task 3 – CIP – The results from Tasks 1 and 2 were incorporated into a prioritized CIP for the Allentown water system. Preparation of the CIP was a collaborative process between Arcadis and LCA and included preparation of project descriptions and opinions of probable project costs.

## 1.3 Report and Scope

This report presents findings from Task 3, the Capital Improvement Plan.

# 2 CIP

The condition assessment and process assessment identified improvements pertaining to condition, operability, reliability, process unit limitations, regulatory requirements, and equipment approaching the end of its useful life. Alternatives for select unit processes were evaluated to address deficiencies identified in the process assessment and considered capital cost, operation and maintenance cost, water quality, reliability, operational complexity, schedule, permitting, and redundancy. Recommended alternatives were presented and discussed with LCA on June 20, 2017.

Identified improvements were grouped into projects and prioritized based on a collaborative process with LCA via workshops held on March 23, 2017 and June 20, 2017. Projects were prioritized into the following timeframes: 0-5 years, 5-10 years, 10-25 years, and 25-50 years. Project prioritization considered condition, anticipated remaining useful life, ability to obtain spare parts, operability, regulatory requirements, and reliability. In general, the identified capital projects include significant renovation, rehabilitation, replacement and new construction work. Ongoing maintenance, repairs (planned/unplanned), and periodic replacement of minor equipment and vehicles are not included in the identified capital projects. LCA should continue to budget funds for on-going maintenance, repairs (planned/unplanned), and periodic replacement of equipment (see projects AD-W-4 and AD-W-5 in the 2017-2021 CIP).

Opinions of probable project costs (OPPCs) were developed and are consistent with AACE class 5 cost estimates which are budgetary estimates and have an expected accuracy of -20% to -50% on the low end and +30% to +100% on the high end. This type of cost opinion is appropriate for a project that is between 0% and 2% defined. Cost estimates were based on a combination of vendor quotes (obtained for major pieces of equipment), similar project information, recent construction costs, professional engineering judgement, and stochastic (i.e., factors, allowances, \$/sq.ft.) methods. Construction costs include contractor overhead and profit and a contingency factor.

Project costs were escalated at a 3% annual inflation rate. Near-term projects (0-5 years) were escalated to 2020 dollars, near term projects (5-10 years) were escalated to 2025 dollars, mid-term projects (10-25 years) were escalated to 2035 dollars, and long-term projects (25-50 years) were escalated to 2055 dollars. The total project cost includes studies, design engineering and bid support services, engineering inspection during construction, and legal/financial/admin unless otherwise noted. Additional operational costs (where available and applicable) are also presented.

Appendix C presents the projects, schedule of project implementation, and total project costs for the 50-year CIP. The CIP is a dynamic document and should be reviewed and updated periodically to account for changes in priority, timeline, funding, regulations, or condition.

### 3 PROJECT DESCRIPTIONS

#### 3.1 Near-Term Projects

In general, projects prioritized for the near term (years 0-10) had deficiencies identified in the condition assessment (i.e., condition, ability to obtain spare parts, asset group's past their nominal useful life) and/or process evaluation (i.e., process limitations, regulatory requirements). The near-term projects were further prioritized into the following time frames: 0-5 years and 5-10 years.

For each of the projects identified in the 0-10-year timeframe, Arcadis developed a project description which includes:

- Problem statement and definition
- Benefits of proposed project
- Preliminary scope of work
- Operational costs (if applicable and available)

- Total project cost

The detailed project descriptions are provided in Appendix D and a brief summary of the near-term projects is provided in this section.

The project team also identified potential environmental permits that may be applicable to the projects identified in the 0-10-year timeframe. An overview of potential environmental permits that may be applicable for the near-term projects is provided in Appendix E, Table 1. Potential environmental permits identified for each near-term project are summarized in Appendix E, Table 2.

### **3.1.1 Water Filtration Plant**

#### *Filter Upgrades*

The existing filters will be rehabilitated including replacement of filter underdrains, media, filter valves, actuation system, and filter control panels, and installation of air scour auxiliary wash. Filter pilot testing will be performed to evaluate alternate media configurations. A hydraulic model and profile will also be developed to assess total plant capacity and identify any hydraulic limitations. Furthermore, piping tie-ins, vaults, and valves will be provided to allow Crystal and Schantz spring sources to be processed by the water filtration plant if spring sources are declared Groundwater Under the Direct Influence of Surface Water.

#### *Pretreatment/Sedimentation*

This project will occur in years 5-10 and 10-25. Flocculation influent channel improvements, a new chemical fill station, and replacement of the fluoride tanks and transfer pump are planned for years 5-10 with the remainder of the work occurring in years 10-25.

#### *High Lift Pump and Variable Frequency Drives (VFDs)*

The high lift pumps, motors, and VFDs will be replaced. Pump capacities will be selected to meet current and future demands while operating at peak efficiency. Building and support facilities will be rehabilitated as required.

#### *Electrical Improvements/Pumps*

The main switchgear, 480V switchgear, motor control centers (No. 1-4), and buried feeders will be replaced. The low lift pump and motors will be replaced and pump capacities will be selected to meet current and future demands while operating at peak efficiency. The Schantz and Crystal High Service pumps and motors will be replaced.

#### *Auxiliary Generator*

An auxiliary generator will be installed at the water filtration plant to power the Schantz and Crystal high service pumps.

#### *Big Lehigh Screens and Powder Activated Carbon*

Travelling screens, screenings handling facilities, and powdered activated carbon will be installed at the Big Lehigh Intake/Pumping Station.

## ALLENTOWN WATER MASTER PLAN

### *Little Lehigh Screen Housing*

The corroded housing on the existing travelling screen in the 1953 screening building will be replaced to extend asset life until a new intake/screening facility is constructed.

### *Little Lehigh Intake and Screens*

A new Little Lehigh intake structure and screenings building including screens and screenings handling will be installed.

### *Security*

Security improvements will be implemented as required to enhance perimeter security based on a Department of Homeland Security site evaluation.

### *Carbon Dioxide Feed System*

A new carbon dioxide (CO<sub>2</sub>) storage and feed system will be installed to provide the capability to reduce the raw water pH to optimize the performance of the polyaluminum chloride (PACl) coagulant and control dissolved aluminum concentrations in the finished water.

### *Concrete/Brick Repairs*

Concrete and brick structures at the Water Filtration Plant will be repaired as identified in the 2017 Annual Consulting Engineer's Report for the Allentown Water and Sewer Utility Concession.

### *Watershed Protection Plan*

A watershed protection plan will be developed to obtain 0.5-log *Cryptosporidium* inactivation credit for compliance with the Surface Water Treatment Rule (SWTR) requirements.

### *SCADA Replacement*

Refer to the 2017-2021 CIP, project AD-W-6, for the project description.

## **3.1.2 Tanks and Reservoirs**

Tank and reservoir sites will be rehabilitated including Schantz Spring Tank, Huckleberry Ridge Reservoir, South Mountain Reservoir, East Side Reservoir, 16<sup>th</sup> Ward Tank, 19<sup>th</sup> Ward Tank, and the Wash Water Tank. Concrete tank exteriors will be repaired and building structures, facilities, and process mechanical equipment will be rehabilitated as required.

Maintenance and repairs of the steel tanks is provided under a long-term contract (project AD-W-8, 2017-2021 CIP).

## **3.1.3 Roof Replacement**

Refer to the 2017-2021 CIP, project AD-W-13, for the project description.

## **3.2 Mid-Term Projects (10-25 Years)**

Descriptions of the mid-term projects are summarized below:

### 3.2.1 Water Filtration Plant

#### *Pretreatment/Sedimentation*

A project description for the pretreatment/sedimentation project is included in Appendix D as this project will occur in years 5-10 and 10-25. Work on the flocculation influent channels, chemical fill station, and fluoride system will occur in years 5-10 with the remainder of the work occurring in years 10-25. The work included in years 10-25 includes replacement of process mechanical equipment, repair of concrete structures, and rehabilitation of building structures and support facilities as required. Pilot testing will also be performed to confirm if enhanced performance can be achieved with alternative plate settlers. Notably, many of the asset groups within the pretreatment and sedimentation process are approaching or beyond their nominal useful life. As such, on-going maintenance, rehabilitation, and replacement will be required in the near-term.

#### *Ultraviolet Disinfection*

Several process limitations were identified under Task 2 including:

- (1) Limited options for an additional barrier to address *Cryptosporidium* (Crypto) removal/inactivation - The results of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) Crypto sampling will result in a Bin 2 classification for the Little Lehigh. This will require an additional 1-log removal/inactivation for Crypto.
- (2) Limited CT at higher flow rates - It is difficult to achieve 3-log *Giardia* inactivation (level recommended by PADEP) at current flow rates without raw water chlorination. Furthermore, it is virtually impossible to achieve 1-log inactivation (required level) at 30 MGD without raw water chlorination.
- (3) Pre-chlorination - Chlorine is currently added to the raw water for pre-oxidation and to prevent algal growth in the floc basins and clarifiers. Raw water chlorination generally leads to higher disinfection byproduct levels (potential regulatory concern) and negatively impacts the removal of taste-and-odor-causing compounds with powdered activated carbon (PAC). This also can limit the ability to control emerging contaminants.

In the short term, LCA will pursue compliance with LT2 via operational modifications (e.g., watershed protection plan/combined filter effluent monitoring). However, ultraviolet disinfection (UV) is recommended to be installed in the long term for LT2 compliance and to address the process limitations identified above and to provide a higher level of public health protection. Additionally, UV provides the ability to address all of the process limitations identified above including limited CT at higher flow rates and pre-chlorination.

Ultraviolet disinfection is currently included in years 10-25 of the CIP as LCA will initially pursue compliance with LT2 via operational modifications. However, the time frame for implementation may need to be accelerated if (1) Little Lehigh creek is classified into a higher bin in the future requiring additional Crypto removal/inactivation, (2) water quality conditions deteriorate and pre-chlorination needs to be eliminated, and (3) if higher flow rates to the plant are realized. The Task 2 report provides additional details on the current limitations in achieving 1-log *Giardia* inactivation (required level) and 3-log *Giardia* inactivation (recommended level).

### *SCADA Replacement*

Based on an estimated useful life of 20 years, a SCADA replacement project was included mid-term to upgrade SCADA software and replace hardware as required. The cost was based on the current SCADA replacement project and escalated to 2035 dollars.

### **3.2.2 Pump Stations**

The condition inspection identified some near-term rehabilitation items that should be addressed in the 0-10 Year time frame. The near-term rehabilitation needs will be budgeted by LCA in other programs. Additionally, many of the asset groups are at or beyond their normal useful life. Therefore, in the near term, ongoing maintenance, repair, and rehabilitation/replacement will be required.

A rehabilitation project is included in years 10-25 and includes the following:

- Lehigh River Intake/ PS - Replace VFD 2/3, rehabilitate/replace process mechanical equipment, rehabilitate building structure, and rehabilitate/replace HVAC, electrical, and instrumentation and controls.
- 16th Ward PS, 19th Ward PS, 28 St PS, Halstead PS - Replace/ rehabilitate process mechanical equipment, rehabilitate building structure, rehabilitate /replace HVAC, electrical, and instrumentation and controls.

### **3.2.3 Tanks and Reservoirs**

Based on age of the assets and anticipated useful life, a rehabilitation project has been included in years 10-25 for repair of the tanks and reservoirs as required. As the scope for these projects is not currently known, an allowance of \$2,000,000 was included and escalated to 2035 dollars.

### **3.2.4 Roof Replacement**

Based on the asset condition assessment which included an estimate of remaining useful life, the following roofs may require replacement in years 10-25:

- Water Filtration Plant
  - Fluoride Building
  - North and South Power Houses
  - 1956 Building
- Schantz Spring Hypochlorite Generation Building

The 1956 Building roof was recently replaced in 2015; however, the replacement of the roof was included as a mid-term project based on an adjusted remaining useful life of 11 years. The useful life was adjusted based on a poor condition score due to inadequate drainage which may shorten its expected useful life.

## **3.3 Long-Term Projects (25-30 Years)**

Descriptions of the long-term projects are summarized below:

### 3.3.1 Water Filtration Plant

Rehabilitation projects were included in the 25-50 Year time frame for the following:

- Filter Upgrades
- High Lift VFDs/Pumps
- Electrical Improvements/Pumps
- Auxiliary Generator
- Big Lehigh Screens and PAC
- Little Lehigh Intake and Screens
- SCADA Replacement

*Filter Upgrades, High Lift VFDs/Pumps, Electrical Improvements/Pumps, Auxiliary Generator, Big Lehigh Screens and PAC, Little Lehigh Intake and Screens:*

Based on anticipated useful life, it is prudent to plan for a rehabilitation in the long term (25-50 years). However, asset life can be extended via proper maintenance and repairing and replacing equipment as required. As the scope for these projects is not currently known, an allowance has been included (equal to half the 2017 project cost) and escalated to 2055 dollars.

#### *SCADA Replacement*

Based on anticipated equipment useful life, a SCADA replacement project was included to upgrade SCADA software and replace hardware as required. The cost was based on the current SCADA replacement project and escalated to 2055 dollars.

### 3.3.2 Pump Stations

Based on anticipated useful life, it is prudent to plan for a pump station rehabilitation in the long term (25-50 years). However, asset life can be extended via proper maintenance and repairing and replacing equipment as required. As the scope for these projects is not currently known, an allowance of \$2,000,000 was included and escalated to 2055 dollars.

### 3.3.3 Tanks and Reservoirs

#### *Buried Concrete Reservoirs*

There are three buried concrete reservoirs in Allentown's water system including (1) Huckleberry Ridge, a circa 1989 with 10 million gallon (MG) capacity (2) South Mountain Reservoir, a circa 1937 with 30-MG capacity, and (3) East Side Reservoir, circa 1937 with 10-MG capacity.

LCA performed an inspection of the buried reservoirs in 2012 and has subsequently performed some exterior repairs that were identified. Additionally, the exposed concrete wall at South Mountain Reservoir requires repairs and therefore this has been included as part of a near term (0-5 years) project.

The internal inspection of the three concrete reservoirs did not identify any items that required immediate repair. However, South Mountain and East Side Reservoirs are over 80 years old and Huckleberry Ridge is approaching the end of its estimate useful life (based on industry standards). Therefore, it is prudent to plan for a rehabilitation project within the 50-year planning period. As the scope of repairs is currently



unknown, an allowance of \$5,000,000/reservoir has been included in the CIP and assumes minor rehabilitation needs. This allowance was escalated to 2055 Dollars.

LCA should also continue to inspect the exterior and interior of the reservoirs every three to five years consistent with industry guidelines and perform annual hydrostatic testing of the reservoirs. On-going maintenance and repairs should be performed as required. Rehabilitation needs and the timeline for repairs should be re-evaluated as required based on inspections and hydrostatic testing.

### *Storage Tanks*

Based on age of the assets and anticipated useful life, it is prudent to plan for a rehabilitation of the storage tanks in years 25-50. However, on-going maintenance and repair can extend an asset's useful life and LCA should continue to perform interior and exterior inspections in accordance with industry guidelines. As the scope for this project is not currently known, an allowance of \$2,000,000 was included and escalated to 2055 dollars.

### **3.3.4 Roof Replacement**

Most of the roofs have either been recently replaced or are scheduled to be replaced in 2018-2019. Based on an estimated useful life of 30 years, a replacement project is included in years 25-50. A replacement cost of \$2,000,000 was included and escalated to 2055 dollars.



1053 SPRUCE ROAD \* P.O. BOX 3348 \* ALLENTOWN, PA 18106-0348  
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email: [service@lehighcountyauthority.org](mailto:service@lehighcountyauthority.org)

## MEMORANDUM

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**TO:** LCA Board of Directors  
**FROM:** Liesel Gross  
**DATE:** September 5, 2017  
**RE:** Operations & Maintenance Contract Renewal – CH2M

In September 2016, Lehigh County Authority staff and Board of Directors discussed the potential renewal of the Operations and Maintenance (O&M) contract with CH2M for the operation of the Authority's industrial wastewater pretreatment plant (PTP) located in Fogelsville. This follows an earlier request by the Board in 2013 to investigate a longer-term contract renewal, as the current contract is subject to renewal in 5-year increments.

Over the past 12 months, the staff have worked collaboratively with CH2M on the terms of the O&M contract, and a final draft contract is attached for Board review and approval at the September 11, 2017 meeting.

### Brief Background

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The County of Lehigh developed the concept of providing industrial pretreatment services in this community nearly 50 years ago, and held responsibility for the facility until 2006 when the PTP was turned over to LCA for operation as part of the regional sewer system in Western Lehigh County. LCA assumed full ownership of the plant in 2009. As part of that transition process, LCA issued a detailed Request for Proposals for an O&M contract to operate the PTP, as the County had previously operated the facility through a contract operator.

OMI, Inc. was selected as the most cost-effective and professionally capable service provider in June 2009, and OMI was later sold to CH2M, who assumed responsibility for the contract. Other service providers who proposed on the contract at that time provided similar O&M services, but at a higher cost. Also important in the decision were OMI's (and now CH2M's) depth of experience at a national and international level in similar operating contexts, engineering resources and expertise that could be leveraged to complete capital improvements and system planning on a more cost-effective basis, and knowledge and resources available to operate and maintain the PTP's specialized treatment equipment including the cryogenics unit used to generate pure oxygen for the plant's operation.

The initial contract was a 4.5-year time period ending in December 2013, and included provisions for up to 3 additional contract extensions, each for a 5-year period, in 2013, 2018 and 2023.

In 2013, the first contract extension was approved, but CH2M and LCA began discussing whether a longer-term extension in the future might have some operational and financial benefits for both organizations. The Board at that time urged this discussion to commence, and an initial set of ideas was generated for projects that would generate cost savings over a period of several years, requiring a longer-term commitment by both parties to ensure they could be realized.

The final draft contract attached reflects some minor refinement of contract terms and codifies those project ideas which will generate cost savings over a 10-year timeframe, utilizing the two remaining contract renewal periods of 2018-2023 and 2023-2028 in combination to achieve the results LCA and CH2M were looking for in this effort.

### Highlights of Contract Terms

---

The proposed new O&M contract with CH2M includes changes in three major areas, which are summarized below. Other changes throughout the contract are primarily “clean up” items needed to reflect current operational approaches and/or grammar and other clarifications.

1. **Rate Setting:** In Section 4.4.1 of the contract, a new minimum annual rate adjustment of 1.5% has been added. The prior contract included no minimum. The rate adjustment is calculated based on a formula that is based on 70% inflation index (CPI) and 30% employee cost index (ECI). Over the course of the life of the contract to date, the average annual rate adjustment has been 1.9%. Adding the 1.5% minimum annual rate adjustment is expected to have minimal impact on LCA’s overall cost as long as overall economic conditions remain favorable as forecasted, but provides some protection for CH2M’s employee cost increases over time.
2. **Hauler Program:** The most debated and challenging portion of the contract negotiations centered on how the waste hauler program is administered. The prior contract included generally vague language that dictated that CH2M was to administer the program with a goal of generating additional revenue for LCA, but provided little detail on how the program works or how LCA or CH2M are protected in the event that the hauled waste that enters the plant creates treatment (or permitting) challenges for the facility. Prior experience with inadequate plant performance resulting from hauled waste shined a light on the risk associated with this program and the difficulty both LCA and CH2M face when attempting to recover the costs associated with addressing the impacts of unanticipated discharge of hauled waste containing materials that cannot be properly treated at the facility. Because the PTP discharges its treated effluent back into the Western Lehigh Interceptor, which flows to the Allentown wastewater treatment plant, it was important for LCA to develop a stronger method to ensure neither facility would be impacted by the waste hauler program. As a result of this investigation and discussion, two primary changes are found within the proposed O&M contract:
  - a. **Waste Hauler Program & MOU** – A new appendix was added to the contract including a memorandum of understanding (MOU) that details LCA’s and CH2M’s commitment to fully developing a hauler program that includes detailed protocols for waste sample, testing, permitting of haulers, permitting of waste generators, and more. If followed, both the haulers and the generators of high-strength waste will be permitted and held accountable for the waste they discharge at the PTP.
  - b. **CH2M Liability** – In a few locations within the O&M contract, language has been added that clarifies CH2M’s responsibility to administer the program, but also provides relief from liability when they follow all the prescribed protocols in the new program. In cases where a waste hauler is still able to discharge waste, undetected, that creates an operational challenge at the PTP, LCA and CH2M will work collaboratively to enforce the terms listed in the hauler’s/generator’s permit(s) that would prohibit that discharge, to hold the hauler / generator liable for the illicit discharge.

3. **Guaranteed Cost Savings / Process Improvements** – CH2M has developed information on three projects they will implement at the PTP, using CH2M’s capital funding, which will generate operational cost savings. In addition, there are several value-added services CH2M has agreed to provide at no cost to LCA, resulting in additional annual cost savings. A new appendix has been added to the contract that includes an MOU regarding these projects and provides a guaranteed level of annual operational cost savings that will be shared with LCA beginning in 2017, totaling \$73,000 per year.

It is worth noting that the three capital improvements include a return on CH2M’s investment over a period of up to 11 years, which means they are only possible for CH2M to complete in the context of this longer-term agreement. Also, the Board should be aware that section 9.6 of the O&M contract includes provisions for additional negotiated sharing of cost-savings for projects funded by CH2M. In the past, such projects were difficult to develop due to the short payback needed to make the arrangement profitable for CH2M or LCA. It is expected that additional projects may be developed under this section of the agreement if a longer-term contract is approved.

#### **Cost Competitiveness**

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While CH2M (then OMI, Inc.) was the most cost-competitive proposer on the O&M contract when it was originally issued for proposals in 2009, it was important to LCA to evaluate whether current pricing is competitive prior to extending the contract for an additional 10 years. The most pragmatic method to analyze the competitiveness of CH2M’s pricing was to develop a comparable cost for LCA to operate the plant directly. Using existing budget methods and payroll costs, and assuming certain pass-through costs would remain constant such as power, chemicals and Western Lehigh treatment/transportation costs, a 2017 cost comparison was developed and is shown on the next page.

This analysis illustrates that with the cost savings provided through the process-improvement projects included in the proposed O&M contract, CH2M’s operation of the Authority’s facility will be highly competitive against LCA comparable costs. It is important to note that in addition to evaluating ongoing operational costs, in order for LCA (or a new contract operator) to assume operating responsibility of this facility, significant upfront costs would be incurred to purchase replacement tools and equipment that CH2M currently provides. LCA staff estimated this upfront investment requirement to fall in the range \$1 to \$1.5 Million.

	CH2M-OPERATED 2017 Budget	LCA-OPERATED 2017 Budget
<b>OPERATING EXPENSES:</b>		
<b>PERSONNEL:</b>		
Permanent	\$ 42,150	\$ 634,884
Overtime	585	26,251
Employee Benefits	16,328	329,955
<b>Total</b>	<b>59,063</b>	<b>991,089</b>
<b>PURCHASE OF SERVICES:</b>		
Internal Services - Overhead & Support	38,406	448,250
Engineering*	50,000	100,000
Contract Operating Svcs:		
Base	2,494,114	-
Electrical	765,699	-
Variable	1,195,647	-
Repairs	1,500,000	-
Utilities*	-	837,440
Compliance Expense / Residuals*	-	972,200
Purification / Treatment Chemicals*	-	495,600
Treatment & Transportation	1,613,075	1,613,075
Permit/Regulatory*	5,000	105,200
Lab Analysis*	500	223,331
Maintenance Services & Repairs*	1,000	1,500,000
Miscellaneous Services	58,000	78,000
Rental Charges	12,000	12,000
Discounts Applied	(73,000)	-
<b>Total</b>	<b>7,660,441</b>	<b>6,385,096</b>
Misc. Materials & Supplies*	6,500	302,000
Equipment*	1,000	64,000
<b>Total</b>	<b>7,500</b>	<b>366,000</b>
<b>DEPRECIATION &amp; AMORTIZATION</b>	<b>3,350,000</b>	<b>3,350,000</b>
<b>TOTAL OPERATING EXPENSES</b>	<b>\$ 11,077,004</b>	<b>\$ 11,092,185</b>

\* Items marked with an asterisk (\*) are covered in whole or in part by the scope of services included in the proposed O&M Contract.

### **CH2M Partnership**

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LCA staff recommends approval of the proposed O&M contract with CH2M to allow for the realization of financial and operational benefits described in this memo. In addition, we believe it is important to recognize the partnership that has been developed over the past 8 years in this relationship with CH2M (formerly OMI, Inc.). Some highlights of the additional support LCA has enjoyed, many times at no additional cost, through this partnership:

- Operational evaluation and transition planning support for the Allentown water/sewer system lease
- Collaboration and quick-turn-around engineering services to respond to industrial customer requests for speculative / hypothetical site expansion
- Engineering support for pilot studies to improve / enhance treatment plant performance
- Property evaluation for potential future plant expansion
- Active partnership in environmental / public outreach programming such as household hazardous waste collection events, HydroMania, plant tours, and more

These are examples of a partnership between LCA and CH2M that would be difficult to replace and provides significant additional value to the Authority's operation, at times at no added cost. LCA staff looks forward to extending this relationship for the next 10 years to build upon this partnership in the years ahead.



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**Amended and Restated  
Operations, Maintenance, and Management  
Service Agreement  
for  
Lehigh County Authority Industrial  
Wastewater Pretreatment Plant**

**Between  
Operations Management International, Inc.  
and  
The Lehigh County Authority**

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**OPERATIONS, MAINTENANCE, AND  
MANAGEMENT SERVICE AGREEMENT  
FOR**

**LEHIGH COUNTY AUTHORITY WASTEWATER TREATMENT PLANT**

THIS AMENDED AND RESTATED OPERATIONS, MAINTENANCE, AND MANAGEMENT SERVICE AGREEMENT FOR LEHIGH COUNTY AUTHORITY WASTEWATER TREATMENT PLANT (hereinafter "Restated Agreement") is made on this \_\_\_\_\_ day of \_\_\_\_\_, 2017, between the Lehigh County Authority (hereinafter "LCA"), whose address for any formal notice is P.O. Box 3348, 1053 Spruce Road, Allentown, Pennsylvania 18106-0348 and, Operations Management International, Inc. (hereinafter "Operator"), a California corporation, with offices at 9191 South Jamaica Street, Englewood, Colorado 80112, each independently referred to as a "Party" and collectively referred to as the "Parties".

**BACKGROUND**

LCA was formed by Lehigh County (the "County") to provide regional water and wastewater services throughout the Lehigh Valley and developed regional water and regional wastewater systems, including a wastewater interceptor system known as the Western Lehigh Interceptor (the "WLI"), which is a system of trunk interceptor lines conveying sewage from various sewage collection systems in western Lehigh County to the City of Allentown's sewer system for treatment.

The County constructed and owned a wastewater pretreatment plant (the "Plant") in Upper Macungie Township ("Upper Macungie") to fulfill contractual obligations it had to certain industries located in the Fogelsville area of Upper Macungie, but also pretreats other industrial wastewater discharges, as well as other wastewater discharges, from various upstream properties in western Lehigh County and waste haulers. The Plant receives sewage flows via the WLI upstream of the Plant and discharges its effluent into the WLI.

Considering LCA's background with wastewater service and to encourage the economies of scale accomplished by consolidating aspects of wastewater service in western Lehigh County, the County and LCA entered into a 23 June 2005 agreement providing for LCA to lease and operate the Plant with an option to acquire ownership (the "County Agreement"). About the same time an agreement of sale was entered into by the County to sell a portion of land adjacent to the Plant that borders Route 100 to a private enterprise for the construction of a hotel. The sale of both has occurred, with LCA acquiring sole ownership of the Plant on 16 October 2009. The hotel utilizes a the driveway to the Plant. LCA has continued the County practice of contracting with an independent operator of the Plant and issued a Request for Proposals to re-procure an operator for the Plant on November 21, 2008, to which Operator responded and was selected by LCA to be the independent operator of the Plant.

In furtherance of the objectives set forth above, LCA has elected to continue its practice of contracting with an independent operator of the Plant and has selected Operator to be the independent operator of the Plant, and Operator desires to continue to be said independent operator, as set forth hereafter.

*NOW THEREFORE*, the Parties hereto, for and in consideration of the mutual promises herein made and intending to be legally bound hereby, do covenant and agree as follows:

**ARTICLE 1. GENERAL**

**1.1 Definitions of words or phrases used in this Restated Agreement.**

*Adequate Nutrients:* Plant influent nitrogen, phosphorous, and iron contents proportional to BOD<sub>5</sub>, in the ratio of at least four (4) parts total nitrogen, one (1) part total phosphorous, and one-half (0.5) part iron for each one hundred (100) parts BOD<sub>5</sub>. The Operator has the burden of proof regarding the absence of Adequate Nutrients in the Plant influent.

*Affiliate:* any person directly or indirectly controlling or controlled by another person, corporation or other entity or under direct or indirect common control with such person, corporation or other entity.

*Annual Average Effluent:* a twelve (12) month running average.

*Biologically Toxic Substances:* any substance or combination of substances contained in the Plant influent in sufficiently high concentrations for a sufficiently long period so as to interfere with the biological processes necessary for the removal of the organic and chemical constituents of the wastewater required to meet the treatment requirements in **Appendix A**. Biologically toxic substances include but are not limited to heavy metals, phenols, cyanides, pesticides, and herbicides. The Operator has the burden of proof regarding the existence of Biologically Toxic Substances in the Plant influent.

*Brewery:* the manufacturing facility commonly used to produce and/or bottle beer, or contract bottling located in the southwest quadrant of the intersection of Interstate 78 and Rte. 100, currently owned by the Samuel Adams Pennsylvania Brewery Company.

*Capital Improvements:* any planned, non-routine Plant improvement that (a) extends the life of the Plant and is of long-term character and substantially modifies the unit processes or equipment; (b) is required due to a Change in Law; (c) expands the capacity of the Plant or unit processes; or (d) expands the buildings. Capital Improvements do not include Maintenance or Repairs or Replacements and cannot be implemented without LCA approval.

*Change in Law:* the occurrence, after the date of this Restated Agreement, of any of the following: (a) the adoption or taking effect of any law, rule, permit, regulation or treaty, (b) any change in any law, rule, permit, regulation or treaty or in the administration, interpretation or application thereof by any governmental authority; (c) any denial of an application for, a delay in the review, issuance or renewal of, or the suspension, termination or interruption of any governmental approvals; or (d) the making or issuance of any request, guideline or directive (whether or not having the force of law) by any governmental authority. Provided that such occurrence considered a "Change in Law" in this definition is not the result of willful or negligent action, error or omission or a lack of reasonable diligence of the Operator or of LCA, whichever is asserting the occurrence of a "Change in Law"; however, the contesting in good faith or the failure in good faith to contest any such occurrence shall not be construed as such a willful or negligent action or lack of reasonable diligence.

*Commencement Date:* the date that the Operator commences with the Operation Services under this Restated Agreement.

*Consumables:* any liquid, non-durable goods, or component that is designed to be used up or replaced as part of the normal operation of equipment or conducting normal business, which are not an integral part of the equipment. These items are typically replaced

during a scheduled preventative maintenance event. For example, the Operator is responsible for one set of belts for each belt filter press annually as part of normal operations, if more belts are needed in a given year, this would be considered a Repair or Replacement, subject to cost substantiation.

*Contract Year*: a calendar year commencing on January 1 and ending on December 31. The first Contract Year shall be the calendar year in which the Commencement Date occurs. Any computation made on the basis of a Contract Year shall be adjusted on a pro rata basis to take into account any Contract Year of less than 365 or 366 days, whichever is applicable.

*County*: the governmental entity known as the County of Lehigh, Pennsylvania.

*Emergency*: an unplanned event which may result in potential damage to persons, equipment, or facilities if not attended to promptly. An Emergency may occur as the result of an Unforeseen Circumstance, equipment failure, human error, or situation giving rise to the immediate need for resources beyond those typically available or dedicate to the facility.

*Hauled Waste*: Any liquid or solid waste generated off-site and hauled to the facility by a permitted hauler that is allowable under the agreed-to Hauler Program between Owner and Operator.

*Hazardous Substances*: those substances defined by the United States Environmental Protection Agency ("EPA") industrial pretreatment standards.

*LCA Representative*: the LCA CEO or his/her designee.

*Maintenance*: Routine and/or repetitive activities required or recommended by the equipment or facility manufacturer or Operator to maximize the service life and reliability of the equipment, including on-site wastewater collection, holding, conveyance and treatment assets, buildings, grounds and facilities and all other activities described in Article 2. Maintenance includes inspections and cleaning of tanks, to include the clarifiers, digesters, influent wet-well, EQ tank, wastewater channels, grit chamber, and primary tanks. These items can be inspected while operating under plant design loadings. Maintenance includes routine inspections and cleaning of equipment, buildings, and buildings systems. Non-routine and specialized inspections shall be considered a Repair or Replacement.

*Major Repair(s) or Replacement(s)*: a Repair or Replacement, the cost of which, calculated in accordance with this definition, is in excess of two thousand five hundred U.S. dollars (\$2,500.00).

*Non Routine and Specialized Inspections*: Those inspections that existing plant staff do not have the skill set, training or necessary equipment to perform (i.e. divers, robots, core samples, etc. or areas that are inaccessible exclusive of those skills required to complete the conditions assessment / asset management process).

*Operation Services*: everything required to be furnished and done for and relating to the operation of the Plant by the Operator pursuant to this Restated Agreement. Operation Services include the employment and furnishing of all labor, materials, equipment, supplies, consumables, tools, storage, transportation, insurance, sales, delivery and other things and kinds of services whatsoever necessary for the full performance of the Operator's operation, maintenance, repair, replacement, management, obtaining and maintaining permits and related obligations under this Restated Agreement, and all of the

Operator's administrative, accounting, recordkeeping, reporting, and notification responsibilities under this Restated Agreement pertaining to such obligations.

*Performance Standards:* the guarantees of performance made by the Operator specifically set forth in **Appendix A**.

*Plant:* all equipment, grounds, and facilities now existing within the current property boundaries as delineated by the surrounding drainage swale or being used to operate the LCA wastewater treatment plant located in Upper Macungie Township, Lehigh County, Pennsylvania at 7676 Industrial Boulevard and Lehigh County Parcel Identification Number (PIN) 546535100991.

*Repair(s) or Replacement(s):* a repair or replacement to the Plant, including a repair or replacement of all equipment, including wastewater holding, conveyance and treatment assets, buildings and facilities, streets, parking lot, sidewalk, driveway or other property. A Repair or Replacement shall not include Maintenance. For purposes of this definition, such cost shall not include (a) labor costs of the Operator, provided that Subcontractor costs shall be included to the extent (1) the Operator's employees at the Plant lack the reasonable capability or are not reasonably qualified, in either case to perform a function relative to the Repair or Replacement and a capable and qualified Subcontractor is procured by the Operator to perform such function or (2) the Operator's employees are not reasonably available to perform one or more of the functions contemplated, (b) costs for Maintenance, and (c) the amount of any insurance proceeds available from any source and applied toward the implementation of such Repair or Replacement. Repair or Replacement costs shall be a monthly Reimbursable Cost.

*Repair and Replacement Budget or R&R Budget:* LCA's budget for Repairs or Replacements, as defined above, for a Contract Year, established by LCA, with Operator input, at the beginning of each Contract Year.

*Rolling Stock:* a piece of equipment used in the operations or maintenance of the facilities that is not a vehicle itself, including but not limited to: bypass pump, snow blower, forklift, and portable generator.

*Significant Industrial User (SIU):* All Industrial Users subject to categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, subchapter N or equivalent replacement legislation and/or regulation – known as Categorical Industrial Users (CIUs).

*Subcontractor:* every person (other than employees of the Operator) or entity employed or engaged by the Operator or any person directly or indirectly in privity with the Operator (including all subcontractors and every sub-subcontractor of whatever tier) for any portion of the Operation Services, whether for the furnishing of labor, materials, equipment, supplies, services or otherwise.

*Term:* The period of time for which this Restated Agreement is binding on the Parties in accordance with details set forth in Section 7.1.

*Uncontrollable Circumstances:* See Article 8.

- 1.2 No ownership of grounds, facilities, equipment, or vehicles now owned by LCA will be transferred to the Operator.
- 1.3 This Restated Agreement shall be governed by and interpreted in accordance with the laws of the Commonwealth of Pennsylvania.

- 1.4 This Restated Agreement shall be binding upon the successors and assigns of each of the Parties, but neither Party will assign this Restated Agreement without the prior written consent of the other Party.
- 1.5 All notices shall be in writing and transmitted by certified mail to:
- |                               |                       |
|-------------------------------|-----------------------|
| CEO or designee               | Contracts Manager     |
| Lehigh County Authority       | CH2M HILL OM Services |
| 1053 Spruce Road, PO Box 3348 | 9191 S. Jamaica St.   |
| Allentown, PA 18106-0348      | Englewood, CO 80112   |
- 1.6 This Restated Agreement, including Appendices, is the entire agreement of the Parties. This Restated Agreement may be modified only by written agreement signed by both Parties. Wherever used, the terms "Operator", "LCA" and "County" shall include the respective officers, agents, directors, elected or appointed officials, employees, and assigns.

## ARTICLE 2. SCOPE OF SERVICES - OPERATOR

Operator shall:

- 2.1 Manage, operate, maintain, repair and replace the Plant so that effluent discharged from the Plant meets the Performance Standards specified in **Appendix A**. Provide operations, maintenance, management, and administrative services required to operate the Plant and implement quality assurance and quality control in accordance with all legal and regulatory requirements. Operator shall obtain LCA approval of all Subcontractors used for major Repair or Replacement projects proposed by Operator.
- 2.2 Maintain or modify, subject to LCA approval, the current industrial waste sampling and laboratory analysis program, as defined in agreements between LCA and industries. Results of all industrial sampling and in-house analyses shall be reported to LCA within fifteen (15) calendar days of the end of the month in which the samples were collected or should have been collected and within ten (10) calendar days once third party lab results are received by Operator. In all cases where sampling and analysis are required for regulatory requirements the Operator shall report all such results in the proper form and within regulatory time limits.
- 2.3 Perform sampling and analyses from significant industrial dischargers in accordance with **Appendix F: MINIMUM REQUIRED SAMPLING AND ANALYSES**. Operator holds no enforcement authority related to the EPA or LCA/City of Allentown industrial pretreatment program.
- 2.4 Perform sampling, analyses and reporting at the Plant and operate the Plant in compliance with the requirements of the Industrial Waste Permit from LCA/City of Allentown, National Pollutant Discharge Elimination System ("NPDES") Storm Water Permit from the Pennsylvania Department of Environmental Protection ("PADEP"), Air Quality Program State Only Operating Permit from PADEP, Above Ground Storage Tank permit,

Land Application Permit, any permit associated with the disposal of grit, scum or other waste generated at the Plant as part of normal Plant operations, City of Allentown Sewer Ordinances, local annual fire inspection (Upper Macungie), pressure vessel certification as required by the Commonwealth of Pennsylvania and the owners insurance carrier, the SARA Title III requirements for liquid oxygen storage tanks and any other vessels that meet these requirements, the requirements of the Hauler Program and practices necessary for good Plant systems monitoring, control and operation. Excluding any engineering services or studies, maintain and pay all fees associated with the permits listed above and arrange and pay for all permit renewals. Provide sufficient sampling and analyses to report BOD<sub>5</sub>, TSS, and TKN influent and effluent loads on a daily basis. Changes to the above permits and regulatory requirements shall constitute a Change in Law as defined in Section 1.1 of the Restated Agreement.

- 2.5 Operator shall use their best effort to actively manage the waste hauler program (“Hauler Program”) to improve net revenues to the Plant, subject to the potential limitation on Hauler Program capacity as described in Section 2.7, while maintaining and operating the Plant in a responsible manner that includes, but is not limited to, performing the following activities:

- 2.5.1 advertising and marketing;
- 2.5.2 customer service;
- 2.5.3 preparing invoices and delivering hard copies in addressed envelopes to LCA who will apply postage and mail invoices;
- 2.5.4 providing hauler electronic data to LCA exported from the hauler application and database into Excel spreadsheets formatted as requested by LCA to provide LCA all data for accounting and management oversight of the program on a monthly basis or time period as may be needed from time to time, managing operations to maintain both current revenue and net revenues levels to the Plant unless the necessary treatment allocation explained below in Section 2.7 is reduced or eliminated;
- 2.5.5 accepting and rejecting hauled waste;
- 2.5.6 managing and treating hauled waste, including high-strength waste, which may require temporary storage of hauled waste in Plant tanks and gradual treatment;
- 2.5.7 maintaining all equipment and facilities related to the receipt and processing of hauled waste;
- 2.5.8 balancing hauler and influent load and flow to the Plant for efficient and effective treatment;
- 2.5.9 develop and recommend fee structure including any supplemental fee structures for different discharge locations such as the Waste Receiving Station (WRS) for approval by LCA;
- 2.5.10 sampling and analysis of hauled wastes;
- 2.5.11 data production, maintenance and reporting for hauled waste characterization and quantification, regulatory compliance, and reporting of costs and revenues; and



- 2.5.12 all additional requirements included in the Hauler Program Reference Documents included in **Appendix I**.
- 2.6 The Operator shall treat any hauled waste, including high-strength waste stored in Plant tanks as of the Commencement Date. Any stored waste on the Commencement Date shall not count as influent flow and load to the Plant. Unless otherwise approved in writing by LCA, Operator shall treat all hauled waste stored in Plant tanks such that there is no remaining untreated hauled waste at the Plant at the expiration of this Restated Agreement. If this Restated Agreement is terminated prior to its expiration, unless otherwise approved in writing by LCA, Operator shall immediately upon receiving notice of the termination, treat all stored hauled waste so that no hauled waste remains untreated prior to the date of termination. Should LCA agree to allow untreated hauled waste to remain in the tanks at the expiration or termination of this Restated Agreement, such waste will not be credited as flow or load received by the Plant.
- 2.7 The Hauler Program and Plant water volume is limited by an agreement with the municipal signatories to LCA's Western Lehigh Interceptor that restrict the Hauler Program currently to 216,000 gpd annual average discharge. The municipal agreement requires the return of this capacity to the municipalities should the capacity be needed by the municipalities. There is no guarantee that this capacity will remain available for the Hauler Program. In the event that any capacity is returned to the municipalities and flow or loadings from the industrial dischargers limit the ability to treat Hauler waste, Operator shall have no responsibility to increase net revenues from the Hauler Program nor shall LCA have any responsibility to compensate Operator for any lost revenues or profit nor its additional expenses.
- 2.8 In general, the collection of waste hauler payment delinquencies shall be LCA's responsibility. However, if LCA reports to Operator that a waste hauler is delinquent, Operator shall refuse to accept discharges from the delinquent waste hauler. If Operator allows a LCA-designated delinquent waste hauler whom has not met the fiscal guidelines for continuing discharge privileges to discharge to the Plant, any subsequent delinquency by this waste hauler shall be deducted from the LCA's payments for Operator services and it shall become the Operator's sole responsibility to collect that subsequent delinquency from this waste hauler. For any waste hauler's delinquent amount deducted from LCA payments to Operator, LCA agrees to assign its rights to collect those delinquencies to Operator, if necessary, and any sums Operator collects thereafter shall be retained by Operator.
- 2.9 In addition to the above requirements, perform at a minimum all sampling and analyses identified in **Appendix F**. Operator's laboratory results will be considered true and precise and not subject to dispute as long as all laboratory procedures, including quality assurance/quality control procedures, are performed as required by EPA, PADEP or other authority where applicable and the quality assurance/quality control procedures are followed and accurate records are maintained. This program requires the Operator to split samples between the Operator and LCA or the particular industry for accuracy validation, as directed by LCA. Operator is not responsible for analyses of the split samples delivered to LCA or the particular industry.
- 2.10 Provide and document all Maintenance and Repairs or Replacements for the Plant.

Unless approved in writing or electronic acknowledgement by LCA, all Repairs or Replacements shall result in equipment and systems that are functionally equivalent and of the same capacity as the existing equipment and systems. Provide predictive and preventative maintenance in accordance with all equipment manufacturer recommendations.

- 2.11 Implement all Repairs or Replacements in accordance with **Appendix B**. Unless an emergency situation exists, obtain written approval from LCA prior to commencement of (a) a Major Repair or Replacement or (b) a Repair or Replacement which will cause the total Repair or Replacement expenditures for the Contract Year to exceed the R&R Budget, for which LCA will respond or give approval within a reasonable time frame. Promptly provide LCA with all requested documentation of scope and cost for all planned or previously implemented Repairs or Replacements.
- 2.12 Evaluate all Plant equipment and buildings annually and maintain a current list of all maintenance, repair and replacement needs. Plant and building evaluations are considered maintenance activities performed at Operator's expense. The Operator shall perform plant condition assessments, including but not limited to: vibration analyses, oil testing, thermography, internal tank, pipe CCTV inspections and electrical load testing, in accordance with good industry practices for the larger and more critical components of the Plant.

The Operator will provide LCA with a copy of the condition assessment and the Operator's Repair or Replacement model output for use in jointly developing the annual R&R Budget. Primary clarifiers and aeration basins shall be drained and inspected at least once every two years. All other concrete tanks, including digesters, shall be drained and inspected at least once every five (5) years. Operator may request a written waiver, which shall not be unreasonably withheld, from performing these inspections due to access issues with these areas or due to plant loadings exceeding design limits. The activities identified in this Section 2.12 are considered Maintenance. The Operator is expected to drain tanks whenever necessary, including digesters, using installed equipment as designed. If the installed and designed equipment is not capable of performing the removal of liquids and/or solids, then this circumstance shall be considered an Uncontrollable Circumstance pursuant to Article 8 and shall be reimbursable as an Extraordinary Item. The Operator is responsible for disposal of all residuals as a result of draining and cleaning tanks except for the digesters which shall be negotiated on a case by case basis.

- 2.13 In 2019 and then at least once every four (4) years thereafter, arrange for a turnaround of the oxygen plant (i.e. inspection, cleaning and all necessary maintenance). Obtain proposals for the turnaround from at least three (3) potential, qualified subcontractors and submit them to LCA for review. LCA will review the proposals and, with Operator's input, select the subcontractor. LCA will pay for the turnaround and up to two (2) weeks of trucked-in-liquid oxygen during the turnaround as a Reimbursable Costs Charge. Unless due to an Uncontrollable Circumstance, the Operator will pay for any other trucked-in-liquid oxygen required to maintain Plant operation. At any time the oxygen plant is unavailable, Operator will arrange for trucked-in liquid oxygen to maintain Plant operation, including continued operation of the Hauler Program.
- 2.14 Provide LCA with an accounting of Repairs or Replacements on a monthly basis,

including work description and cost.

- 2.15 Maintain a computerized maintenance management system (CMMS). Current Plant CMMS is Maintenance Connection. Operator may change to a different CMMS, but must convert the existing database over to the new software. Operator shall enter the equipment manufacturer requirements for maintenance of all equipment into the CMMS. Operator shall utilize the CMMS to provide a record of repair for each piece of equipment (including date, time, action taken, quantified materials used, unit and total costs and service technician or provider's name and labor time), control the predictive maintenance program, issue work orders, close out work orders, and maintain spare parts inventory for performing preventive and corrective maintenance, including spare parts for instrumentation. The CMMS shall utilize a relational database management system where each of the aforementioned data sets are stored in separate fields and are readily searchable and reportable both independently and in aggregate.
- 2.16 Maintain Plant systems which shall track all information and system performance required for regulatory reporting and data tracking, daily equipment status and exception reports, process control parameters, and water quality objectives. Operator may change to different Plant systems of substantially the same functional and technical nature of the existing systems, but must convert existing databases over to the new software. All of the data mentioned in this section as well as all other data including but not limited to legal, regulatory, purchasing, invoicing, major categories of costs (including energy, chemical, solid waste disposal, personnel and maintenance), technical, operational, maintenance, hauler and laboratory data is and shall remain LCA's property and shall remain and be provided to LCA in a format usable by LCA. Such formats shall be used by Operator in the performance of duties and responsibilities set forth in the Restated Agreement. The intent of this section is to provide LCA with easy access to all information that has resulted from and been generated for the Restated Agreement in a readable usable format.
- 2.17 Any proprietary data of Operator, including but not limited to software or studies, shall remain the property of Operator; however LCA shall have the right to copies of studies that were developed for the Plant. Where such products, data or information are found to be proprietary, LCA shall hold such information identified by the Operator confidential to the extent allowable by law. The hauler database and application software shall remain the property of LCA.
- 2.18 The Operator shall at a minimum perform the following Maintenance activities relevant to the buildings and grounds at no additional cost to LCA:
  - 2.18.1 Maintain the buildings, process areas, grounds, and landscaping in an aesthetically attractive and clean condition.
  - 2.18.2 Replace any dead or diseased plantings to maintain the density of plantings and an attractive appearance of Site.
  - 2.18.3 Wash all windows twice a year in the Administration Building, or more frequently, on an as-needed basis. Wash all windows at all other locations on an as needed basis.
  - 2.18.4 Provide periodic maintenance of roof coatings which means annual inspections and removal of debris and clearing of drains as needed.

- 2.18.5 Implement regularly scheduled pest control measures.
- 2.18.6 Repair all plumbing leaks upon discovery.
- 2.18.7 Damp mop all floors twice per week or more frequently on an as-needed basis with a cleaning solution appropriate for use in the Plant. Upon discovery, all spills must be cleaned and disposed of properly.
- 2.18.8 Strip all floors and apply new floor finish on a periodic basis as appropriate for the type of floor.
- 2.18.9 Maintain and paint all painted surfaces such that the surfaces remain in an aesthetically pleasing condition, free from visible rust or corrosion and in a manner to protect the substrate from deterioration.
- 2.18.10 Clean all offices and restrooms routinely in order to maintain them in a neat, clean and orderly state.
- 2.18.11 Provide for daily collection of solid waste from all receptacles and remove solid waste at least once per week. Recycle all material such as glass, metals, office paper, newspaper, cardboard and plastics.
- 2.18.12 Periodically prune trees and other vegetation to minimize interference with or damage to the Plant during storm events.
- 2.18.13 Maintain all fences, catch basins and drainage pipes. The extent of fence maintenance shall be limited to the capability of Operator's on-site staff and minor material costs.
- 2.18.14 Maintain building facades as needed to maintain full service life.
- 2.18.15 Provide lawn mowing including a six (6)-foot wide swath outside fence and a forty (40)-foot wide swath along the entrance road from the eastern property line to the swale west of the entrance road.
- 2.18.16 Provide snow removal on the entrance road, parking lot and within the fence.
- 2.18.17 Provide regular trash removal from the site.
- 2.18.18 Provide security of the Plant site, including at a minimum continuous 24-hour per day alarm monitoring service or on-site security personnel. Maintain existing TV monitoring equipment.
- 2.18.19 Arrange and pay for routine inspection and maintenance and maintain certification for the elevator at the Plant.
- 2.19 Pay all costs incurred in performance of the Operation Services as set forth and required by this Restated Agreement. Provide for all utilities and consumables such as water, electricity, natural gas, phone, internet, chemicals, fuel, lubricants, and supplies required for the Operation Services; however, Operations Services interrupted or made impractical as a result of any Uncontrollable Circumstances shall be billed as an Extraordinary Item and Operator shall remain responsible for normal usage/costs during the duration of said Uncontrollable Circumstance. Determination of cost sharing shall be negotiated on a case by case basis.
- 2.20 Provide for the proper disposal of all waste generated at the Plant including trash, screenings, grit, and sludge.

- 2.21 Operate and maintain the Plant laboratory and perform all necessary laboratory analyses and quality assurance and quality control procedures according to all regulatory requirements and good laboratory practices to determine that the Plant performs in accordance with all discharge requirements and Performance Standards. Testing includes but is not limited to: 5-day biological oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), volatile solids, settleable solids, chlorine residual, and all other tests required in the performance of the Operation Services. The results of said testing shall be reported on a monthly basis. Maintain laboratory certification by PADEP for applicable analytical procedures. LCA may audit the laboratory operations. Unless approved in writing by LCA, the Operator shall utilize the Plant laboratory only to perform lab services necessary to fulfill Operator's duties under this Restated Agreement.
- 2.22 Maintain an inventory of equipment that is being used at the Plant. Replenish materials used from the resulting inventory unless no longer needed. Arrange for removal of any inventory not useful for the operation and maintenance of the Plant. LCA will pay for the cost of removal and disposal of such inventory. Return to LCA any proceeds from the sale of excess inventory. Obtain LCA's prior written approval for non-replenishment of existing or disposal of excess inventory.
- 2.23 Provide twenty-four (24) hours per day access to the Plant for LCA's personnel and their agents. Visits may be made at any time by any LCA employee or LCA agent so designated by the LCA Representative. Operator will provide Plant keys to LCA. All visitors to the Plant shall comply with Operator's operating and safety procedures.
- 2.24 Assist LCA on an annual basis to develop a five (5) year prioritized R&R Budget and a ten (10) year Capital Improvements plan to address Plant repairs, replacements, modification and expansion needs. The budget will be developed based on the historical trends, condition assessment and the maintenance model noted in Section 2.12. No later than September 15 of each Contract Year, provide a prioritized list of major projects by process area with budgetary cost estimates for the ensuing contract year. At the end of the Contract Year, provide a comparison of budgeted Repair or Replacement activities and costs as compared to actual Repair or Replacement activities and costs.
- 2.25 To the limits of the capability and availability of on-site staff, assist LCA with the implementation of Capital Improvements at the Plant by reviewing submittals for the purposes of Plant coordination and coordinating operation and maintenance ("O&M") activities with the implementation of Capital Improvements. The Operator is not required to provide construction inspection services or review submittals for compliance with the contract requirements for such Capital Improvements.
- 2.26 Maintain a daily log at the Plant that includes a general description of duties performed; special problems or occurrences; condition of process units; unusual conditions; and any evidence of shock loads, slug loads, or toxic discharges to the Plant. Maintain records of all Plant operating data and reports for a period of seven (7) years at a suitable location for storage as approved by LCA. LCA shall have the right to inspect these records during normal business hours.

- 2.27 Assist LCA, as permittee, in satisfying all regulatory requirements. Schedule regular meetings with LCA representatives as requested by LCA, and accept onsite inspections by LCA personnel, announced or unannounced, for the purposes of facility evaluation and contract adherence. When requested by LCA, provide information for, attend and participate in meetings with regulatory agencies.
- 2.28 Provide sufficient staff to operate and maintain the Plant. At a minimum, provide staffing consistent with **Appendix G**. Train Plant personnel in the areas of operation, maintenance, safety, supervisory skills, laboratory, energy management, and other areas directly related to their assigned duties. Implement and adhere to a safety program that complies with all Pennsylvania and federal requirements. Maintain operator certifications. Consult with LCA regarding replacement of Operator's on-site project manager.
- 2.29 Provide, operate and maintain all necessary vehicles and Rolling Stock necessary to perform the services required under this Restated Agreement. Operator-provided vehicles and Rolling Stock will remain Operator's property upon expiration or termination of this Restated Agreement. Any LCA provided vehicles or Rolling Stock shall be maintained and repaired by the Operator, and replaced at LCA's discretion.
- 2.30 Provide, operate and maintain all necessary office computers, printers, copiers, software and furniture. Pay all current software license fees as of the Commencement Date of the Restated Agreement. Any additional software added after the Commencement Date by LCA shall be paid for and maintained by LCA. Any computer hardware and software purchased by the Operator for only the operation of the Plant and not proprietary to the Operator or used as part of conducting business shall become property of LCA upon expiration or termination of the Restated Agreement. LCA shall be responsible for any software license or maintenance transfer fees.
- 2.31 Accommodate and lead group Plant tours upon LCA request. All visitors to the Plant shall comply with Operator's operating and safety procedures.
- 2.32 Accommodate up to forty (40) group meetings per year utilizing the Plant conference room, such as business and professional society meetings, upon LCA request. Any Operator use of the Plant conference room beyond that directly related to the performance of this Restated Agreement must be approved in writing by LCA.
- 2.33 Act, with the consent of the LCA Representative, for the following purposes:
- 2.33.1 To accept or reject hauled waste at the Plant;
  - 2.34.2 To review anticipated flows and loads from proposed commercial and industrial facilities that will be located in the Plant service area for compatibility with Plant operation;
  - 2.34.3 In the event that influent is identified that negatively impacts the operation of the Plant, negatively impacts Plant safety, or negatively impacts the ability to land apply the resulting residuals, Operator, with the support of LCA, will approach the authority having jurisdiction to inform the contributor of that influent and

require the contributor cease and desist until influent constituents having negative impact are removed. Operator holds no enforcement authority related to the industrial pretreatment program.

- 2.34 Ordinarily, Operator shall pay all applicable sales and excise taxes on its purchases and services provided to the Plant. Under limited circumstances when Capital Improvements are added to the Plant that become part of the facilities owned by LCA, LCA's Pennsylvania sales tax exemption may apply. Operator will have to make a determination in consultation with LCA at the time of such expenditure as to whether this tax exemption shall apply to any components and file the necessary paperwork required by law. LCA shall reimburse Operator for all applicable sales and excise taxes on Repair or Replacement or other Reimbursable Cost items except for those purchases that are eligible for tax relief where the Operator can legally utilize LCA's tax exempt status.
- 2.35 Periodically resurface paved areas, if and as necessary. Pavement resurfacing is considered a Repair or Replacement.
- 2.36 Accommodate LCA's use of the Plant on an as needed basis exclusive of Section 2.32. Any additional costs to Operator will be reimbursed.
- 2.37 Provide standard treatment plant monthly and annual reports of loadings and flow, including unit process and overall performance and performance standards. In addition, monthly reports should include a yearly tally and graph of the significant monthly and yearly parameters. LCA may request changes to the monthly and annual report format.
- 2.38 Repair all roof leaks within five (5) calendar days of discovery. Replacements of roofs will be considered Repairs or Replacements.

### ARTICLE 3. SCOPE OF SERVICE – LCA

LCA shall:

- 3.1 Implement and fund all Capital Improvements, which does not include Operator-funded Plant modifications as described in Section 9.6.
- 3.2 Maintain all existing Plant warranties, guarantees, easements, and licenses that have been granted to LCA.
- 3.3 Pay any real estate taxes, if there are any, associated with the Plant.
- 3.4 Provide, for Operator's use, all equipment currently in use at the Plant, as described in the fixed asset inventory referenced in **Appendix D**.
- 3.5 Pay all wastewater discharge fees associated with the Western Lehigh Interceptor system and any appropriate sewer fees to Upper Macungie Township.

- 3.6 Establish all fees in connection with revenues, including approval of the Hauler Program fee schedule, which the Operator is to propose.
- 3.7 Establish, with Operator input, the R&R Budget for each Contract Year prior to the beginning of each Contract Year. Be responsible for the cost of Repairs or Replacements in accordance with **Appendices B** and **C**.

#### ARTICLE 4. COMPENSATION

- 4.1 Service Fee Formula: From and after the Commencement Date, LCA shall pay a Service Fee to Operator as compensation for services performed under this Restated Agreement. The Service Fee shall be adjusted annually and calculated in accordance with the following formula:

$$SF = FC + VC + RC \pm EI$$

$$FC = BE + EE$$

$$VC = FE + LE$$

Where,

SF = Annual Service Fee

FC = Fixed Component

VC = Variable Component

RC = Reimbursable Costs Charge

EI = Extraordinary Items Charge or Credit

BE = Base Element

EE = Electricity Element

FE = Flow Adjustment Element

LE = Loading Adjustment Elements

$$LE = BODE + TSSE + TKNE$$

Where,

BODE = BOD<sub>5</sub> Adjustment Element

TSSE = TSS Adjustment Element

TKNE = TKN Adjustment Element

Each component of the Service Fee shall be determined in accordance with this Article. The format of the annual Service Fee, Fixed Component, and Variable Component escalation and associated documentation used to calculate said escalation is attached to this Restated Agreement as Appendix L and made a part hereof by this reference.

- 4.2 Basis of Fixed Component: The Fixed Component in any Contract Year shall be the sum of the Base Element and the Electricity Element.
- 4.3 Basis of Variable Component: The Variable Component has been established to compensate the Operator for variations in the flow rates (the "Flow Adjustment Element") and water quality (the "BOD<sub>5</sub> Adjustment Element", "TSS Adjustment



Element” and “TKN Adjustment Element”, collectively the “Loading Adjustment Elements”).

4.4 Adjustments to Service Fee: The Service Fee elements will be adjusted as follows:

4.4.1 The Base Element will be escalated at the beginning of each Contract Year (starting January 1, 2018) as indicated below.

$$ABE = BE + (BE \times AF_n)$$

Where

ABE = Adjusted Base Element

BE = Current Contract Year Base Element

$AF_n$  = Adjustment Factor for Contract “n”

Where

$$AF_n = (0.7 \times \text{CPI Change}) + (0.3 \times \text{ECI Change})$$

A minimum  $Af_n$  of 1.5% shall apply in all circumstances

$AF_n$  = The Adjustment Factor for Contract Year “n” where Contract Year “n” is the Contract Year immediately following the current Contract Year.

CPI = The final non-seasonally adjusted Consumer Price Index, All Urban Consumers for Philadelphia-Wilmington-Atlantic City for All Items, as reported by the U.S. Department of Labor, Bureau of Labor Statistics.

CPI Change = The total percent change in the CPI for August of Contract Year “n minus 1” compared to the value for August of Contract Year “n minus 2”.

ECI = The final non-seasonally adjusted Employment Cost Index for Private Industry, Total Compensation, for Northeast region, as reported by the U.S. Department of Labor, Bureau of Labor Statistics.

ECI Change = The total percent change in the ECI for the second quarter of Contract Year “n minus 1” compared to the value for the second quarter of Contract Year “n minus 2”.

4.4.2 The Electricity Element will be adjusted at the beginning of each Contract Year (starting January 1, 2018), to calculate any change in the electric rate schedule, as indicated below.

$$AEE = EE \times EAF$$

Where,

AEE = Adjusted Electricity Element

EE = Current Contract Year Electricity Element

EAF = Electricity Adjustment Factor

EAF = Electric Bill New Rate ÷ Electric Bill Old Rate

Where,

EAF = The Electricity Adjustment Factor.

Electric Bill New Rate = The total amount of a theoretical electrical bill applying the new rate schedule to a Theoretical Month.

Electric Bill Old Rate = The total amount of a theoretical electrical bill applying the prior rate schedule to a Theoretical Month. The initial rate schedule upon which the initial Electricity Element is based on is the electrical rate in effect as of the Commencement Date.

Theoretical Month = August – September Billing Cycle

- 4.4.3 The rate used to calculate the Flow Adjustment Element will be escalated at the same time and by the same percentage as the Electricity Element.
- 4.4.4 The rates used to calculate the Loading Adjustment Elements will be escalated at the same time and by the same percentage as the Base Element.
- 4.4.5 If the final value of any component index is not available for the applicable period when required hereunder, the amount of the adjustment to be made shall be estimated by using the preliminary value of the index for the applicable period or the final value of the index for the latest available period. All calculations and payments based on such estimate shall be adjusted as soon as reasonably practicable after the final value of the index for the applicable period is published. If any component index is no longer published at the time that adjustment is to be calculated, or if the base or method of calculation used for the component index is altered, the calculation shall be made using a comparable similar index or method reasonably satisfactory to the Operator and LCA.

- 4.5 The baseline Flow and Load Removals included in the Fixed Component are:

	Flow (MGD)	BOD <sub>5</sub> Removed (lb/yr )	TSS Removed (lb/yr)	TKN Removed (lb/yr)
Baseline:	2.4	7,150,000	6,975,000	290,000

- 4.6 The Fixed Component is comprised of the Base Element and the Electricity Element. The following table sets forth the Base Element and the Electricity Element:

	<u>Base Element</u>	<u>Electricity Element</u>	<u>Total</u>
Fixed Component:	\$2,476,372.03*/yr	\$752,465.25*/yr	\$3,225,837.28*yr

- 4.7 Subject to the limitations set forth in Section 9.5, the Variable Component for the Contract Year shall be the sum of: (1) the Flow Adjustment Element; and (2) the Loadings Adjustment Elements, each as determined in accordance with this section. In the initial Contract Year the following rates shall apply for purposes of calculating the respective Adjustment Element:

Flow Adjustment Element	\$0.2648 per 1,000 gallons*
BOD <sub>5</sub> Adjustment Element	\$0.0561 per pound removed*
TSS Adjustment Element	\$0.0929 per pound removed*
TKN Adjustment Element	\$0.3198 per pound removed*

\* The above costs are for 2017 and will be escalated each year in accordance with the contract

In each Contract Year beginning in 2018 the above rates shall be adjusted in accordance with the provisions of Subsections 4.4.3 and 4.4.4.

- 4.7.1 The Flow Adjustment Element in each Contract Year under the existing Land Application Permit will be equal to the Flow Adjustment Element rate multiplied by the actual total influent flow volume for the Contract Year less the annual baseline influent flow volume, expressed in thousands of gallons. The annual baseline influent flow volume is calculated by multiplying the number of days in the Contract Year by the baseline flow rate in Section 4.5. The Flow Adjustment Element may only be positive.

- 4.7.2 The BOD<sub>5</sub> Adjustment Element in each Contract Year under the existing Land Application Permit will be equal to the BOD<sub>5</sub> Adjustment Element rate multiplied by the actual BOD<sub>5</sub> removed from the influent flow for the Contract Year less the annual baseline BOD<sub>5</sub> removal in Section 4.5, expressed in pounds. For a Contract Year that is less than a full calendar year, the annual baseline BOD<sub>5</sub> removal is calculated by multiplying the baseline BOD<sub>5</sub> removed in Section 4.5 by the number of days in the Contract Year divided by 365. The BOD<sub>5</sub> Adjustment Element may only be positive.

- 4.7.3 The TSS Adjustment Element in each Contract Year under the existing Land Application Permit will be equal to the TSS Adjustment Element rate multiplied by the actual TSS removed from the influent flow for the Contract Year less the baseline TSS removal in Section 4.5, expressed in pounds. For a Contract Year

that is less than a full calendar year, the annual baseline TSS removal is calculated by multiplying the baseline TSS removed in Section 4.5 by the number of days in the Contract Year divided by 365. The TSS Adjustment Element may only be positive.

- 4.7.4 The TKN Adjustment Element in each Contract Year under the existing Land Application Permit will be equal to the TKN Adjustment Element rate multiplied by the actual TKN removed from the influent flow for the Contract Year less the baseline TKN removal in Section 4.5, expressed in pounds. For a Contract Year that is less than a full calendar year, the annual baseline TKN removal is calculated by multiplying the baseline TKN removed in Section 4.5 by the number of days in the Contract Year divided by 365. The TKN Adjustment Element may only be positive.
- 4.8 The Reimbursable Costs Charge shall be an amount equal to the actual and direct expenses (without markup for profit, administration or otherwise) paid by the Operator during each Contract Year to unrelated third parties for the portion of the cost of Repairs or Replacements for which LCA is ultimately financially responsible and for the oxygen plant turnaround and trucked-in liquid oxygen in accordance with Section 2.13.
- 4.9 Extraordinary Item component of the Service Fee, which may be a charge or a credit, shall be equal to the sum of the following items (each an "Extraordinary Item(s)" hereunder): (1) the amounts payable by LCA for increased operation, maintenance or other costs incurred on account of the occurrence of an Uncontrollable Circumstance which is chargeable to LCA hereunder, net of any operation, maintenance or other cost savings achieved by the Operator in mitigating the effects of the occurrence of such an Uncontrollable Circumstance; plus or minus (2) any adjustments to the Service Fee resulting from a Capital Improvement; minus (3) any liquidated damages or reimbursement payments owed by the Operator due to non-performance; minus (4) any indemnification payments owed by the Operator; plus or minus (5) any other increase or reduction in the Service Fee provided for under any other Article of this Restated Agreement.
- 4.10 Treatment of Extraordinary Items Component. For purposes of compliance with Section 9.5, upon the occurrence of any event giving rise to an Extraordinary Item and in advance of the payment of any Extraordinary Item, LCA and the Operator agree to treat and designate in writing the particular Extraordinary Item in one of the following ways:
- 4.10.1 an ongoing adjustment to the Service Fee in a stated dollar amount to be effective in a specified Contract Year;
- 4.10.2 a one-time adjustment to the Service Fee in a stated dollar amount to apply for a specified Contract Year;
- 4.10.3 an amount in the nature of actual and direct expenses (without markup for profit, administration or otherwise) paid by the Operator to unrelated third parties in connection with the Extraordinary Item;
- 4.10.4 an amount to be paid to the Operator either on a one-time basis or on an ongoing basis which will be deemed to be added to and included within the Variable Component in one or more specified Contract Years;

- 4.10.5 an amount resulting from a Capital Improvement either directed by LCA or caused by an Uncontrollable Circumstance that is in the nature of a capital expenditure for acquisition, construction, improving or equipping of the Plant as contrasted with a payment in the nature of compensation for services in managing or operating the Plant; or
- 4.10.6 an amount in the nature of liquidated damages, indemnification payments or other payments of a similar, but specifically described, nature.
- 4.11 If any adjustment to the Service Fee is required pursuant to any express provision of this Restated Agreement, the Party requesting the adjustment shall submit to the other Party a written statement setting forth the cause of the adjustment, the anticipated duration of the adjustment, and the amount of the adjustment, as appropriate. Except to the extent that a longer period is otherwise specifically provided for in this Restated Agreement, any request for adjustment of the Service Fee hereunder shall be accepted or rejected by the Party receiving the request within forty-five (45) days of receipt. The receiving Party shall notify the requesting Party of its decision and the reasons therefore or may request any additional documentation regarding such request within thirty (30) calendar days of receipt. If the receiving Party does not notify the requesting Party of its rejection and the reasons therefore within such forty-five (45) calendar day period, or when additional documentation is requested, within fifteen (15) calendar days of receipt of such documentation, the request shall be deemed rejected. A rejected request may be resubmitted, with or without change, and this paragraph shall apply to such resubmitted request as it applies to an original request. Any Service Fee adjustment request which is not rejected or deemed rejected shall take effect as of the next billing period thereafter, or as otherwise agreed to by the Parties.
- 4.12 Notwithstanding the aforementioned compensation provisions, all current and future revenue sources derived from industrial and residential users and waste haulers using the Plant shall exclusively accrue to LCA.
- 4.13 Operator shall provide its Plant budget for major expense categories at the start of the Term and annually prior to each Contract Year, including enough detail to substantiate unit costs for chemicals and sludge disposal as well as total budgeted costs. At the beginning of each Contract Year, Operator shall provide LCA with a detailed list of budgeted Maintenance activities for the Contract Year by process area with budgetary cost estimates. At the end of the Contract Year, provide a comparison of budgeted Maintenance activities and costs as compared to actual Maintenance activities and costs. This information may be used to form the basis for discussion of any adjustments to Operator fees.
- 4.14 An example Service Fee calculation is provided as **Appendix L**.
- 4.15 It is the intent of the Parties to improve the efficiency of the Plant and accrue the net benefits of those efficiencies to each Party based upon a reasonable determination of each

Party's costs, efforts, assets, liabilities and capital required to implement the improvement and each Parties costs resulting from the improvement. Therefore, LCA reserves the right to share in net savings from Operator initiated or, to accrue net savings from LCA initiated, Repairs, Replacement and Capital Improvements including energy efficiency improvements at the Plant through a reasonable and mutually agreed upon Service Fee adjustment. Items agreed-to as part of this amended and restated contract are listed in Appendix M. Future items not included in this amended and restated contract will be negotiated on a case by case basis with LCA.

#### ARTICLE 5. PAYMENT OF COMPENSATION

- 5.1 LCA shall pay the Service Fee in monthly installments in an amount equal to the sum of: (1) one-twelfth of the annual Fixed Component plus one-twelfth of the estimated annual Variable Component; (2) one-twelfth of the Annual Reimbursable Repair Cost, as noted below in Section 5.8; (3) any Extraordinary Items determined on a monthly basis; (4) one-twelfth of any Extraordinary Items determined on an annual basis; and (5) any adjustments, plus or minus, to reconcile any prior monthly Service Fee payments. Any overpayment from prior months shall be credited against the monthly Service Fee payment and any underpayment from prior months shall be added to the monthly Service Fee payment.
- 5.2 The Service Fee for each month shall be on account of the services rendered during the current month. The Operator shall provide LCA with an invoice by the fifteenth (15<sup>th</sup>) day of each month which sets forth the monthly portion of the Service Fee for the current month and which shows the annual Service Fee and each component thereof as calculated for the then current Contract Year, together with the accumulated payments for each component to the date of such invoice and such other documentation or information as LCA may reasonably require to determine the accuracy and appropriateness of the invoice, then LCA shall pay the invoice within thirty (30) calendar days of receipt.
- 5.3 Any computation made on the basis of a stated period shall be adjusted on a pro rata basis to take into account any initial or final period which is a partial period.
- 5.4 For LCA budgeting purposes, no later than 120 calendar days preceding each Contract Year, the Operator shall provide to LCA a written statement setting forth for such Contract Year its reasonable estimate of the aggregate Service Fee, each component thereof, and the adjustment factors. The estimate shall not be binding on the Operator but shall establish the basis for monthly billing for such Contract Year, subject to annual settlement pursuant to this Article.
- 5.5 Within forty-five (45) calendar days after the end of each Contract Year, the Operator shall provide to LCA an annual settlement statement (the "Annual Settlement Statement") setting forth the actual aggregate Service Fee payable with respect to such Contract Year and a reconciliation of such amount with the amounts actually paid by LCA with respect to such Contract Year. The annual settlement process shall provide for the reconciliation of the Variable Component subject to the limitations set forth in Section 9.5. LCA or the Operator, as appropriate, shall pay all known and undisputed amounts within sixty (60) calendar days after receipt or delivery of the Annual Settlement Statement. If any amount is then in dispute or is for other reasons not definitely known at

the time the Annual Settlement Statement is due, the Annual Settlement Statement shall identify the subject matter and reasons for such dispute or uncertainty and, in cases of uncertainty, shall include a good faith estimate by the Operator of the amount in question. When the dispute is resolved or the amount otherwise finally determined, the Operator shall file with LCA an amended Annual Settlement Statement which shall, in all other respects, be subject to this section.

- 5.6 If LCA disputes any amount billed by the Operator, LCA may either (1) pay the disputed amount when otherwise due, and provide the Operator with a written objection indicating the amount that is being disputed and providing all reasons then known to LCA for its objection to or disagreement with such amount, or (2) pay the undisputed amount when due, and provide the Operator with written objection as aforesaid within the time when the disputed amount would otherwise have been payable. When any billing dispute is finally resolved, if payment by LCA to the Operator of amounts withheld or reimbursement to LCA by the Operator of amounts paid under protest is required, such payment or reimbursement shall be made within thirty (30) calendar days of the date of resolution, with interest at one percent (1.0%) per month, calculated from the date on which the payment was or would have been paid to the date on which the payment is reimbursed or paid.
- 5.7 LCA may request that Operator provide additional out-of-scope services pursuant to this Restated Agreement. If Operator consents to provide such out-of-scope services, the Parties will mutually agree upon the out-of-scope services compensation based upon good faith negotiations. The cost of out-of-scope services shall not include any cost attributable to Plant personnel if that cost has or should have been included in any portion of the Service Fee.
- 5.8 The monthly invoice will be estimated by forecasting the Repairs or Replacement spending for the current month and reconciling the actual Repair or Replacement spending of the prior month. The procedure will be the same as for the variable component of the monthly invoice. Furthermore, at the end of the Contract Year Operator shall reconcile the Repair or Replacement amount invoiced and paid by LCA against the actual R&R Budget amount actually spent in accordance with this Restated Agreement. Operator shall rebate to LCA any amount of the R&R Budget that was not spent in accordance with this Restated Agreement. The Letter of Understanding dated March 10, 2011 which added \$50,000 to be used to cover costs associated with delays in reimbursement for Capital Repair and Replacement expenses is no longer required and removed from this Amended and Restated Agreement.

#### ARTICLE 6. INDEMNITY, LIABILITY, INSURANCE AND BONDING

- 6.1 Operator hereby agrees to and shall hold LCA harmless from any liability or damages for property damage, environmental damage, damage to the general public or bodily injury, including death, which may arise from Operator's negligence under this Restated Agreement, to the proportion such negligence contributed to the damages, injury, or loss, whether such negligence be by Operator or a Subcontractor. LCA agrees to and shall hold Operator harmless from any liability or damages for property damage, environmental damage, damage to the general public or bodily injury, including death, which may arise from LCA's negligence under this Restated Agreement, to the proportion such negligence contributed to the damages, injury, or loss. As used in Article

6 the terms "negligence" and "negligent" shall include both ordinary and gross negligence and, in addition, shall include any willful or wrongful action or inaction of Operator's or LCA's officers, agents, or employees.

- 6.2 Operator shall be liable for those fines or civil penalties, not to exceed the Current Year Base Element, which may be imposed by a regulatory agency or other entity having jurisdiction over any aspect of the Plant's operations for violations of the effluent quality requirements specified in Section 2.1 unless Operator can provide data that substantiates that such violations are the result of an Uncontrollable Circumstance. LCA shall assist the Operator to contest any such fines for violations resulting from Uncontrollable Circumstances, in administrative proceedings and in court, should LCA wish to do so. Operator shall have the right to contest any fines for violations not the result of Uncontrollable Circumstances, and shall pay the costs of contesting any such fines.
- 6.3 Operator's liability to LCA under this Restated Agreement specifically excludes any and all indirect or consequential damages arising from the operation, maintenance, and management of Plant except those damages arising from Operator's negligent operation. Unless due to the occurrence of an Uncontrollable Circumstance, the Operator shall be liable for excess surcharges resulting from inter-municipal agreements in Appendix I.
- 6.4 The Operator shall obtain and maintain insurance coverage of a type and in the amounts described in **Appendix E**. The Operator shall name LCA, their officials, employees and agents as an additional insured on all insurance policies (excluding workers compensation) covering the Plant or its operation and shall provide the other Party with satisfactory proof of insurance.

#### ARTICLE 7. TERM AND TERMINATION; DEFAULT REMEDIES

- 7.1 The initial Term of the Restated Agreement shall be January 1, 2018 through December 31, 2028 (last year of current agreement ending December 31, 2028 plus 10-year renewal term). The Restated Agreement may be extended for two (2) renewal periods of five (5) years each based upon the mutual agreement of LCA and Operator.
- 7.2 Either Party may terminate this Restated Agreement for a material breach of the Restated Agreement by the other Party after giving written notice of breach and allowing the other Party thirty (30) calendar days to correct the breach. Under this Section 7.2, neither Party shall terminate this Restated Agreement without giving the other Party thirty (30) calendar days written notice of intent to terminate after failure of the other Party to correct the breach within thirty (30) calendar days. In the event of a termination for cause, the Operator will be compensated for all services duly rendered through the date of termination, but not on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.
- 7.3 LCA shall have the right at any time, exercisable in its sole discretion, for its convenience and without cause, to terminate this Restated Agreement upon ninety (90) calendar days' written notice to the Operator. LCA agrees to pay Operator any compensation invoiced and outstanding as of the termination date. If LCA exercises its right to terminate this Restated Agreement for its convenience, LCA shall pay the Operator a convenience termination fee calculated as follows: (a) ten percent (10%) of the current Contract Year Fixed Component Service Fee in effect at the time of termination; plus (b) a ten percent



(10%) fee of the original investment amount; plus (c) any outstanding balance for any Operator funded investments, pursuant to Subsection 9.6.8 below, to the extent the investment(s) has not been repaid by LCA or fully recaptured by the Operator through cost savings. Other than as set forth above in this Section 7.3, from and after the termination date, Operator shall not be entitled to any compensation under this Restated Agreement.

- 7.4 Should Plant influent BOD<sub>5</sub> or TSS loads drop five percent or more below the baseline removal values in Article 4, LCA may terminate this Restated Agreement. LCA agrees to pay Operator any compensation invoiced and outstanding as of the termination date and if the termination date is prior to three years from the Commencement Date, LCA will pay Operator an additional Twenty Five Thousand Dollars (\$25,000) and any outstanding balance for any Operator funded investment(s), pursuant to Subsection 9.6.8 below, to the extent the investment(s) has not been repaid by LCA or fully recaptured by the Operator through cost savings. The convenience termination fee in Section 7.3 does not apply. From and after the termination date, Operator shall not be entitled to any compensation under this Restated Agreement. Operator and LCA will mutually agree upon any LCA-requested demobilization services beyond the requirements of this Restated Agreement and associated costs.
- 7.5 Upon expiration of this Restated Agreement or notice of termination by LCA and upon LCA request, Operator shall:
- 7.5.1 assist LCA or a successor operator in assuming operation of the Plant;
  - 7.5.2 provide a one-time three full day training program at the Plant to LCA staff or staff of a successor operator regarding Plant operation and maintenance;
  - 7.5.3 allow full Plant access to LCA staff or staff of a successor operator to observe the Operation Services for a period of thirty (30) calendar days;
  - 7.5.4 provide LCA all records related to Operation Services, including copies of all subcontracts;
  - 7.5.5 provide LCA with a thirty (30) calendar day supply of consumables, reasonable supply or spare parts, and the quantities of chemicals that were provided Operator on the Commencement Date. LCA will reimburse Operator at cost for usable quantities of chemicals in inventory on the date of termination or expiration of this Restated Agreement in excess of the quantities provided Operator on the Commencement Date;
  - 7.5.6 terminate all subcontracts unless directed by LCA to transfer such subcontracts to LCA;
  - 7.5.7 transfer to LCA all warranties given by any manufacturer or Subcontractor with respect to particular components of the Operation Services;
  - 7.5.8 notify LCA promptly in writing of any legal proceedings against the Operator by any Subcontractor or other third parties relating to the termination of the Operation Services (or any Subcontracts);
  - 7.5.9 give written notice of termination, effective as of date of termination or expiration of this Restated Agreement, promptly under each policy of required insurance (with a copy of each such notice to LCA);

- 7.5.10 provide Plant assets in a condition functionally equivalent and of the same capacity, ordinary wear and tear excepted, as on the Commencement Date, unless previous replacements by Operator of differing function or capacity have been approved in writing by LCA; and
- 7.5.11 take such other actions, and execute such other documents as may be necessary to effectuate and confirm the foregoing matters, or as may be otherwise necessary or desirable to minimize LCA's costs, and take no action which shall increase any amount payable by LCA under this Restated Agreement.

## ARTICLE 8. UNCONTROLLABLE CIRCUMSTANCES

- 8.1 Neither Party shall be liable for its failure to perform its obligations under this Restated Agreement as the result of Uncontrollable Circumstances as detailed hereinafter.
  - 8.1.1 Notice and Mitigation. The Party claiming failure to perform as the result of an Uncontrollable Circumstance shall notify the other Party of the nature and extent of the Uncontrollable Circumstance to the extent reasonably possible as follows: Immediate notification by verbal communication and via email within twelve (12) hours. This immediate notification shall be corroborated by further notification in writing by certified mail, hand delivery or overnight courier (e.g. FedEx) received within two (2) business days that includes (1) a description of the Uncontrollable Circumstance and the cause thereof (to the extent known); and (2) the date the Uncontrollable Circumstance began, its estimated duration, the estimated time during which the performance of such Party's obligations hereunder shall be delayed, or otherwise affected. As soon as practicable after the occurrence of an Uncontrollable Circumstance, the affected Party shall also provide the other Party with a description of: (i) the amount, if any, by which the Service Fee is proposed to be adjusted as a result of such Uncontrollable Circumstance; (ii) any areas where costs might be reduced and the approximate amount of such cost reductions; and (iii) its estimated impact on the other obligations of such Party under this Restated Agreement. The affected Party shall also provide prompt written notice of the cessation of such Uncontrollable Circumstance. Whenever such act, event or condition shall occur, the Party claiming to be adversely affected thereby shall, as promptly as practicable, use all reasonable efforts to eliminate the cause thereof, reduce costs and resume performance under this Restated Agreement. While the Uncontrollable Circumstance continues, the affected Party shall give notice to the other Party, before the first day of each succeeding month, updating the information previously submitted. The Party claiming to be adversely affected by an Uncontrollable Circumstance shall bear the burden of proof, and shall furnish promptly any additional documents or other information relating to the Uncontrollable Circumstance reasonably requested by the other Party.
  - 8.1.2. Conditions to Performance, Schedule and Service Fee Relief. If and to the extent that an Uncontrollable Circumstance materially expands the scope of the Operator's obligations hereunder, materially interferes with, materially delays or materially increases the cost of the Operator's performing its obligations hereunder, the Operator shall, subject to the limitations specifically provided for in this Restated Agreement, be entitled to relief from the performance of its

obligations hereunder, an increase in the Service Fee, or any combination thereof, which properly reflects the interference with performance, the time lost or the amount of the increased cost, in each case as a result thereof, but only to the minimum extent reasonably forced on the Operator by the event, and the Operator shall perform all other Operation Services. The proceeds of any required insurance available to meet any such increased cost, and the payment by the Operator of any deductible, shall be applied to such purpose prior to any determination of cost increase payable by LCA under this Subsection 8.1.2. Any cost reduction achieved through the mitigating measures undertaken by the Operator pursuant to Section 8.1.1 upon the occurrence of an Uncontrollable Circumstance shall be reflected in a reduction of the amount by which the Service Fee would have otherwise been increased or shall serve to reduce the Service Fee to reflect such mitigation measures, as applicable. In the event that the Operator believes it is entitled to any relief on account of an Uncontrollable Circumstance, it shall furnish LCA written notice of the specific relief requested and detailing the event giving rise to the claim within thirty (30) calendar days after the giving of notice delivered pursuant to Subsection 8.1.1, or if the specific relief cannot reasonably be ascertained and such event detailed within such thirty (30) calendar day period, then within such longer period within which it is reasonably possible to detail the event.

- 8.2 “Uncontrollable Circumstance(s)” means any act, event or condition that prevents the Operator or LCA from meeting or materially increases the cost of performing the applicable Party’s obligations under this Restated Agreement, to the extent such act, event or condition is due to circumstances beyond the reasonable control of the Party asserting an Uncontrollable Circumstance and with respect to the asserting Party, such act, event or condition is not the result of such Party’s failure to perform its obligations hereunder.
- 8.3 Subject to the terms and conditions of Section 8.2, the following acts, events or conditions (Inclusions) are examples, but not limitations, of what may qualify as an Uncontrollable Circumstance:
- 8.3.1 flood, hurricane, tornado, exceedingly rare and unusual severe storms, lightning strikes (provided existing lightning protection systems have been maintained), epidemic, pandemic, severe earthquake, catastrophic fire or explosion, act of a public enemy, terrorism, war, blockade, insurrection, riot, restraint of government and people, civil disturbance, sabotage or similar occurrence affecting the Plant and its operation.
  - 8.3.2 the order, injunction or judgment of any governmental authority, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State or local tax laws; provided, however, that such order, injunction or judgment did not arise in connection with or is not related to the negligence or the willful or wrongful action or inaction of the Party relying thereon and that neither contesting in good faith any such order, injunction or judgment nor the reasonable failure to so contest shall constitute or be construed as negligence or the willful or wrongful action or inaction of such Party.

- 8.3.3 the suspension, termination, interruption, denial, failure to issue, modification, or failure of renewal of any permit (other than as set forth in Section 8.3.6), if such act, event or condition did not arise in connection with or is not related to the negligence or the willful or wrongful action or inaction of the Party relying thereon and that neither contesting in good faith any such order nor the reasonable failure to so contest shall be construed as negligence or the willful or wrongful action or inaction of such Party.
  - 8.3.4 a Change in Law.
  - 8.3.5 the loss or inability to obtain any utility service or sludge disposal (other than as set forth in Subsection 8.3.6) necessary for the operation and maintenance of the Plant, or both, directly resulting in a partial or total curtailment of operations of the Plant for reasons other than, as applicable, Operator fault or LCA fault.
  - 8.3.6 waste received from the waste haulers, the composition of which is outside of the parameters of acceptable waste as set forth in the waste hauler and waste generator permits with LCA, as defined in the agreed-to Hauled Waste program documents and memorandum of understanding (Appendix O), unless to the extent that the acceptance of such waste is due to the Operator error, negligence or willful misconduct.
- 8.4 None of the following acts, events or conditions (Exclusions) shall constitute an Uncontrollable Circumstance under this Restated Agreement, even if due to the occurrence of an Inclusion:
- 8.4.1 any act, event or condition which is caused by the negligence, error, omission or wrongful or intentional action or inaction of (i) the Operator, the guarantor [if applicable], any of their affiliates, any of their respective Subcontractors or any of their affiliates or (ii) LCA, its subcontractors, agents or employees; provided, however, a Change in Law resulting from a directive of LCA shall nevertheless constitute an Uncontrollable Circumstance.
  - 8.4.2 any act, event or condition reasonably foreseeable prior to the occurrence of such act, event or condition, when a diligent party could reasonably have been expected to (i) take mitigating measures into account in a reasonably timely manner prior to such occurrence or (ii) prevent or adequately protect against using commercially reasonable efforts.
  - 8.4.3 economic infeasibility, general economic conditions, wage rates, insurance premiums, commodity prices and residuals hauling and disposal costs, interest or inflation rates or currency fluctuations.
  - 8.4.4. any labor strike, work stoppage or slowdown on the part of the Operator's or an affiliate's employees.
  - 8.4.5 subject to the definition of a Change in Law regarding any taxes, any order, injunction or judgment of any governmental authority interpreting federal, state, or local tax laws, other than interpretation involving tax-exempt financing.
  - 8.4.6 weather conditions normal for the area.
  - 8.4.7 changes in the financial condition of LCA, the Operator, the guarantor, affiliates or any Subcontractor or supplier affecting the affected Party's ability to perform its obligations under this Restated Agreement.

- 8.4.8 union or labor work rules, requirements or demands which have the effect of increasing the number of employees employed or otherwise increasing the cost to the Operator of managing, operating and maintaining the Plant.
- 8.4.9 any impact of prevailing wage or similar law, customs or practices on the Operator's management, operation, maintenance and capital repair or replacement costs.
- 8.4.10 any act, event, circumstance or Change in Law occurring outside of the United States.
- 8.4.11 any Change in Law regarding the quality, condition or disposal of wastewater or sludge, the terms and conditions of which do not impose more stringent or burdensome requirements on the Plant, Operator or both than are imposed on the Plant, Operator or both by this Restated Agreement at the time of such asserted Change in Law.
- 8.4.12 any change in any Subcontractor or affiliate or any act, event or condition that affects any Subcontractor or affiliate that, in either case, results in increased costs for any service, material, supply or chemical provided or to be provided under this Restated Agreement.

#### ARTICLE 9. MISCELLANEOUS

- 9.1 Operator hereby certifies, as a condition precedent to execution of this Restated Agreement, and as an inducement for the LCA to execute the same, that Operator is not "delinquent" on any taxes owed to the County or State. "Delinquent" is hereby defined as the point in time at which the collection of the tax becomes the responsibility of the Lehigh County Tax Claim Bureau or Pennsylvania Department of Revenue. As used in Article 9, "taxes" shall mean County real estate taxes and any additional types of taxes or levies that the County or Commonwealth of Pennsylvania may lawfully impose hereafter.
- 9.2 Operator further agrees, as a condition to the LCA's obligations under this Restated Agreement, that it shall remain current on all of the taxes it owes to the County or State.
- 9.3 Operator agrees not to hire any LCA personnel who may exercise or have exercised discretion in the awarding, administration, or continuance of the Restated Agreement for up to and including one (1) year after the termination of the employee from LCA service. Failure to abide by this provision shall constitute a breach of this Restated Agreement.
- 9.4 Operator is an independent contractor and as such shall not be entitled to Unemployment Compensation benefits or Workmen's Compensation benefits from LCA. It is agreed that Operator will be responsible for reporting and paying any federal, state, or local taxes or other payments that may become due upon the compensation paid to Operator under this Restated Agreement.

## 9.5 Private Business Use Restriction

- 9.5.1 **Payments to Operator.** It is the intent of LCA and the Operator that this Restated Agreement shall be construed and applied so as to constitute a management contract that does not result in private business use of property financed by LCA within the meaning and intent of the applicable regulations and rulings of the Internal Revenue Service ("IRS"). In particular, LCA and the Operator agree that, notwithstanding any provision of this Restated Agreement to the contrary, LCA shall be under no obligation to, and shall not, pay compensation for services to the Operator for any Contract Year, if such payment, or any portion thereof, would result in any portion of the Operator's compensation being based on net profit or net losses, as such terms are defined in IRS Revenue Procedure 2016-44 ("Rev. Proc.2016-44"). The payment by LCA of any reimbursable costs to the Operator pursuant to Section 4.8 shall not constitute "compensation for services" for purposes of IRS laws, rules, and regulations. Any reimbursable costs shall be for costs incurred by the Operator for actual and direct expenses paid to unrelated parties and the Operator's reasonable related overhead expenses. Notwithstanding any provision of this Restated Agreement to the contrary, pursuant to Rev. Proc. 2016-44, the length of this Restated Agreement shall not exceed the lesser of 30 years or 80% of the weighted average reasonable expected economic life of the managed property.
- 9.5.2 **Operator and LCA Certifications.** In a manner consistent with Rev. Proc.2016-44, the Operator hereby affirms and certifies that its relationship with LCA in no way substantially limits LCA's ability to exercise its rights under this Restated Agreement. The Operator also affirms and certifies that it will not take any tax position inconsistent with being a service provider. In a manner consistent with Rev. Proc. 2016-44, LCA shall approve the annual budget capital expenditures, rates charged for use, and general nature, use and type of services provided by the Operator. Further, LCA and not the Operator hereby bears the risk of loss due to damage or destruction of the managed property, if any. As a result LCA may insure against any such loss. To the extent that the Operator fails to operate the managed property according to contractual standards, LCA at its discretion may impose a penalty upon the Operator.
- 9.5.3 **Modification of Compensation, Relationship of Parties, Use of Property or Risk of Loss of Property.** If, at any time or from time to time, during the Operation Period, an amendment or modification of the terms of this Restated Agreement is proposed related to compensation paid, risk of property loss, use of property or relationship of parties or the requirements of this Section 9.5 then any such adjustment or modification at LCA's cost, shall be subject to the review and approval of LCA's bond counsel with expertise in public finance tax matters for confirmation that such adjustment or modification will not adversely affect the tax-exempt status of any obligations issued, or to be issued, by LCA with respect to the Plant.

## 9.6 Operator-Funded Plant Modifications

- 9.6.1 The Operator may propose Operator-funded Plant modifications for the purposes of increasing the efficiency or reliability or reducing the Operator's costs of the Operation Services. Any cost savings from Operator-funded Plant modifications would accrue to the Operator to cover the operator's cost of the

improvement including a reasonable rate of return on the investment; savings in excess of the aforementioned would be shared with LCA on a reasonable basis. During said Plant modifications, the Operator will be responsible for and pay all costs associated with obtaining permits or permit modifications, design, procurement, construction, inspection, operation, Maintenance and Repair or Replacement of the Operator-funded Plant modifications as detailed in any future Operator-funded Plant modifications agreement.

- 9.6.2 Operator-funded Plant modifications must be pre-approved by LCA.
  - 9.6.3 The Plant must remain in full operation during the implementation of any Operator-funded Plant modifications.
  - 9.6.4 Upon completion of construction and written acceptance by LCA, Operator-funded Plant modifications become part of the Plant and owned by the same entity that owns the Plant and insured in the same manner as the balance of the Plant.
  - 9.6.5 Prior to written acceptance by LCA, Operator shall provide property damage insurance for Operator-funded Plant modifications or assume risk for loss.
  - 9.6.6 The Operator shall provide LCA with a detailed breakdown of actual design, permitting and construction costs (without markup and excluding costs of Operator labor) for the Operator-funded Plant modifications. Such cost will form the basis of reimbursement for any unamortized Operator-funded Plant modifications upon termination of this Restated Agreement.
  - 9.6.7 The amortization period for an Operator funded Plant modifications shall be the lesser of the mutually-agreed useful life of the Operator-funded Plant modification or the time remaining in the Term in which the Operator-funded Plant modification was put into service, whichever is less. The total unamortized cost of the Operator-funded Plant modification will reduce linearly each month from the month it was placed into service to the end of the amortization period.
  - 9.6.8 Should this Restated Agreement be terminated by LCA prior to the full amortization of an Operator-funded Plant modification, LCA will pay to the Operator the unamortized amount of the Operator-funded Plant modification.
  - 9.6.9 Guaranteed Cost Savings Memorandum of Understanding in Appendix M is also subject to the terms of Subsection 9.6.
- 9.7 LCA may perform at its option and expense a performance audit similar to an EPA inspection and performance audit.

## ARTICLE 10. OPERATOR REPRESENTATIONS

Operator covenants, represents, and warrants:

- 10.1 That it now complies with all applicable laws in its business or activities which pertain to the performance or funding of this Restated Agreement, including without limitation, the following:
  - 10.1.1 Fair Labor Standards Act, Labor Management Relations Act (Taft-Hartley), and Labor Management Reporting and Disclosure Act (Landrum-Griffin).

- 10.1.2 Occupational Safety and Health Act (OSHA) and regulations thereunder.
- 10.1.3 Workmen's Compensation laws.
- 10.1.4 Environmental Protection Act and all laws and regulations administered by the US EPA and the PA DEP.
- 10.1.5 Title VII of the Civil Rights Act of 1964, all U.S. Equal Employment Opportunity Commission regulations and all duly enacted laws relating to equal employment opportunity.
- 10.1.6 Equal Pay for Equal Work law and all duly enacted laws relating to gender discrimination.
- 10.1.7 Federal Age Discrimination in Employment Act, 29 U.S.C. §621 and all amendments thereto.
- 10.1.8 Those laws relating to the fiscal management and accounting of public funds. LCA, in its sole discretion, shall have the privilege of examining and/or auditing the records of Operator which pertain to this Restated Agreement.
- 10.1.9 Americans with Disabilities Act.

Operator shall, upon the request of the LCA, promptly have an officer with the appropriate authority affirm and certify compliance with any law described in this paragraph.

- 10.2 Operator is familiar with and is satisfied as to the general, local, and Plant conditions that may affect the Plant.
- 10.3 Operator is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect the Plant.
- 10.4 Operator has made reasonable and customary efforts to obtain and has carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Plant that may affect the Plant or that relate to any aspect of the means, methods, techniques, sequences, and procedures to be employed by Operator, including any specific means, methods, techniques, sequences, and safety precautions and programs incident thereto.
- 10.5 Operator does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the services at the agreed prices and in accordance with the other terms and conditions of the Restated Agreement.
- 10.6 Operator is aware of the general nature of work to be performed at the Plant as indicated in the Restated Agreement.
- 10.7 Operator has correlated the information known to Operator, information and observations obtained from visits to the Plant, reports and drawings identified in the Restated Agreement, and all additional examinations, investigations, explorations, tests, studies, and data with the Restated Agreement.
- 10.8 Operator has given LCA written notice of all conflicts, errors, ambiguities, or discrepancies that Operator has discovered in the Restated Agreement, and the written



resolution thereof by LCA is acceptable to Operator.

- 10.9 The Restated Agreement is generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the requested services.
- 10.10 Operator is financially solvent and experienced in and competent to perform the requested services.
- 10.11 Operator has not sought nor will not seek by collusion to obtain for itself any advantage over any other Plant proposer or over LCA.
- 10.12 Operator is not currently under suspension or debarment by the Commonwealth, any other state or the federal government, and is willing to provide any and all written certifications required under any contractor integrity provisions to LCA, any government agencies and/or entities providing financing to LCA. If during the Term of this Restated Agreement, Operator or any Subcontractor becomes suspended or debarred by the Commonwealth, any other state or the federal government, LCA shall have the right to require Operator to replace that Subcontractor at no additional cost to LCA or terminate the Restated Agreement. Operator agrees that it shall be responsible for all necessary and reasonable costs and expenses incurred relating to an investigation of Operator's or any Subcontractor's compliance that results in the suspension or debarment of the Operator or any Subcontractor.
- 10.13 Operator agrees to seek LCA's input when there is a proposed change of the on-site Operator Project Manager.

#### ARTICLE 11. DISPUTE RESOLUTION

- 11.1 Disputes between LCA and Operator regarding Articles 4 and 5, as well as Section 9.6, shall be subject to the alternative dispute resolution process described in this Article 11.
- 11.2 The resolution procedures shall be invoked when either Party sends a written notice to the other. The notice shall describe the nature of the dispute and the Party's position with respect to such dispute. The Parties shall expeditiously schedule negotiations between designated management representatives appointed by each Party. The period of informal negotiations shall not extend beyond sixty (60) calendar days from the date of the first meeting between the management representatives, unless the Parties agree to extend this period. The management representatives may request the assistance of an independent mediator if they believe that such a mediator would be of assistance to the efficient resolution of the dispute.
- 11.3 In the event that the management representatives are unable to resolve the matter within the period provided in Section 11.2, either Party may initiate the arbitration process set forth in this subsection upon giving written notice to the other Party (the "Arbitration Notice"), although the arbitration option may be passed over and the matter taken directly to litigation if either Party provides written notice to the other Party within ten (10) calendar days of receiving an Arbitration Notice that they object to the particular dispute being subject to arbitration under these provisions.

- 11.3.1 Within thirty (30) calendar days of the Arbitration Notice, the Parties shall either agree upon the use of an arbitration service other than the American Arbitration Association or the appointment of a single independent professional to serve as arbitrator, or if the Parties are unable to agree upon a single arbitrator, each Party shall appoint an independent professional to serve as arbitrator, and the two individuals so named shall, within an additional thirty (30) calendar days, agree upon a third independent professional to serve as the third arbitrator. The Parties shall mutually cooperate to retain the arbitrator(s) upon terms and conditions mutually satisfactory to the Parties as soon as practicable after selection of the arbitrator(s).
- 11.3.2 The arbitration shall take place in Allentown, Pennsylvania or such other location as mutually agreed to by the Parties.
- 11.3.3 The fees of the arbitrator(s) shall be paid one-half by LCA and one-half by Operator.
- 11.3.4 The arbitrator(s) shall decide such disputes pursuant to the Pennsylvania Rules of Evidence. The arbitrator(s) shall be required to make a final determination within thirty (30) calendar days from the receipt of such dispute by the arbitrator(s), which determination shall be binding. Where three (3) arbitrators are appointed, the decision may be rendered by a majority of the arbitrators. The determination by the arbitrator(s) shall be made in writing and shall contain written findings of fact, and may be specifically enforced by a court of competent jurisdiction. The arbitrator(s) shall determine a fair and equitable allocation of the reasonable expenses of the Parties incurred in connection with the resolution of any dispute hereunder. Each Party shall bear its own attorney's fees, unless the arbitrator(s) shall determine that the nature of the action or defense of the non-prevailing Party was frivolous, in which event the arbitrator(s) shall determine a fair and equitable attorney's fee to be paid to the prevailing Party.
- 11.3.5 The arbitrator(s) shall retain independence of the Parties to this Restated Agreement, and neither Party shall engage or attempt to engage the services of the arbitrator(s) for any other purposes without prior written notice to, and the consent of, the other Party.
- 11.3.6 Except as otherwise set forth in this subsection, any arbitration pursuant to this subsection shall be governed by and subject to the provisions of the Pennsylvania Uniform Arbitration Act, 42 Pa. C.S. §7301 *et seq.*

## ARTICLE 12. WARRANTIES AND COMPLETION

Operator warrants that all materials and equipment furnished under this Restated Agreement will be new, unless otherwise specified, of good quality and free from defective workmanship and materials. Warranties shall commence on the date of completion as determined by Operator. Operator will pass through to LCA the warranty extended by the manufacturer for all products, equipment, systems or materials. There are no warranties that extend beyond the description on the warranty document. **All other warranties, express or implied, including any warranty of merchantability and any warranty of fitness for a particular purpose are expressly disclaimed.**

ARTICLE 13. HAZARDOUS SUBSTANCES

If hazardous substances in any form are encountered or suspected on site, Operator will stop its own work in the affected portions of the Plant to permit testing and evaluation, with notification to LCA, and be treated as an Uncontrollable Circumstance.

ARTICLE 14. OPERATIONS ASSISTANCE AND SERVICES

LCA authorizes Operator to operate, modify, inspect and otherwise physically manipulate equipment, furnishings, property and other elements associated with the Scope of Services. LCA authorizes Operator to take such actions in these respects as Operator considers necessary to meet the objectives of the Scope of Services.

ARTICLE 15. LITIGATION ASSISTANCE

The Scope of Services does not include Operator costs for requested assistance to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by LCA. With the exception of (i) suits or claims between the Parties to this Restated Agreement; (ii) litigation resulting from Operators negligence or willful misconduct as related to the Scope of Services herein; or (iii) litigation fee components otherwise already included in the Service Fee, all such services requested of Operator by LCA will be reimbursed as an Extraordinary Item, pursuant to Section 4.9. .

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Both Parties indicate their approval of this Restated Agreement by their signatures below.

Attest: OPERATIONS MANAGEMENT INTERNATIONAL, INC.

_____	By: _____	_____
Name:	Name:	Date
Title:	Title:	

Attest: LEHIGH COUNTY AUTHORITY

_____	By: _____	_____
Bradford E. Landon	Liesel M. Gross	Date
Solicitor	Chief Executive Officer	

## Appendix A

### PERFORMANCE STANDARDS AND LIQUIDATED DAMAGES

- A.1 Operator shall operate the Plant and perform all required sampling to demonstrate that the Plant effluent meets the Performance Standards which includes the requirements of the Industrial Waste Permit (see **Appendix I**) and applicable sewer ordinances and the additional effluent standards listed in Table A-1. Except to the extent relieved for Uncontrollable Circumstances or pursuant to Section 6.2, Operator shall pay all fines and penalties for failure to meet the requirements of the Industrial Waste Permit and applicable sewer ordinances.

Table A-1 Additional Performance Standards

Parameter	Minimum Sampling Frequency <sup>(1)</sup>	Compliance Monitoring Period	Performance Value
Plant effluent BOD <sub>5</sub>	Daily flow proportional composite sample of hourly samples, analyzed daily	Quarterly Average of Daily Composite samples	≤ 25 mg/L
Plant effluent TSS	Daily flow proportional composite sample of hourly samples, analyzed daily	Quarterly Average of Daily Composite samples	≤ 25 mg/L

Notes:

<sup>(1)</sup> Quarterly average will be calculated following the first complete quarter of operations.

- A.2 No relief from the Performance Standards shall be provided for conditions resulting from the acceptance of hauled waste, except when hauled waste is not within the parameters of the hauler and generator permits issued by LCA and the Operator has performed the minimum sampling and oversight as agreed to in the approved Hauled Waste program documents or any specific agreement executed for enhanced sampling/oversight between and Operator and LCA in the then current *Waste Hauler Program Memorandum of Understanding*, unless to the extent that the acceptance of such waste is due to the Operator error, negligence or willful misconduct. Operator shall be responsible for meeting the effluent Performance Standards unless one or more of the following occurs and is not the result of the acceptance of hauled waste: (1) the Plant influent contains Biologically Toxic Substances in an amount that causes exceedances of the Performance Standards that cannot be removed by the existing process and facilities; (2) the Plant influent does not contain Adequate Nutrients to support operation of Plant biological processes; or (3) the flow, influent BOD<sub>5</sub>, and/or suspended solids exceeds the Plant design parameters, which are 5.75 mgd annual average, 11.05 mgd daily limit, 76,500 pounds of BOD<sub>5</sub> per day, and 25,500 pounds of suspended solids per day, and Operator provides LCA with a written analysis as to why the Plant cannot be operated to achieve the Performance Standards with the influent above the design parameter(s). Based upon prior experience, it is anticipated that the Plant may be capable of operating above certain design parameters and prior to curtailing the receipt of hauled waste, Operator shall use best efforts to operate the Plant with the influent above the stated design parameter for suspended solids so long as the BOD<sub>5</sub> is below the stated amount.

- A.3 In the event that either A.2 (1), A.2 (2) or A.2 (3) above has occurred, Operator shall return the Plant effluent to compliance with the Performance Standards in accordance with the following schedule after Plant influent characteristics return to within design parameters.

Characteristics Exceeding Design Parameters By	Recovery Period Maximum
10% or Less	5 days
Above 10% Less than 20%	10 days
20% and Above	30 days

Notwithstanding the above schedule, if the failure to meet effluent quality limitations is caused by the presence of Biologically Toxic Substances or the lack of Adequate Nutrients in the influent, then Operator will have a thirty (30) calendar day recovery period after the influent is free from said substances or contains Adequate Nutrients. Operator will monitor all incoming waste-hauled loads and will be responsible for substances that enter the system. Except for hauled waste, Operator's responsibility will not extend to industrial discharges in the influent waste or conditions beyond Operator's control.

- A.4 Operator shall not be responsible for fines or legal action as a result of discharge violations within the period when any single influent design parameter is exceeded based on total plant loading, , and the subsequent recovery period.
- A.5 Within the capabilities of the Plant, Operator shall operate the Plant and manage the receipt of hauled waste in compliance with all air permits and regulations and such that the Plant does not produce odors at or beyond the property line. The Operator is not required to monitor for odors unless an odor complaint has been received by LCA or the Operator and verified by LCA. Operator shall investigate all odor complaints and if verified by LCA, implement odor mitigation. Operator shall also log all odor complaints.
- A.6 Within the capabilities of the Plant, Operator shall operate the Plant and manage the receipt of hauled waste in compliance with all noise laws and ordinances and such that the Plant does not produce noise complaints at or beyond the Plant property line. The Operator is not required to monitor for noise unless a noise complaint has been received by LCA or the Operator and verified by LCA. Operator shall investigate all noise complaints and if verified by LCA, implement noise mitigation.
- A.7 Except to the extent relieved for Uncontrollable Circumstances, the Operator shall pay liquidated damages in the amounts set forth below in Table A-2 for the Operator's failure to comply with the Performance Standards in this **Appendix A**. The liquidated damages are in addition to any fines or penalties which may result from such failure to comply with the Performance Standards:

Table A-2: Liquidated Damages

<b>Frequency and Category of Non-compliance</b>	<b>Liquidated Damage Amount</b>
<b>Each Event</b>	
Quarterly Plant Effluent BOD <sub>5</sub> between 25 and 35 mg/L	\$ 5,000
Quarterly Plant Effluent TSS between 25 and 35 mg/L	\$ 5,000
Quarterly Plant Effluent BOD <sub>5</sub> between 35 and 65 mg/L	\$ 15,000
Quarterly Plant Effluent TSS between 35 and 65 mg/L	\$ 15,000
Quarterly Plant Effluent BOD <sub>5</sub> above 65 mg/L	\$ 50,000
Quarterly Plant Effluent TSS above 65 mg/L	\$ 50,000
<b>1<sup>st</sup> Event/ Year</b>	
Other Industrial Waste Permit or Sewer Ordinance Non-Compliance	\$ 1,000
LCA-verified Odor Complaint	\$ 0
LCA-verified Noise Complaint	\$ 0
<b>2<sup>nd</sup> Event/ Year</b>	
Other Industrial Waste Permit or Sewer Ordinance Non-Compliance	\$ 2,000
LCA-verified Odor Complaint	\$ 500
LCA-verified Noise Complaint	\$ 500
<b>3<sup>rd</sup> Event (and each subsequent event)/ Year</b>	
Other Industrial Waste Permit or Sewer Ordinance Non-Compliance	\$ 3,000
LCA-verified Odor Complaint	\$ 1,000
LCA-verified Noise Complaint	\$ 1,000

- A.8 For any repeat failure to meet a Performance Standard, Operator shall prepare and implement a corrective action plan to avoid further repeat violations of the Performance Standards. The corrective action plan shall be submitted by the Operator for LCA review prior to implementation, except where time is of the essence in order to avoid further violations, damages or loss. If Operator demonstrates to LCA's satisfaction that Capital Improvements are necessary in order for the Plant to reliably meet the Performance Standards, LCA will either revise the Performance Standards to a lower standard mutually agreed as reliably achievable, implement the necessary Capital Improvements to allow the Plant to meet the Performance Standards, or authorize and pay Operator to implement the Capital Improvements. If any Capital Improvement is implemented and increases or decreases the Operator's operation and maintenance costs, the Service Fee will be equitably adjusted. Repeated non-compliance with the Performance Standards, unless due to the occurrence of an Uncontrollable Circumstance, may constitute grounds for termination for Operator breach of this Restated Agreement.

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## **Appendix B**

### **REPAIRS OR REPLACEMENTS**

- B.1 Operator shall take reasonable steps to assure that the price for Repairs or Replacements is reasonable and obtain multiple quotes for proposed Major Repairs or Replacements. The Operator shall follow the Owners public procurement policies and financial guidelines, when applicable.
- B.2 After notice by the Operator to LCA of the need for the Major Repair or Replacement, LCA may elect, in its sole discretion, to procure, provide and implement, if at all, any Major Repair or Replacement itself, through a third Person, or through the Operator. If LCA elects to have a Major Repair or Replacement procured, provided and implemented by or through the Operator, LCA shall provide the Operator with a written notice to proceed.
- B.3 The Operator's compensation payable by LCA for a Repair or Replacement (other than one arising as a result of Operator Fault for which the Operator shall be solely liable) procured, provided and implemented by or through the Operator shall be subject to or limited by the following:
- a. No payment shall be made for the Operator's provision of in-house labor.
  - b. No markup shall be paid on Subcontractors, or Affiliates, materials, services, supplies, equipment procured for installation as part of the Repair or Replacement or equipment used to effect the installation of equipment that is part of the Repair or Replacement.
- B.4 To the extent a Repair or Replacement is due to or is the result of Operator Fault, the Operator shall be solely liable for all fees, costs and expenses associated with the procurement, provision and implementation of the Repair or Replacement and for any increases in the Operator's costs to perform the O&M services. To the extent (a) a Repair or Replacement does not arise as a result of Operator Fault, (b) LCA elects to proceed with a Repair or Replacement and (c) LCA requests, if at all, that the Operator provide a proposal to procure, provide and implement a Repair or Replacement, such proposal cost shall not be included in the cost of the Repair or Replacement; rather, the Operator shall provide such proposal at its sole cost and expense.
- B.5 Alternatively, LCA may elect, in its sole discretion, and LCA shall promptly deliver written notice to the Operator, not to have the Operator procure, provide and implement a Major Repair or Replacement or a Repair or Replacement that will exceed the R&R Budget. If LCA's election to not have the Operator procure, provide and implement a Repair or Replacement not due to Operator Fault shall prevent the Operator from performing or materially increases the cost of performing any of its material obligations under this Restated Agreement, such event may be considered an Uncontrollable Circumstance.

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## Appendix D

### **EQUIPMENT DESCRIPTION AND INVENTORY**

1. Plant Equipment Inventory, updated 6/30/2017 is available to LCA upon request.
2. Plant Stock Inventory, updated 6/30/2017, is available to LCA upon request.
3. Office Inventory, updated 6/30/2017, is available to LCA upon request.

The Stock Inventory and the Plant Equipment Inventory will be kept on file with the Operator and will not be printed for binding in with this Restated Agreement.

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## Appendix E

### INSURANCE COVERAGE

Operator shall maintain the insurance listed below with insurers which have at least a "B+" operating and "Class VIII" financial rating as listed in "Best's Key Rating Guide," latest edition, with LCA, its officials, employees and agents listed as additional insured:

1. Statutory workers' compensation and employer's liability for all of Operator's employees at the Plant as required by the Commonwealth of Pennsylvania.
2. Comprehensive general liability insurance in an amount not less than Five Million Dollars (\$5,000,000.00) combined single limits for bodily injury and/or property damage.
3. Comprehensive automobile liability in an amount not less than Two Million Dollars (\$2,000,000.00) combined single limits for bodily injury and/or property damage for owned, non-owned and hired vehicles, or equivalent coverage.
4. A Performance Bond in the amount of the cost of one (1) year's Fixed Component of the Service Fee.
5. Pollution and remediation legal liability policy in an amount of not less than Three Million Dollars (\$3,000,000.00) per claim and in aggregate. Such coverage shall include not only sludge/biosolids disposal as biosolids-derived fertilizer material plus other solid waste generated from the Plant that is discarded in a land fill, incinerated, disposed of as a beneficial reuse, etc. as well as damages or injuries at the site of such disposal.

All Operator insurance coverage shall be primary coverage; be of an "occurrence" basis and not a "claims-made" basis (with the exception of Pollution Liability); remain in full force and effect until termination or expiration of this Restated Agreement; and the insurance policy or policies shall contain a provision that the Authority be given at least thirty (30) calendar days prior written notice of any intention to cancel or otherwise terminate such policy or policies. Such policies shall only include endorsements reviewed and approved in writing by LCA.

LCA shall maintain:

1. Property damage insurance for all property including equipment owned by LCA or the County and operated by Operator under this Restated Agreement.
2. Liability insurance for all equipment owned by LCA and operated by Operator under this Restated Agreement.

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## Appendix F

### MINIMUM REQUIRED SAMPLING AND ANALYSES

This **Appendix F** includes certain minimum required sampling and analyses that Operator is to perform as part of the Operation Services. Operator is also required to perform all samples and analyses required for compliance with the Agreement.

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**Appendix F: LCA Sampling Locations and Descriptions**

Location	Parameter	Daily	Weekly	Monthly	Bi-Monthly	Quarterly	Annually	Description
<b><u>Industries</u></b>								
<b>Brewery</b>	COD	1						Monitor daily wastewater strength
	BOD	1						Monthly billing
	TSS	1						Monthly billing
	TKN			7				Consecutive 7-day test for monthly billing
	Water Meters	1						Record 2 water meters for LCA records
	pH Meter*	1						Monitor and maintain LCA effluent monitoring equipment
	T Meter	1						Monitor and maintain LCA effluent monitoring equipment
	Flow Meter	1						Monitor and maintain LCA effluent monitoring equipment
	Sulfides						7	Consecutive 7-day test
<b>Coca Cola</b>	COD	1						Monitor daily wastewater strength
	BOD			7				Consecutive 7-day test for monthly billing
	TSS			7				Consecutive 7-day test for monthly billing
	TKN						14	Consecutive 7-day test semi-annually for billing (Feb and Aug)
	pH	1						

**Appendix F: LCA Sampling Locations and Descriptions**

Location	Parameter	Daily	Weekly	Monthly	Bi-Monthly	Quarterly	Annually	Description
<b>Ocean Spray</b>	COD			7				Consecutive 7-day test for monthly billing
	BOD			7				Consecutive 7-day test for monthly billing
	TSS			7				Consecutive 7-day test for monthly billing
	pH			7				Consecutive 7-day test for monthly billing
<b>SunOpta</b>	COD			7				Consecutive 7-day test for monthly billing
	BOD			7				Consecutive 7-day test for monthly billing
	TSS			7				Consecutive 7-day test for monthly billing
	TKN			7				Consecutive 7-day test semi-annually for billing (Feb and Aug)
	pH			7				Consecutive 7-day test for monthly billing
<b><u>Plant</u></b>								
<b>Manhole 6 (Influent)</b>	COD	1						Monitor daily wastewater strength
	BOD	1						Monthly billing
	TSS	1						Monthly billing
	TKN	1						Monthly billing
	pH	1						Plant operations; continually monitored
	Metals			1				Plant operations

**Appendix F: LCA Sampling Locations and Descriptions**

Location	Parameter	Daily	Weekly	Monthly	Bi-Monthly	Quarterly	Annually	Description
<b>Waste Hauler</b>	COD	1						Composite from all loads that day
	BOD	1						Composite from all loads that day
	TSS	1						Composite from all loads that day
	TKN	1						Composite from all loads that day
	Metals		1					Composite from the daily composite samples/permit
	pH	~50						Analyze each load
	Site codes							See Hauler Program
<b>Odor Control Towers</b>	pH	1						Plant operations; continually monitored
	Cl2 Residual	3						Plant operations/permit
	Hardness		1					Test makeup water
<b>High Strength Waste</b>	COD	1						Tested when in service
<b>Storage Tank</b>	BOD			2				Tested when in service
	pH							Tested when in service
	TKN							As needed
<b>Waste Receiving Station</b>	TS	1						Tested when in service
	VS	1						Tested when in service
	COD	1						Tested when in service
<b>Plant Effluent</b>	COD	1						Plant operations
	BOD	1						Plant operations/billing
	TSS	1						Plant operations/billing
	TKN	1						Plant operations/billing
	Metals			1				Plant operations/permit
	Sulfides	1						Plant operations/permit
	pH	1						Plant operations
	Priority Polltants						2	Permit
	TDS			1				Plant operations

**Appendix F: LCA Sampling Locations and Descriptions**

Location	Parameter	Daily	Weekly	Monthly	Bi-Monthly	Quarterly	Annually	Description
<b>Belt Press</b>	TS	1						Plant operations
	Biosolids				1			Land app analysis
	Filtrate	1						Plant operations
<b>Digesters</b>	TS	1						Plant operations/permit
	VS		1					Plant operations/permit
	pH	1						Plant operations/permit
	Metals		1					Plant operations/permit
<b>Lab water</b>	BOD	1						Plant operations/permit
	CL2 Residual	1						Seed water makeup
	Hardness			1				Verify proper operation of water softener
	Total Coliform						2	4 buildings to ensure backflow preventers working correctly
	HPC			1				QAQC Lab Manual requirement

**Operator is responsible for maintaining all eight (8) composite samplers (4 at industry sites and 4 at plant)**

**When daily samples for BOD, TSS, and TKN is not collectable, a 7-day rolling average will be used.**

**Lab qualifiers will be called out in monthly reports.**

**\*Operator is responsible for one annual pH meter calibration.**

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## Appendix G

### STAFFING PLAN

This **Appendix G** includes the Operator's current staffing plan and commitments, including a listing of staff positions and qualifications of key staff and minimum qualifications for the staff positions. The Operator may not reduce the level or qualifications of staffing at the Plant or supporting the Plant operations from that indicated in this **Appendix G** without written approval of LCA. The staffing plan may be modified with mutual consent to meet changing needs of the system.

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Exhibit G-1 shows the LCA project organization structure. The organization chart notes full- and part-time positions, onsite staff, and offsite staff. The Operator does not plan to subcontract any major portion of the scope of work.

**Table G-1**

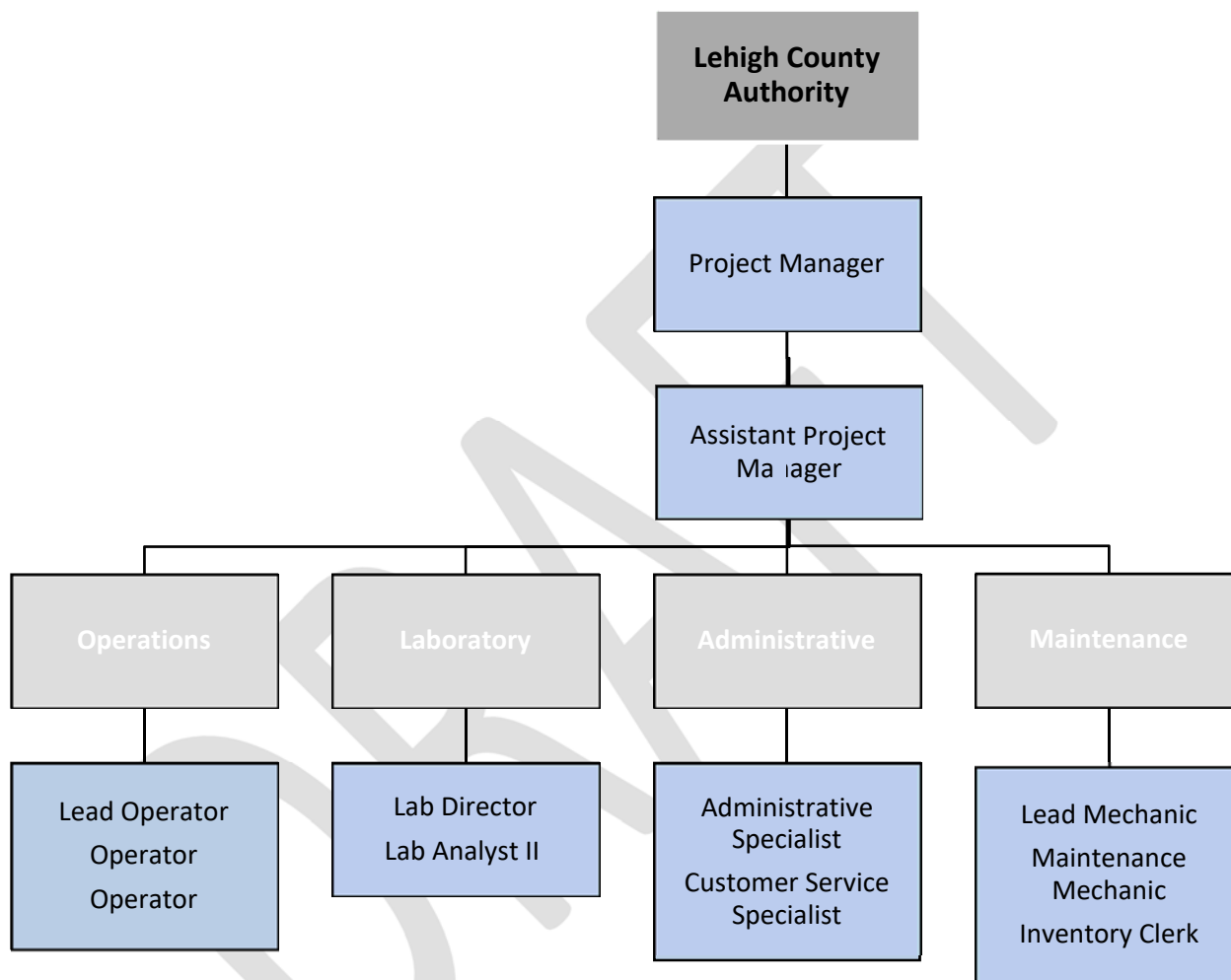


Table G-2 shows the minimum qualifications and certifications for each position at the Plant. All current CH2M HILL OMI associates are appropriately certified and experienced to meet and exceed their position duties.

**Table G-2**

Position	Qualification and Certification Requirements
Project Manager	<ul style="list-style-type: none"> <li>• Hold Pennsylvania Class A Wastewater certification</li> <li>• Proven technical experience managing complex projects that include biological treatment processes, pure oxygen onsite production, IPPs, self-performed onsite laboratory services, and</li> </ul>



Position	Qualification and Certification Requirements
	<p>residuals handling and disposal that includes stabilization and dewatering</p> <ul style="list-style-type: none"> <li>• Proven project management experience that includes budgeting, capital improvement planning, human resource management, proactive customer service, contract compliance, and client relationships</li> <li>• Proven experience managing a hauled waste program to include marketing, rate setting, customer service, billing, and managing received wastes to protect the effluent and residuals qualities</li> <li>• Ability to work as part of a team with client and company staff</li> <li>• Ability and willingness to work as-needed, to provide reliable treatment and service, including weekends and holidays as required</li> <li>• Detailed knowledge of Pennsylvania environmental, safety, and human resource rules and regulations</li> </ul>
Assistant Project Manager	<ul style="list-style-type: none"> <li>• Same requirements as Project Manager, with the following modifications/ additions:</li> <li>• Ability and willingness to act as Project Manager as-directed and as-needed</li> <li>• Serve as Laboratory Director as required</li> </ul>
Lead Mechanic	<ul style="list-style-type: none"> <li>• Minimum 5 years general experience providing full-range of maintenance services to include plumbing, electrical, HVAC, instrumentation and mechanical</li> <li>• Experience and ability using CMMS for data entry, inventory tracking, costing, printing reports, and work task management</li> <li>• Ability to Supervise others and direct maintenance related work</li> <li>• Ability to coordinate work with subcontractors</li> <li>• Willingness and ability to learn, lead and practice strict safety procedures</li> <li>• Ability to work as part of a team with client and company staff</li> <li>• Experience with equipment and system troubleshooting, determining and specifying parts and equipment</li> <li>• Willingness and ability to work in various environmental conditions around waste products typical for the LCA facility</li> <li>• Experience with pure oxygen system desired</li> <li>• Knowledge of asset management</li> </ul>
Maintenance Mechanic	<p>Same requirements as Mechanical Specialist with the following modifications/ additions:</p> <ul style="list-style-type: none"> <li>• Specific experience with mechanical repairs of pumps, conveyors, mixers, compressors, and other equipment and systems used at the LCA facility</li> </ul>
Administrative Specialist	<ul style="list-style-type: none"> <li>• Proven experience with data entry, organizing files, maintaining schedules, developing and issuing reports, and interacting with external and internal customers</li> <li>• Experience working with standard Microsoft® programs such as Word and Excel</li> </ul>

Position	Qualification and Certification Requirements
	<ul style="list-style-type: none"> <li>• Experience working with vendors and suppliers to place and receive orders, process invoices, and post and track expenditures</li> <li>• Self-motivated with ability to work alone with minimal supervision</li> <li>• Ability to learn and apply CH2M HILL OMI business practices relating to purchasing and accounts payable</li> <li>• Ability to invoice and bill waste hauler clients monthly, coordinate annual waste hauler permits and vehicle permits, and perform Waste Hauler Program Administration duties as needed</li> <li>• Ability to provide backup laboratory support as needed</li> </ul>
Operator II	<ul style="list-style-type: none"> <li>• Possess a minimum of a Pennsylvania Class A Wastewater certification or the ability to obtain within 1 year</li> <li>• Minimum 5 years of experience working at a biological treatment facility</li> <li>• Ability to work with minimum supervision</li> <li>• Ability to maintain detailed records, enter information onto forms, and develop information required for client, State of Pennsylvania, and CH2M HILL OMI reports</li> <li>• Ability to work safely and follow safety procedures</li> <li>• Ability to work in various environmental conditions and around waste products typical for the LCA facility</li> <li>• Ability to work as part of a team with client and company staff</li> <li>• Ability and willingness to provide proactive service to internal and external customers</li> <li>• Ability and willingness to work overtime including weekends and holidays as required</li> </ul>
Operator I	<ul style="list-style-type: none"> <li>• Same requirements as Operator II with the following modifications/additions:</li> <li>• Possess a minimum of a Pennsylvania Class B Wastewater certification or ability to obtain within 1 year; Class A certification is preferred</li> <li>• Minimum 3 years of experience working at a biological treatment facility</li> </ul>
Laboratory Analyst II	<ul style="list-style-type: none"> <li>• Minimum 3 years of experience with all aspects of laboratory operations including sampling, analyses, QA/QC, ordering supplies, scheduling, and reporting</li> <li>• Knowledge of State of Pennsylvania-specific rules and regulations relating to laboratory certification</li> <li>• Ability to provide proactive service to internal and external customers</li> <li>• Ability to work safely and follow safety procedures</li> </ul>
Laboratory Analyst I	<p>Same requirements as Analyst II with the following modifications/additions:</p> <ul style="list-style-type: none"> <li>• Minimum 1 year experience</li> </ul>

The Operator will provide waste hauler service hours from 6:00 a.m. to 6:00 p.m. Monday through Friday and on weekends from 6:00 a.m. to 2:30 p.m.

The Project Manager and Assistant Project Manager will be on call to support O&M staff routinely. Staff provide on-call services on a rotating basis. The assigned on-call person will carry a cell phone and is notified of any off-hour alarms or conditions. The on-call person will access the alarm system to determine the nature of the alarm and make an initial assessment of the appropriate response. The on-call person will have the required experience to respond, investigate, and make decisions as to the proper response. Should additional help be required, the on-call person will have a list of contact persons, either Operator staff or third-party service providers. In emergency situations, the on-call person, the Project Manager, and Assistant Project Manager may respond as required. As appropriate, the Operator will notify LCA staff using defined protocols. If a non-routine event is anticipated, such as an abnormal industrial discharge or an ice storm, the Operator will adjust staffing coverage and take proactive actions, providing needed O&M.

The Operator will provide offsite staff to provide onsite and remote support, QA/QC (quality assurance/quality control), and to make sure that LCA's expectations are exceeded. This support includes regular safety, training, laboratory, operations, optimization, cryogenic operations, instrumentation, residuals management, telemetry, maintenance program operation, digester operation, and laboratory operations, and maintenance audits. Offsite staff will perform monthly reviews for contract, permit, and budgetary compliance with client and CH2M HILL OMI requirements. The cost for support staff is part of the Service Fee that is at risk. As requested by the Project Manager, or required by non-conformance to any requirements, special reviews will be conducted to maintain quality service.

The Operator has budgeted significant hours of offsite labor to accomplish known service requirements to the LCA project. However, Operator is at full risk to supply and pay for offsite labor to meet its service requirements.

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**Appendix H-**  
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## **Appendix I**

### **REFERENCE DOCUMENTS**

1. Lehigh County Authority Wastewater Treatment plant Industrial Waste Permit CPP000.
2. Lehigh County Authority Wastewater Pretreatment plant Industrial Stormwater Permit No. PAS902202 (NPDES).
3. Lehigh County Authority Wastewater Treatment plant Air Quality Permit No.39-00056.
4. Lehigh County Authority Wastewater Pretreatment plant Land Application “residual waste” Permit WMGR099.
5. PADEP Above Ground Tank Registration. Hypochlorite Storage Tank, Tank ID 1216206 Seq #010A.
6. Hauler Program Background Documents provided electronically with hauler dataase on file at PTP.

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**Appendix K**

**LOAD AND FLOW ADJUSTMENT ELEMENTS BILLING DETAILS**



CH2M Lehigh  
7676 Industrial Blvd  
Allentown, PA 18106  
O +1 610-395-9782  
F +1 610-395-6623  
www.ch2m.com

Mr. Charles Volk  
Lehigh County Authority  
1053 Spruce Rd.  
Allentown, PA 18106

September 23, 2016

Subject: Service Fee and Adjustment Elements for Contract Year 24

Dear Chuck,

This letter includes our estimated service fee adjustment elements for contract year 2017. Please note the following considerations:

- The adjustment factor for contract year 2017 is 1.06%.
- Flow and loadings calculations are an estimate only and are based on current actual flow and loadings.

With all this considered, our proposed Service Fee and Adjustment Elements for Contract Year 24 are as follows:

- Base Element \$ 2,473,372.03
- Electricity Element \$ 752,465.25
- Total Fixed Component \$ 3,225,837.28

Presented below are the flow and loading rates, as well as an annual estimate for each component. These annual estimates are all based on flow and loads above the baseline amounts established in the contract.

Flow Adjustment Element	\$0.2648 per 1,000 gallons or \$183,783 annually (estimated)
BOD5 Adjustment Element	\$0.0561 per pound removed or \$544,954 annually (estimated)
TSS Adjustment Element	\$0.0929 per pound removed or \$324,398 annually (estimated)
TKN Adjustment Element	\$0.3198 per pound removed or \$55,757 annually (estimated)

The reimbursable costs charge for contract year 2017 should not exceed \$1,500,000.

With the completion of the flow equalization basin and the new waste receiving station, we will be including the extraordinary items charges for contract year 2017 per contract provision 4.10.5.

Please let me know if you have any questions or require additional information.

Sincerely,

Diana Heimbach  
Project Manager

Signature of Acceptance \_\_\_\_\_

LCA Representative

Date \_\_\_\_\_

## MEMORANDUM

---

TO: Darrel Collett, Joe McMahon  
COPIES: Gregg Higgins, Jennifer Keola, George Cartledge  
FROM: John Rickermann, Bill Haberstroh  
DATE: 19 May 09  
RE: Lehigh Load and Flow Adjustments Elements Billing Details for Service Agreement

The following written description is intended to describe the details and calculation examples of the billing process for Flow and Load Adjustment Elements (formerly referred to as Unit Cost Recovery (UCR) in the previous agreement) and monthly statements from OMI to LCA.

### Purpose of UCR

UCR is intended to recover costs from LCA for treated wastewater in excess of the Base Element flows and loads beyond the following limits:

Flow: 2.4 MGD treated

BOD: 7,150,000 lb/yr removed

TSS: 6,975,000 lb/yr removed

TKN: 290,000 lb/yr removed

For every unit above this baseline, LCA pays OMI based on the following values as compensation for treating this additional wastewater (using current permit conditions):

Flow: \$0.2305/1,000 gal treated

BOD: \$0.0506/lb BOD removed

TSS: \$0.0838/lb TSS removed

TKN: \$0.2886/lb TKN removed

### Data Collection

OMI is responsible for collecting accurate data for all flow and load parameters related to UCR calculations. The data collection parameters, frequency and location are listed in Table 1.

Table 1

Parameter	Units	Frequency	Location	Data Type
Flow	Total gallons	Monthly total, daily reading	Effluent flow meter, hauler manifest	Chart recorder and digital totalizer, hauler manifest
BOD	mg/L	Flow Proportioned Daily composites	Manhole 6, hauler, effluent	Lab testing

TSS	mg/L	Flow Proportioned Daily composites	Manhole 6, hauler, effluent	Lab testing
TKN	mg/L	Flow Proportioned Daily composites	Manhole 6, hauler, effluent	Lab testing

Flow is measured at the plant effluent before discharge back to the sanitary sewer through a 24" Parshall flume with dual ultrasonic level sensors. The level sensors record total flow, which operators record every day and also for the month, in gallons. Two sensors are used due to the number of controls associated with the plant flow (pacing, sampling, etc) so dual units were installed – labeled “West” and “East” in our Op10 database. “West” handles the liquid process control signals to Building 6, while the “East” sensor is used for billing purposes and recording, and is the redundant unit to the liquid process. A review of Op10 records shows that these values are nearly identical, with an annual difference in 2008 of only 0.37%.

Influent sanitary sewer flows through Manhole #6 (MH 6) are the primary source of flow, along with hauled septic waste by truck. Since influent flow is not directly measured by flowmeter at the plant (an earlier estimate puts the cost to install such a meter at \$250,000), influent flow is calculated as the effluent flow (metered by Parshall flume) minus the total of all hauled waste, potable and stormwater flows as noted below.

Hauled waste is recorded on the daily manifest, and transferred to the Op10 database under the “Hauler influent flow” heading, in gal/d. This includes both septic waste and high strength waste (such as deicing fluid). Samples of all truck loads are combined each day into a flow proportional composite to determine the loading of TSS, BOD, and TKN using a graduated cylinder measurement of sample in ratio to the truck volume. Truck volumes are typically assumed to be full loads, but this is spot checked by the operator to verify with a sight tube that can be connected to the 4" truck discharge, and also by the time it takes to discharge a load. Partial loads are noted on the manifest.

Flows and loads are recorded and included in the flow and load calculations in the month in which they are received, even if the material is sent to an offline tank for later treatment. This may result in the UCR calculations being in favor of LCA or of OMI, but over the span of a full year would be balanced.

Septic flows enter the plant from the septic dump station for processing in the liquid stream. High strength waste is not directly discharged to the plant, but instead discharged into an offline aeration deck where it can be metered back into the liquid stream slowly.

Other flows enter the plant: potable water and stormwater. Potable water is purchased and used in systems that cannot accommodate recycled plant water, such as cooling towers, bathrooms, laboratory, and in the digester building. Approximately 600,000-800,000 gal/month of potable water is purchased that gets discharged through the effluent flow meter, with the remainder lost to evaporation. None of this water was considered in the pricing models, but the UCR flow component is an appropriate way to charge for this cost since it is process water that must be treated. However, it would not be appropriate to use this flow as part of the calculation to determine influent mass loading, and will be subtracted.

Stormwater flow enters the process in the vicinity of the hauler shed by two methods: under the control of the hauler shed operator, in order to flush possible spills from haulers into the plant from the nearby stormwater trench, and by pad drains around the shed. The total flow from these sources can be estimated as follows: 500 sq ft of drainage area where stormwater is collected, at 46 inches of precipitation per year = 1,917 cu ft of stormwater = 14,340 gals/year. Once again, this is water that must be treated as part of the hauler process to ensure the contaminated stormwater does not leave the site, but should not be counted towards the influent mass loading. Storm water from a larger area(main office to maintenance shop and west to the influent building ) of the plant drains to the storm collection drains in the vicinity of the headworks; however the hauler shed operator and plant operators control much of this

storm water flow by closing the valve on the roadway drain on the north side of the Influent Building and by using covers over the drains by the haulers shed.

#### Data Recording

In the Op10 database, effluent flow is recorded (both sensors) as well as the daily flows as received from the septic hauler manifest (including high strength wastes manifest), in gallons per day. Influent flow is then calculated by formula in Op10: Influent flow = Effluent flow – septic hauler flow. Op10 also holds the lab test results from the flow proportional daily composite of hauled waste, effluent daily composite sampling, and the Manhole 6 daily composite sample lab results on BOD, TSS and TKN (among others).

Op10 then takes the concentrations of pollutants in mg/L and multiplies by the volume for that flow path to determine total pounds of pollutant per day. For example, TSS for the influent flow is calculated as influent flow (MGD) x 8.34 x influent TSS (mg/L) = influent TSS mass (lbs/day). Hauled waste loading is calculated the same way, but only from the hauler flow and hauler loading values.

Finally, Op10 adds the mass loadings (lbs/day) for the different flow paths (influent from Manhole 6 and hauled waste) for each pollutant (BOD, TSS, TKN) for use in the UCR calculations.

#### UCR Calculation

The UCR calculations are summarized below, assuming current biosolids permit conditions.

1.  $Flow\ UCR = \$0.2305/1000\ gal \times [effluent\ flow, gal/month - hauler\ flow, gal/month - baseline\ flow, gal/month]$

Effluent flow is directly measured by Parshall flume

Hauler flow is tracked by the shed operator daily

Stormwater and potable water flows are included

Baseline flow is per contract at 2.4 MGD

Example:

$Flow\ UCR = \$0.2305/1000 \times [101,000,000\ gal/month - 3,800,000\ gal/month - 2,400,000\ gal/d \times 30\ days/month] = \$5,809/month$

2.  $BOD\ UCR = \$0.0506/lb\ rem \times [(inf\ flow, MG/month \times 8.34 \times inf\ BOD, mg/L) + (hauler\ flow, MG/month \times 8.34 \times hauler\ BOD, mg/L) - (eff\ flow, MG/month \times 8.34 \times eff\ BOD, mg/L) - baseline\ BOD\ removal, lb/month]$

Influent flow = direct measured effluent flow – hauler flow – estimated stormwater flow, 1,195 gal/month – estimated potable water flow, 800,000 gal/month

Effluent flow is directly measured by Parshall flume

Hauler flow is tracked by shed operator daily

Stormwater is estimated at 14,340 gal/yr = 1,195 gal/month

Potable water is estimated at 800,000 gal/month

Influent BOD is measured by daily flow proportional composite sampler at MH 6

Hauler BOD is measured by daily flow proportional composite sample of all trucks

Effluent BOD is measured by daily flow proportional composite sampler at the plant effluent

Baseline BOD removal is per contract at 7,150,000 lb/yr = 595,833 lb/month

Example:

$BOD\ UCR = \$0.0506 \times [((101\ \text{MG/month} - 3.8\ \text{MG/month} - 0.001195\ \text{MG/month} - 0.8\ \text{MG/month}) \times 8.34 \times 700\ \text{mg/L}) + (3.8\ \text{MG/month} \times 8.34 \times 7,000\ \text{mg/L}) - (101\ \text{MG/month} \times 8.34 \times 6\ \text{mg/L}) - 595,833\ \text{lb/month}] = \$9,297/\text{month}$

3.  $TSS\ UCR = \$0.0838/\text{lb rem} \times [(\text{inf flow, MG/month} \times 8.34 \times \text{inf TSS, mg/L}) + (\text{hauler flow, MG/month} \times 8.34 \times \text{hauler TSS, mg/L}) - (\text{eff flow, MG/month} \times 8.34 \times \text{eff TSS, mg/L}) - \text{baseline TSS removal, lb/month}]$

Influent flow = direct measured effluent flow – hauler flow – estimated stormwater flow, 1,195 gal/month – estimated potable water flow, 800,000 gal/month

Effluent flow is directly measured by Parshall flume

Hauler flow is tracked by shed operator daily

Stormwater is estimated at 14,340 gal/yr = 1,195 gal/month

Potable water is estimated at 800,000 gal/month

Influent TSS is measured by daily flow proportional composite sampler at MH 6

Hauler TSS is measured by daily flow proportional composite sample of all trucks

Effluent TSS is measured by daily flow proportional composite sampler at the plant effluent

Baseline TSS removal is per contract at 6,975,000 lb/yr = 581,250 lb/month

Example:

$TSS\ UCR = \$0.0838 \times [((101\ \text{MG/month} - 3.8\ \text{MG/month} - 0.001195\ \text{MG/month} - 0.8\ \text{MG/month}) \times 8.34 \times 400\ \text{mg/L}) + (3.8\ \text{MG/month} \times 8.34 \times 13,100\ \text{mg/L}) - (101\ \text{MG/month} \times 8.34 \times 15\ \text{mg/L}) - 581,250\ \text{lb/month}] = \$11,972/\text{month}$

4.  $TKN\ UCR = \$0.2886/\text{lb rem} \times [(\text{inf flow, MG/month} \times 8.34 \times \text{inf TKN, mg/L}) + (\text{hauler flow, MG/month} \times 8.34 \times \text{hauler TKN, mg/L}) - (\text{eff flow, MG/month} \times 8.34 \times \text{eff TKN, mg/L}) - \text{baseline TKN removal, lb/month}]$

Influent flow = direct measured effluent flow – hauler flow – estimated stormwater flow, 1,195 gal/month – estimated potable water flow, 800,000 gal/month

Effluent flow is directly measured by Parshall flume

Hauler flow is tracked by shed operator daily

Stormwater is estimated at 14,340 gal/yr = 1,195 gal/month

Potable water is estimated at 800,000 gal/month

Influent TKN is measured by daily flow proportional composite sampler at MH 6

Hauler TKN is measured by daily flow proportional composite sample of all trucks

Effluent TKN is measured by daily flow proportional composite sampler at the plant effluent

Baseline TKN removal is per contract at 290,000 lb/yr = 24,167 lb/month

Example:

$TKN\ UCR = \$0.2886 \times [((101\ \text{MG/month} - 3.8\ \text{MG/month} - 0.001195\ \text{MG/month} - 0.8\ \text{MG/month}) \times 8.34 \times 20\ \text{mg/L}) + (3.8\ \text{MG/month} \times 8.34 \times 1,100\ \text{mg/L}) - (101\ \text{MG/month} \times 8.34 \times 15\ \text{mg/L}) - 24,167\ \text{lb/month}] = \$4,080/\text{month}$

### Monthly Invoices

Monthly invoices for the Flow and Load Adjustment Elements are based on a monthly estimate with yearend reconciliation as established in Section 5.1. An Excel spreadsheet is submitted to LCA each month after lab data is obtained for the composite samples that shows these calculations. Backup information on flows and lab data is



recorded in Op10, which can also be submitted with the monthly UCR calculations. Further backup is of course available in the form of lab bench sheets, chart recorders, and hauler manifest sheets.

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**Appendix L**

**EXAMPLE DOCUMENTATION OF ANNUAL SERVICE FEE CALCULATION**



Escalation Calculation				
AFn = (0.7 x .003) + (0.3 x .027)				
AFn = 1.06%				
August 2015 CPI =		244.519		
August 2016 CPI =		245.367		
(245.367-244.519) / 244.519 = 0.00347				
Qtr2 2016 ECI Change = 0.02735				
Electric Bill New 87,622.19				
Electric Bill Old 88,891.57				
EAF -1.30%				
		CY23	Escalation	CY24
Base Element	\$	2,447,429.3	\$ 25,942.8	\$ 2,473,372.03
Electricity Element	\$	762,400.9	\$ (9,935.7)	\$ 752,465.25
Total Fixed Fee	\$	3,209,830.2	\$ 16,007.1	\$ 3,225,837.28
Flow*	\$	0.2683	\$ (0.003)	\$ 0.2648
BOD**	\$	0.0555	\$ 0.001	\$ 0.0561
TSS**	\$	0.0919	\$ 0.001	\$ 0.0929
TKN**	\$	0.3164	\$ 0.003	\$ 0.3198
*Flow Adj Element escalated by EAF				
**Loading Adj Elements escalated by AFn				
Total 2016 Base Fee				
Fixed Fee	\$	3,225,837.3		
Estimated UCR	\$	1,108,892		
Repairs	\$	1,500,000		
Total	\$	5,834,729		

CY24 Delta Above Baseline - Based on CY23 (Jan thru Aug Run Rate)			CY24 UCR Estimate
694,035,000	gals	\$	183,783
9,715,998	lbs	\$	544,954
3,492,881	lbs	\$	324,398
174,374	lbs	\$	55,757
			\$ 1,108,892

**Appendix M**  
MEMORANDUM OF UNDERSTANDING FOR GUARANTEED COST SAVINGS  
PROJECTS



## Lehigh County Authority Pretreatment Plant

### Guaranteed Cost Savings Memorandum of Understanding

The purpose of this document is to establish the agreement between CH2M and LCA for the guaranteed cost savings to be implemented as a part of this project. Some of these projects require capital investment by CH2M to implement. The subsequent pages detail the scope and limitations of each of the proposed items:

- Implementation of Sludge Conditioning (Orege®) for dewatering improvements
- Implementation of VFDs for selected aeration deck mixers
- Hypochlorite system improvements/optimization
- Value Added Services for sampling and operations

The proposed savings and the start year of such savings are shown in Table 1. The items will show up as a monthly credit on each invoice to LCA (annual value pro-rated over 12 months), except for the value added services that would no longer be billed monthly to LCA. The 2017 savings/reduced billing would begin on the month of the contract execution. Annual guaranteed savings would be escalated each year by the agreed-to AFn.

Table 1. LCA Guaranteed Savings Projects

Project	Description	Annual Guaranteed Savings	Year Savings Would Begin
Orege Dewatering Improvements	Install and operate Orege sludge conditioning to increase dewaterability and reduce solids disposal costs.	\$30,000	2017
Aeration Deck Mixers	Install new motors and VFDs on selected mixers to reduce energy costs	\$20,000	2019
Hypochlorite System Improvements	Optimize hypochlorite usage with chemical feed equipment and system changes.	\$10,000	2017
Value Added Services	No longer bill LCA for out of scope items related to FEB and additional sampling requested	\$13,000 (estimated)	2017
<b>Total</b>		<b>\$73,000</b>	

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Name, Title

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Signature

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Date

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Name, Title

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Signature

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Date

### Project: Implementation of Sludge Conditioning (Orege®) for improvements in Dewatering performance

**Scope:** Install and operate the Orege sludge conditioning unit of BFP-3 to reduce polymer use and/or increase cake solids from the BFP. Increase of cake solids percent will decrease disposal costs. All installation and O&M costs for the unit are borne by CH2M.

**Financial:** CH2M will provide a \$30,000 per year credit to LCA to account for 50% or more of the projected operational cost savings achieved starting January 1, 2017. CH2M's payback period is estimated at 8 to 9 years for the capital project.

**Project Status:** Orege system has been operational since 2016 but was being optimized during that time. In 2017, system appears to operate well, and increases are being seen in cake solids percentage. If successful, consideration will be given to additional Orege® installations. Shared savings for any new Orege® units would be negotiated between LCA and CH2M at that time.

### Project: Implementation of Variable Frequency Drives (VFDs) on selected existing aeration deck mixers

**Scope:** Install new high-efficiency motors and VFDs on Stages 2 and 4 of the aeration decks to reduce energy consumption during low organic demand periods. The scope of work from CH2M would include:

- Removal and disposal of existing motors for Stage 2 and Stage 4 of the AO decks
- Installation of new 125 HP inverter duty, horizontal motors (6 total) for Stage 2 and new 50 HP inverter duty, horizontal motors (6 total) for Stage 4 mixers
  - Motors shall be mounted to existing mixer gearboxes
  - Motors shall be factory finished in a color matching existing motors/gearboxes
  - Motors shall include thermal protection.
- Inspection of the mixing blades, shafts and gear boxes in each stage (1 through 4)
- New Variable Frequency Drives (VFD) in outdoor rated cabinets adjacent to the new motors on the deck (12 total)
  - VFDs and Motors shall be factory tested prior to installation.
  - VFDs and motors will be compatible systems
  - Operator interface on VFD panel shall include the ability to control, at a minimum, the following features
    - START/STOP (LOCAL CONTROL)
    - SPEED (LOCAL CONTROL)
    - LOCAL/REMOTE/OFF
    - Monitor Speed, Run Status, and Fault Codes
- VFDs will have connectivity to proposed SCADA for reporting and control, including as a minimum:
  - Run command
  - Speed command
  - Run feedback

- Speed feedback
- Fault
- New dissolved oxygen (DO) instruments at the end of Stage 2 and Stage 4 cells to provide feedback control to SCADA for changing the mixer speed to a target DO. Twelve (12) total probes to be provided
  - Probes shall be mounted through the concrete decking.
  - Dual channel controllers shall be provided for each train (6 total).
- All electrical wiring and conduit to connect the power to the VFDs and motors
- All control wiring between the VFD and motor
- All control wiring between the DO probes and the DO controllers.

Scope to be performed by OTHERS than CH2M:

- *Wiring from VFDs and instruments to the plant SCADA*
- *SCADA programming*
- *Mixing blades, shafts, and gearbox repair/replacement*
- *Replacement of the existing MCC (if needed) due to age/condition*

**Financial:** CH2M will provide a \$20,000 per year credit to LCA to account for projected electrical cost savings starting January 1, 2019. CH2M's payback for this project is estimated at 11 years, or the length of the term of the proposed contract extension (to Dec 31, 2028).

**Project status:** No work has begun on this project. Work would commence upon a signed contract extension with LCA and be completed by 2018. Work would be coordinated and integrated with LCA's planned SCADA project at the PTP.

### Project: Hypochlorite System Improvements

**Scope:** Evaluate current hypochlorite system feed and residuals to odor control towers. Make improvements where needed to reduce usage.

**Financial:** CH2M will provide a \$10,000 per year credit to LCA to account for a portion of the expected reduction in chemical usage starting January 1, 2017.

**Project Status:** Initial feed rates reduced in 2016 to optimize what is currently in place. Expected to examine feed pumps and piping system in 2017 to determine if additional efficiency can be achieved. Any new capital costs for modifications to the existing hypochlorite feed system piping will be evaluated and negotiated with LCA to the extent an additional return on investment can be realized.

### Project: Value-Added Services for Sampling and Operations

**Scope:** CH2M currently charges LCA for several items as "extraordinary items" that would now be included in the existing base fee. This would include:

- FEB Tank Normal Operating Cost- Electrical and man-hours



- Additional sampling for Ocean Spray Industry
- Waste Receiving Station Electrical costs

**Financial:** CH2M will no longer charge LCA for the three items listed above as “extraordinary items” under the contract. In 2015 this totaled \$14,300, and in 2016 this totaled \$12,100. These charges will be eliminated upon contract exe

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**Appendix N**

**EXAMPLE ELECTRICITY  
ADJUSTMENT FORMULA**

Old Bill	New Bill
Jul 22- Aug 21 2015	Jul 22- Aug 22 2016

2038

	2022	2021
\$	169.80	\$ 169.80
\$	4,334.83	\$ 5,190.79
\$	0.89	\$ 9.40
\$	1,881.77	\$ -
\$	(5.43)	\$ (0.80)
\$	0.04	\$ 0.02
\$	178.21	\$ -
\$	44.52	\$ (15.24)
\$	6,604.62	\$ 5,353.97

-626.14

At the conclusion of the Phase 2 EE&C Plan on May 31, 2016, collections under the ACR 2 for each customer class will be reconciled to the total cost of the EE&C Plan allowed by the Commission for that customer class. Overcollections or undercollections will be reflected in the E factor, defined above, and will be refunded or recovered through application of the ACR 2 E factor through May 31, 2017. If any over/under collection balance is expected to remain after May 31, 2017, the collection period may be extended beyond May 31, 2017 to ensure the balance is eliminated.

-18.94%

## kw

1227600

\$ 58,752.94	\$ 58,752.94
\$ 3,240.86	\$ 3,240.86
\$ 4,886.66	\$ 4,886.66
\$ 7,576.80	\$ 7,559.20
\$ 1,833.09	\$ 1,833.09
\$ 1,141.67	\$ 1,141.67
\$ 4,854.93	\$ 4,853.81
\$ 82,286.95	\$ 82,268.22

new MidAmerican rate	0.04786
new monthly bill at new rate	\$ 58,752.94

-0.02%

-1.43%

% of total bill	% of total bill	% Reduction	% Reduction of Total
7.43%	6.11%	-18.94%	-1.282%
92.57%	93.89%	-0.02%	-0.021%

Overall rate change	-1.30%
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## Appendix O

### **Memorandum of Understanding for Hauler Program Update**

## Lehigh County Authority Pretreatment Plant

### Waste Hauler Program Memorandum of Understanding

The purpose of this document is to establish the framework for the management and administration of the revised hauler program for the LCA pretreatment plant between CH2M and LCA. This document will be further detailed in a final hauler program manual that will be completed and approved by both parties prior to October 1, 2017.

The documents attached to this memorandum of understanding provide agreed-to workflow and delegation of responsibilities in accordance with current contractual requirements and documents under development. The key documents that are currently under development include revised applications/permits for waste haulers, and new applications/permits for high-impact special wastes. Until the time that the hauler program documents are fully complete and accepted, CH2M will not accept any EPA-designated categorical wastes at the PTP without written authorization to accept and relief from liability from LCA.

_____	_____	_____
Name, Title	Signature	Date

_____	_____	_____
Name, Title	Signature	Date

## WASTE HAULER PROGRAM DEFINITIONS/ABBREVIATIONS

CoA: City of Allentown

CH2M: Contract Operator of LCA Pretreatment Plant

LCA: Lehigh County Authority, owner of Pretreatment Plant, Operator of City of Allentown Kline's Island Wastewater Treatment Plant

PTP: Pretreatment Plant

IWM: Industrial Waste Manager employed by the Lehigh County Authority who manages the Industrial Waste Program for the City of Allentown Kline's Island Wastewater Treatment Plant

Waste Hauler: the entity who owns and operates the trucks bringing waste to the PTP

Waste Generator: The entity who generates the waste

Standard Waste: These are waste streams that are very low risk for impacts to the PTP operation or compliance based on typical waste characteristics.

High Impact Special Waste: A waste categorized to have a significant potential risk to the PTP performance and compliance based on typical waste characteristics. This includes non-categorical and categorical waste generators.

Categorical Industry: An industrial user subject to national categorical pretreatment standards and permitted by the City of Allentown Pretreatment program.

Site Code: The identifying number of a High Impact Special Waste referring to the generator.

Hauler Permit: A permit issued to the hauler of wastes.

Generator Permit: A PTP permit issued to the generator of a waste.

Maximum Allowable Hauled Influent Limits (MAHIL): The estimated maximum load of a pollutant that can be received at PTP headworks from all waste haulers without causing pass through or interference.

Uniform Concentration Limit (UCL): Limits established through a maximum allowable headworks loading calculation and applied consistently to every waste being accepted at the PTP.

## WASTE HAULER PROGRAM BACKGROUND AND CATEGORIZATION

The waste hauler program receives wastes from a variety of sources in the geographic area, from local septage to industrial and commercial waste streams. At present, the approval to discharge these wastes at the LCA PTP is granted in the individual hauler permits.

The revised hauler program will include re-classification of the waste streams/types into two major categories:

- Standard wastes: These are waste streams that are very low risk for impacts to the PTP operation or compliance. These are typically from septic, holding tanks, municipal sludges, and car washes.
- Special wastes: These are waste streams that present the highest risk to the performance and compliance of the PTP. These require additional monitoring and may require permitting of the generator of these wastes. These are typically industrial wastes, industrial sludges, landfill leachate, and any EPA-designated categorical waste.

As a part of the revised hauler program, LCA staff will assist CH2M in evaluating existing haulers to identify if any categorical wastes are currently discharged to the PTP. In the event that an existing hauler is identified as currently discharging categorical wastes at the PTP, LCA and CH2M agree to evaluate the hauler and generator jointly to determine if the discharge can continue until such time that the new application/permits are implemented. However, CH2M bears responsibility for all hauled waste under the terms of the current operations contract until such time that all waste haulers and generators have new applications/permits in place as a result of the new program.

Table 1 lists the Waste Types/categories, and the minimum sampling parameters and frequency for each category of waste. CH2M at its discretion may choose to sample these categories more frequently at no additional cost to LCA. CH2M laboratory will perform basic testing under 40 CFR Part 136 and follow procedures listed in Standard Methods Online Version. Metals testing will be completed by an outside accredited laboratory.

For the standard wastes, no generator permit will be required. A new hauler permit, being developed by LCA, will be issued before the end of 2017 for all haulers that are currently permitted in the system. Existing hauler permits will be administratively extended until the time when a new hauler permit application and permit is finalized.

**Table 1- LCA PTP Waste Categories and Sampling Frequency**

					Sample Frequency		
Waste Class ID	Category	Subcategories	Site Code required?	Parameter	Daily	Quarterly	Annually
STANDARD							
1	Holding	Includes both domestic and commercial	No	pH	1		
2	Septic			pH	1		
3	Domestic Wastes	Municipal- sludges, influent, effluent	Yes	pH	1		
				Metals			1
				Basic			1
7	Grease Traps	Grease Traps	No	pH	1		



8	Portable Toilets	Portable Toilets	No	pH	1		
9	Car Wash	Car wash- domestic and commercial	No	pH	1		
<b>SPECIAL WASTE</b>							
4	Industrial WW	Food Processing	Yes	pH	1		
				Basic			2
		Manufacturing Process Wastes Laundry	Yes	pH	1		
				Metals			2
				Basic			2
5	Industrial Sludges	Paper Mill sludge Food processing sludge	Yes	pH	1		
				Metals			2
				Basic			2
6	Miscellaneous	Leachate/Landfill	Yes	pH	1		
				Metals			2
				Basic			2
11	Categorical	EPA Parts 405-471	Yes	pH	1		
				Metals		1	
				Basic		1	

## HIGH IMPACT SPECIAL WASTES

Any hauled waste that is designated as a Special Waste will require new permits for the generator. Depending on whether the waste is a categorical waste, or non-categorical, will define the specific permitting procedures/requirements for the generator. To establish reasonable, protective limits for metals, an analysis was done of the allowable headworks loading to the entire PTP, and then subdivided into what is allowable for the hauled waste portion. This establishes the MAHIL in lbs/day for all hauled wastes. For simplicity, a uniform concentration limit (UCL) was established for all industrial users to meet for 11 metals. Under most circumstances, if a waste stream cannot meet these UCL limits, the waste stream will be rejected for hauling to the PTP.

The PTP may, in certain circumstances, waive the UCL limit. In the case of any special waste stream that is above the UCL concentrations and requires a special approval, at a minimum, a semi-annual analysis will be completed by CH2M to re-assess the potential risk of continued receipt of the waste. If the receipt of the waste stream, along with other current hauled wastes, exceeds 75 percent of the MAHIL, CH2M reserves the right to suspend the generator from continued disposal for at least one month.

<b>Table 2 –Limits for Metals for LCA PTP Hauled Wastes</b>		
<b>Metal</b>	<b>MAHIL (lbs/day)</b>	<b>UCL (mg/L)</b>
Arsenic	0.55	0.44
Cadmium	0.70	0.56
Chromium	30.02	24.00
Copper	28.96	23.15
Lead	5.33	4.26
Mercury	0.30	0.24
Molybdenum	2.95	2.36
Nickel	3.19	2.55
Selenium	1.78	1.42
Silver	10.64	8.51
Zinc	42.12	33.67

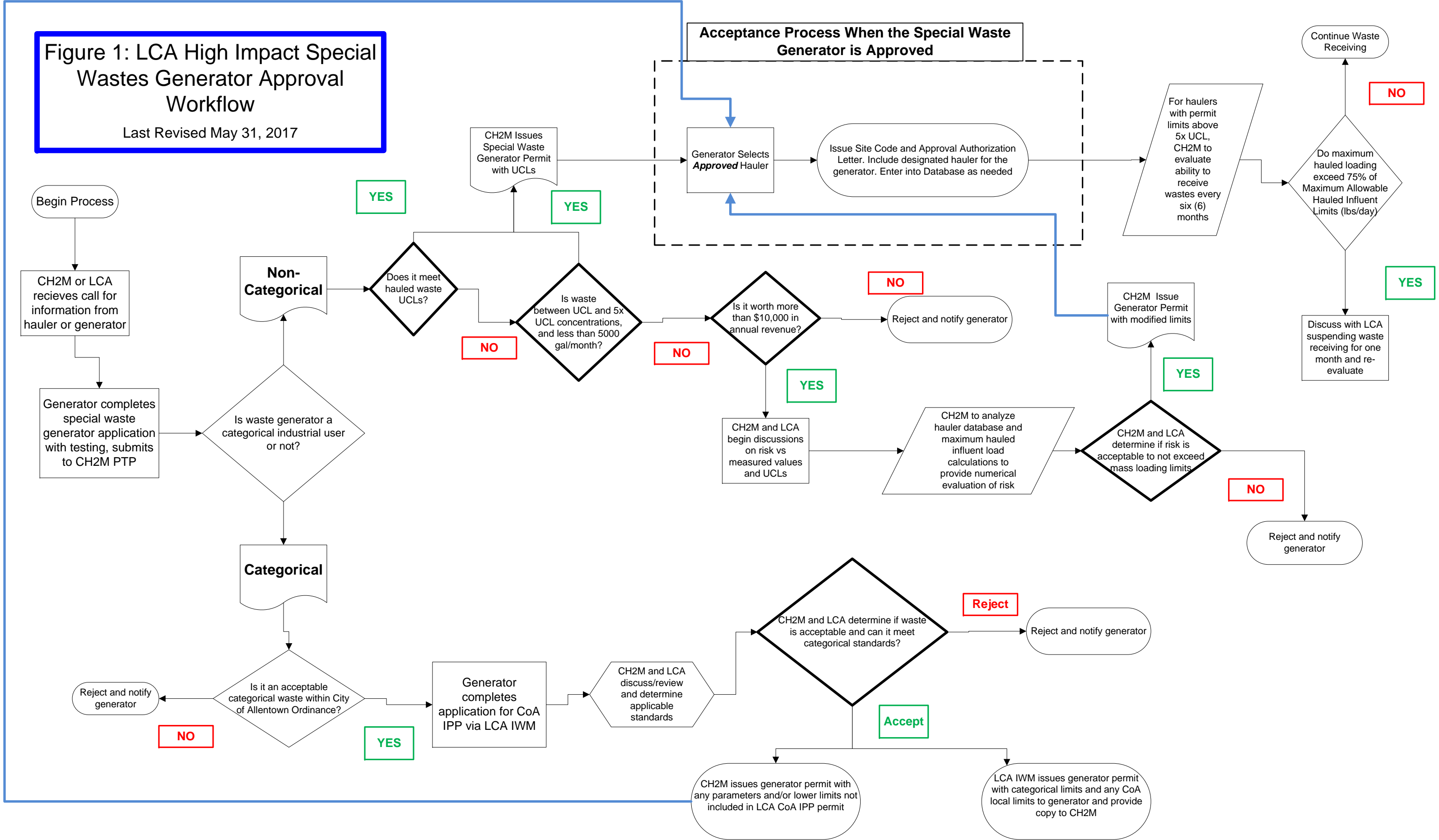
As described below and in Figure 1 (attached) is the “LCA Special Wastes Generator Approval Workflow” which defines the roles, responsibilities, and process by which these wastes will be reviewed and approved by CH2M and LCA. Several key issues are addressed by this workflow:

- 1) Non-categorical users who may be above the UCLs but are of a very low volume (and therefore low loading) could still be allowed to dispose of waste at the PTP
- 2) Non-categorical users that are more than 5x the UCL but are worth significant revenue will be reviewed jointly by CH2M and LCA to determine if risk is manageable
- 3) Categorical users will require permits from LCA IWM (for CoA pretreatment program) and from LCA PTP/CH2M.

Any categorical user identified and permitted by LCA IWM will have specific parameters identified for monitoring per EPA’s Industrial Pretreatment requirements. Any parameter listed in a categorical user permit from the LCA IWM that discharges to the PTP in a given month shall also be monitored in that month’s sample from the PTP effluent to the Kline’s Island WWTP.

Figure 1: LCA High Impact Special Wastes Generator Approval Workflow

Last Revised May 31, 2017



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## MEMORANDUM

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**Date:** September 11, 2017

**To:** Lehigh County Authority Board of Directors  
**From:** Phil DePoe, Capital Works Program Manager  
**Subject:** Allentown Division  
Kline's Island WWTP Phase 1 AO Improvements: Design Phase

Since the August 14, 2017 Board meeting, the Lehigh County Authority and the City of Allentown teams working on the response to the EPA Administrative Order to eliminate sanitary sewer overflows have continued to discuss methods to achieve the following related goals:

1. Receive a final regulatory determination on the blending option for upgrades to the Kline's Island Wastewater Treatment Plant in a timely manner.
2. Minimize cost exposure for designing blending facilities that may ultimately not be allowed.

As a result of these discussions, an approach has been suggested to follow a parallel path as follows:

- **Regulatory / Legislative Outreach:** LCA and the City will engage in timely discussions with appropriate Pa. legislators and regulatory agency administrators to seek a formal / official written determination on blending.
- **Design of Blending:** Regulators have advised the City that no formal / official written determination on blending will be provided without a permit application for blending facilities, and the only way to develop a permit application is to design the facilities. Therefore, the City has directed LCA to move forward with the design of blending facilities, and LCA has asked the consulting engineer to revise their proposal to allow for work to stop at key check-points if the Regulatory / Legislative Outreach approach described above is successful in securing an official written determination on blending.

On September 1, 2017, Kleinfelder (KLF) provided a revised proposal which included the following language:

- This proposal has been revised to indicate that KLF's design activities can be paused at three (3) different times during the design process (i.e., at the 30%, 60% and 90% completion points) if correspondence is received from the EPA or the PADEP indicating that blending will not be approved. KLF will not increase its design fee as a result of a pause in the design process during which blending approval is further pursued. In addition, if a decision is ultimately made to permanently cancel further design work related to blending, KLF will not request compensation for canceling the balance of the design.

In addition, based on the detailed task list included in the KLF proposal, the following chart shows the cost exposure for each phase of design work to be completed in between each “pause”:

Bring the Drawings/Specs (HVAC, electrical, survey, structural, etc.) to 30%	\$300,000
Bring the Drawings/Specs from 30% to 60%	\$250,000
Bring the Drawings/Specs from 60% to 90% (includes Part II DEP submission)	\$250,000
Bring the Drawings/Specs from 90% to 100% bid ready (includes final permits, etc.)	\$74,620
<b>Total Design Cost</b>	<b>\$874,620</b>

LCA’s cost exposure for this work as it relates to the Western Lehigh Interceptor and its signatories is 27% of the costs noted above.

LCA staff recommends approval of the Kleinfelder design contract based on the revisions noted above, and contingent upon LCA’s active participation in efforts to pursue the parallel path described above to achieve the goal of receiving a definitive regulatory determination in a timely and cost-effective manner.

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## MEMORANDUM

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**Date:** September 11, 2017

**To:** Lehigh County Authority Board of Directors  
**From:** Phil DePoe, Capital Works Program Manager  
**Subject:** Allentown Division  
Kline's Island WWTP Phase 1 AO Improvements: Design Phase

**MOTIONS / APPROVALS REQUESTED:**

No.	Item	Amount
1	Professional Services Authorization Amendment No. 2 – Kleinfelder (1)	\$874,620

*(1) Does not include bid or construction phase related engineering services.*

**PROJECT OVERVIEW**

To provide a brief background of this project regarding Kleinfelder's services to date:

- Kleinfelder was tasked by the City, via LCA, to prepare a conceptual design report describing the proposed Phase 1 Administrative Order (AO) upgrades at the Kline's Island Wastewater Treatment Plant (KIWWTP). This work was to include conceptual design of two options to address treatment of peak wet-weather flows and eliminate the use of Outfall 003 at the plant:

**Flow Equalization** – This option includes the construction of large holding tanks that would capture some of the peak wet-weather flows and hold it for future release through the treatment plant.

**Blending** – This option includes construction of additional treatment facilities and tanks within the treatment process directly to divert the peak flows through an alternate treatment process, with all treated waste blended in the disinfection phase of treatment prior to final discharge such that discharge permit limits would continue to be met.

LCA's Board approved Kleinfelder's contract for this work in December 2016.

- In February 2017, the LCA Board approved a contract amendment for Kleinfelder to expand their scope of services, at the City's direction, to include a preliminary design to extend the Park Pump Station force main to a new termination point at the KIWWTP.
- In June 2017, LCA, the City, and Kleinfelder met to discuss the draft version of the conceptual design report. Internal LCA comments on this report were delivered to Kleinfelder in early July.
- In late July 2017, LCA received the final conceptual design report from Kleinfelder. This conceptual design report was much further advanced with the design than anticipated (detailed drawings, detailed hydraulic calculations, detailed construction cost estimate). While conceptual design is typically expected to bring the engineering design level to

about 10% completion, LCA engineers estimate the Kleinfelder work has achieved a 30% design completion status for the process/mechanical drawings.

### **CITY DETERMINATION OF PATH FORWARD**

Kleinfelder's conceptual design report provided detailed review of environmental, permitting, construction, operational and other cost factors associated with both the flow equalization and blending options. The flow equalization option estimated construction cost is \$54.7 million for both Phase 1 and 2 work. The total construction cost of the blending alternative of \$26.4 to \$28.7 million for both phases of work. Per Kleinfelder's report, there are no measureable water quality benefits of flow equalization versus blending. Operational and other long-term benefits were identified with the blending alternative, including:

- Preservation of limited land at the KIWWTP site for future treatment needs
- Operational flexibility during normal plant operations to use additional treatment facilities during maintenance and repair activities
- Enhanced capacity to address peak flows generated in the event of back-to-back storms

In late July 2017, the City of Allentown directed LCA to proceed with developing a final design of the blending alternative, Phase 1 work only, requiring the services of a professional engineering firm to complete this work.

### **CONSULTANT SELECTION PROCESS**

Upon review of the advanced design work already completed by Kleinfelder and the intimate knowledge the firm has developed of the KIWWTP facility, operation and permit requirements, the City and LCA staff agreed that Kleinfelder is uniquely qualified to complete the final design work of the Phase 1 portion of this work. Following discussion, the City directed LCA to obtain a cost proposal from Kleinfelder for design services.

On August 2, 2017, Kleinfelder provided a design services proposal for this project. The price of their services (\$874,620) is 4.8% of the estimated construction cost of \$18 million, well below the industry standard of 8-12%. In addition to the cost proposal, Kleinfelder provided a listing of 138 drawings that will be needed for this project, which they will develop as part of their scope of work.

Due to their expertise, as illustrated in their highly advanced work in developing the conceptual design report, Kleinfelder is recommended for these final design services described below.

### **DESCRIPTION/SCOPE OF WORK**

The proposed Phase 1 AO improvements at the KIWWTP to be included in this design work will include:

- Extension of the Park Pump Station's Little Lehigh Relief Force Main to the KIWWTP.
- Increase in the firm capacity of the Main and Auxiliary Pump Stations to 99 MGD (or nominally greater) such that a total flow of 120 MGD can be conveyed to the KIWWTP.

- Correction of a hydraulic bottleneck in the force main from the Main and Auxiliary Pump Stations.
- A new fine-screening facility for the unscreened flow from the Park Pump Station and the coarsely screened flow from the Main and Auxiliary Pump Stations.
- A new aerated grit chamber.
- Three new primary clarifiers.
- A primary sludge and scum pump station.
- Two (2) additional effluent pumps.
- New large diameter piping and miscellaneous valve chambers
- Related electrical and instrumentation improvements.

Kleinfelder will utilize the following subconsultants in executing the project:

- Arthur A. Swallow Associates for survey work
- Keystone Engineering Group for electrical, instrumentation, and HVAC design services (also involved with on-going electrical substation design at the WWTP)
- Whitman Requardt and Associates (WR&A) for structural and architectural design services.

Kleinfelder's proposed scope of services consists of the following tasks:

- Task 1 – Preliminary Design
- Task 2 – Final Design
- Task 3 – Permitting Assistance
- Task 4 – Meetings and Site Visit
- Task 5 – Project Administration and QA/QC

### **FINANCIAL**

The project is an Administrative Order (AO) Project and will be funded by the City.

### **PROJECT STATUS**



Pending Board approval of the design services contract.

#### **THIS APPROVAL - DESIGN SERVICES**

Because this is an AO Project funded and authorized by the City, LCA approvals are limited to selection of appropriate contractors to complete the work that has been authorized by the City.

For this design work, LCA intends to retain the services of Kleinfelder to provide the design related services. The following table summarizes the professional services to be performed under this design phase:

<b>Professional Services <sup>(1)</sup></b>
1. Prepare preliminary design drawings
2. Perform survey and geotechnical investigations
3. Prepare Design Engineer's Report, update the construction cost estimate, and submit the PA DEP Part II Permit
4. Prepare final design contract documents and other regulatory permits as necessary
5. Attend meetings and make site visits as necessary

*(1) For Design Phase Services Only.*

#### **PROJECT SCHEDULE**

The project is anticipated to begin design by September 2017. The project is anticipated to be bid ready by the beginning of August 2018 with an anticipated project completion date of October 2020.

#### **FUTURE AUTHORIZATIONS –BID AND CONSTRUCTION PHASE**

After the final design report is received (estimated August 2018) future approvals may be required for bid and construction related services and contracts.



**Lehigh County Authority**

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

**PROFESSIONAL SERVICES AUTHORIZATION  
AMENDMENT NO. 2**

**Professional:** KLEINFELDER EAST, INC.  
321 Wall Street  
Princeton, NJ 08540

**Date:** September 11, 2017

**Requested By:** Phil DePoe

**Approvals**

**Department Head:** \_\_\_\_\_

**Chief Executive**

**Officer:** \_\_\_\_\_

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

In addition to the previously approved Phase 1 AO Improvements Conceptual Design, KLEINFELDER will develop the final design documents for the Phase 1 AO Improvements at the Kline's Island Wastewater Treatment Plant (KIWWTP).

**This Authorization** (Professional Services Authorization Amendment No.2): **\$874,620**

<b>Professional Services <sup>(1)</sup></b>
1. Prepare preliminary design drawings
2. Perform survey and geotechnical investigations
3. Prepare Design Engineer's Report, update the construction cost estimate, and submit the PA DEP Part II Permit
4. Prepare final design contract documents and other regulatory permits as necessary
5. Attend meetings and make site visits as necessary

*(1) For Design Phase Services Only.*

Please reference the cover Memo for additional information.

**Previous Authorizations** (Conceptual Design Development): **\$219,020**

**Total Authorization** (not to be exceeded without further authorization): **\$1,093,640**

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

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(For Authority Use Only)

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**FINANCE & ADMINISTRATION****ACTION ITEMS**

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**DISCUSSION ITEMS**

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**1. 2018-2022 Capital Plans – September 11 & 25, 2017**

The draft Capital Plan for the Suburban Division and Allentown Division were distributed to the board on August 14, 2017, and at the Board meeting on August 28, 2017 the presentation of the draft plan was conducted. Copies of the draft plan were also distributed for review and comment to the County, LCA signatories, Lehigh Valley Planning Commission and City of Allentown. Written comments are to be summarized for the Board at the September 11, 2017 meeting, and approval of the Capital Plan is be requested at the September 25, 2017 meeting.

**2. 2018 Preliminary Budget – September 25, 2017**

A preliminary look at the 2018 Operating budget will be presented. This will be a summary look at the net income and cash flows for each of the three funds based upon the effect of the assumptions used on a comparative basis to the 2017 third quarter forecast. This presentation will provide a lead in to the preliminary budget review in October.

**3. 2018 Western Lehigh Rates – September 25, 2017**

The WLI User Rates will be presented to the Board for review and comment. The Rates will be approved as part of the 2018 budget.

**4. Suburban Water Rate Study – September 25, 2017**

The Authority's rate consultant will be available in September to review the water rate study parameters and assumptions with the Board, followed by presentation of the results prior to final completion of the 2018 budget.

**INFORMATION ITEMS**

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

CERTIFICATES OF DEPOSIT						
24-Jul-17						
Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
LLRI CR	American Commerce Bank, National Assn	Bremen, GA	245,000.00	7/7/17	4/8/19	1.50
LLRI CR	First National Bank of Omaha	Omaha, NE	245,000.00	7/12/17	7/12/19	1.65

Cons Wtr (2)

LLRI CR

Cons LL2 (314)

WW Capac

2010 Wtr Cons A

Wtr R&amp;R

Consolidated Water (2)

Little Lehigh Relief Interceptor Capital Reserves

Consolidated Little Lehigh Relief Interceptor 2

Wastewater Capacity

2010 Water Construction, Series A Bond

Renewal and Replacement

## WATER

### **ACTION ITEMS**

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### **DISCUSSION ITEMS**

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1. **Allentown Division – Water System Master Plan – September 11, 2017**

This project kicked off in May 2016 and involved the creation of a Master Plan for the Allentown Division water system including the water filtration plant, water storage tanks, reservoirs, pressure booster stations, raw water springs and surface water intakes. The planning process included condition assessments of the assets, evaluation of treatment process optimization, and development of a capital improvements plan in both short-term and long-term time horizons. The projects outlined in the plan within the 0-5 year timeframe have been incorporated into the Authority's draft 5-year Capital Plan. The Master Plan is a requirement included within the City of Allentown lease, and will be updated every 5 years throughout the life of the lease. Project consultants from Arcadis will be available at the September 11, 2017 meeting to provide a short presentation on the Master Plan process and results.

2. **Suburban Division – 2017 Water Meter Replacement Project – September 25, 2017**

The project consists of the replacement of approximately 2000 residential meters and 430 commercial meters as well as replacing "non-read meters with new transceiver units. Residential meters which are 20 years and older and commercial meters 15 years and older will be replaced. All meters will be upgraded to the most current radio read capability. This project was advertised in August 2017 and bids will be received on September 14, 2017. A recommendation for construction phase authorization will be requested at the September 25 Board meeting.

3. **Allentown Division – Schantz Spring Exposed Main Replacement – September 25, 2017**

This project will replace approximately 110 linear feet of the 30-inch diameter water main that supplies water from Schantz Spring to the Water Filtration Plant on the county's property at Cedarbrook where the line crosses a swale from I-78. The project will demolish the concrete culvert that carries the pipe over the swale and install a new pipe under the swale. The Public Water Supply Permit was issued by DEP in August 2017. The project will be funded by the LCA Allentown Division. Bids will be received on 9/20/17 and a recommendation for construction phase authorization will be requested at the September 25 Board Meeting.

### **INFORMATION ITEMS**

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1. **Allentown Division - Water Filtration Plant / Water Distribution: Flood Pump Replacement**

Upgrades to the existing stormwater pump/control for the WFP and D&C parking lot are needed due to equipment age. The existing flood pump (centrifugal) will be replaced with a new submersible flood pump. Miscellaneous electrical upgrades will also occur. In addition, a new raw water magmeter and two new chemical feed tanks will be installed at the Water Filtration Plant. Board Approval was granted at the January 23<sup>rd</sup> Board Meeting. Construction began in April of 2017 and completion is expected by the beginning of September 2017. This capital project is funded by the LCA Allentown Division.

2. **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 Design phase was approved at the December 2016 Board meeting. As of June 2, 2017 Gannett Fleming our Engineer has submitted their design of the relocation to the state and is awaiting their approval. It is anticipated that this work will be reimbursed 100% by the

state and that the construction related activities will be incorporated within the state's work. **(No Change)**

3. **Allentown Division – Pre-Lease Valve Replacements**

The project scope includes the replacement of approximately 50 inoperable valves in multiple locations throughout the City that existed prior to the lease settlement. The bid was authorized for award at the June 26, 2017 board meeting and construction is anticipated to begin in late August 2017. The project is classified as uncompleted work and will be funded by the City of Allentown. **(No change)**

4. **Allentown Division – Schantz Spring Main Replacement**

The project is the replacement of approximately 2,000 linear feet of 1903 vintage 30-inch diameter water main in Martin Luther King, Jr. Boulevard from the Water Filtration Plant heading towards Schribers Bridge. This project also includes addressing other leaks that were identified during the "SmartBall" leak detection work completed by the City of Allentown (COA). Bids were received on July 13, 2017. The Board approved the construction contract at the July 24, 2017 Board meeting, Notice to Proceed was issued August 29, 2017, and construction will begin in September 2017. This Project is identified as Schedule-7 Work and will be funded by LCA Allentown Division.

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

The project will feature the installation of a new booster pumping station and water main extension to pump water from the Lower Pressure System to the Upper Pressure System. The project will also involve installation of a SCADA system. Comments were returned on the Public Water Supply (PWS) permit application package received from the consultant. Design and permitting of the pump station will be completed by the end of 2017, and the station will be constructed in 2018 **(No Change)**.

6. **Suburban Division – Route 309 Crossing at Sand Spring Road**

A 12" water line will cross Route 309 through a previously installed 24" casing. Completion of this line will bring public water to the property line of Lehigh Carbon Community College. The design phase is completed. PennDot Highway Occupancy Permits have been obtained. An easement agreement was sent to LCCC for their signatures. The project is planned to be constructed as part of the 2017 Suburban Division main replacement project **(No Change)**.

7. **Suburban Division - Water Main Replacement Program Cycle 3**

The project consists of the replacement of approximately 1 mile of aged and/or failing Cast Iron water main. The design phase of this project was approved at the January 2015 Board meeting. Bids were received on July 13, 2017. The Board approved the construction contract at the July 24, 2017 Board meeting, Notice to Proceed was issued August 29, 2017, and construction will begin in September 2017.

8. **Suburban Division - Water Main Replacement Program Cycles 1 & 2**

The project consists of the replacement of 2.85 miles of aged and/or failing Cast Iron water main. The Construction phase was approved at the 4/11/16 Board meeting. As of late July 2017 Anrich Inc., our contractor has completed all punch list item deficiencies. LCA is under discussions with Anrich, Inc. to close out the project.

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 pump water from the Central Lehigh Division (CLD) to the 125-lot Kohler Tract subdivision in Upper Milford Township. We are preparing to make offers to property owners where easements are needed. Design of the pump station is under way and the Public Water

Supply (PWS) permit application package is being reviewed. Design of the water line will commence once the easements are obtained. **(No Change)**

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

This project was originally bid in July 2016 and bids were subsequently rejected due to the lack of competitiveness and significant exceedance of the engineer's estimate. The purpose of this project is to upgrade the original hydro-pneumatic well station (built in mid-1970s) to continue the level of service, replace aged and problematic equipment, reduce the probability and consequence of risk, and prolong the useful life of the station. The station is to be upgraded to a double pumping variable speed system with full SCADA telemetry. A pre-construction meeting was held in August and work is anticipated to begin in September

**11. Suburban Division – Asset Management Facility Upgrades**

Project includes the construction of improvements that were identified and prioritized in the Building Condition and Assessment Study prepared by D'Huy Engineering in accordance with LCA's asset management goal. The project scope includes structural, HVAC, and electrical/code improvements to be performed on facilities that were assigned a high risk score (high consequence and probability of failure). Nine (9) water facilities and two (2) wastewater facilities are part of the project scope. The project bids were opened on May 30, and authorization to award was given at the June 26, 2017 Board meeting. Construction is anticipated to be completed in early 2018. **(No Change)**

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

The project consists of abandonment of existing wells and storage tank currently serving higher elevation customers and a connection of the pumping station to the main North Whitehall Division System. The project will also involve installation of a SCADA system. The project bids were opened on July 7 and authorization to award was given at the July 24, 2017 Board meeting. Construction is anticipated to begin in October 2017 and be completed in early 2018.

**13. Suburban Division – Well Abandonments**

The project consists of the abandonment of six wells that are no longer used due to water quality issues: WL4, WL7, NL7, NL8, NL9, and NL10. Authorization to award a professional services agreement to ARRO Consulting Engineers was given at the July 24, 2017 Board meeting. Construction is anticipated to begin in September 2017 and be completed in early 2018. **(No Change)**

**14. Developments**

Water system construction is occurring in the following developments:

- Fields at Indian Creek, Phase 2, 35 private, age-restricted/senior residential units (sfd), UMiT, water & sewer
- Highgate, Phase 3 (Dunbar Tract) SF4/5, 17 residential lots (sfd), UMT
- Spring View (Bortz Tract), 14 commercial units, UMT
- Trexler Business Center, 1 Commercial Lot with 6 commercial buildings, LMT
- Trexler Fields, Phase 1B/8/9, 100 residential lots (sfa), UMT

Water system plans are being reviewed for the following developments:

- 67 Werley Road, 112 apartments & clubhouse, UMT
- Ciocca Audi, 1 additional commercial building at existing business, LMT
- Diocesan Pastoral Center, 2 commercial lots, 3 additional lots and residual lot for existing cemetery, LMT
- Farr Tract, 17 residential lots (sfd), LMT
- Grant Street Townes, 18 residential lots (sfa), WashT

Green Acres Mobile Home Court, master meter 590 existing units (sfd), UMT  
Hickory Park Estates, 3 residential lots (sfd), UMT  
Hillview Farms, 31 residential lots (sfd), LMT/SWT  
Indian Creek Industrial Park, 6 commercial lots, UMiIT, water and sewer  
Kohler Tract, 125 residential lots (sfa), UMiIT, water and sewer  
Lehigh Hills, Lot 5, Phase 1, 273 apartments & clubhouse, UMT  
Mary Ann's Plaza, 1 lot with 12 commercial units, NWT  
Morgan Hills, 40 residential lots (sfd), WeisT, water and sewer  
North Whitehall Commercial Center (Walmart), 5 commercial lots, NWT, water & sewer  
Schoeneck Road – Lot 1, 1 lot warehouse, LMT, water  
Shepherd's Corner, 1 commercial lot, LMT  
Stone Hill Meadows, Phase 2, 85 residential units (sfd), LMT  
Weilers Road Twins, 82 residential lots (sfa), UMT  
Woodmere Estates, 60 residential units (sfd), UMT

## **WASTEWATER**

### **ACTION ITEMS**

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**1. CH2M Contract Extension – September 11, 2017**

As discussed in September 2016, staff has engaged CH2M in negotiations for a contract extension for operations and maintenance (O&M) services at the Authority's industrial pretreatment plant in Fogelsville, PA. The contemplated contract extension makes use of provisions in the existing O&M contract that allow for extension through 2028, and adds provisions to enhance the Authority's ability to optimize treatment plant operations for improved performance or cost reduction. Additional details will be provided to the Board for review and approval in September following final legal review.

**2. Allentown Division – Kline's Island WWTP Phase 1 AO Design Improvements – September 11, 2017**

This project includes the design of the AO improvements at the wastewater treatment plant. This conceptual design concept has been approved by the City and the relevant final deliverables have been received by LCA. The City has 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. is being requested at the September 11, 2017 Board Meeting. The project is identified as Administrative Order Work and will be funded by the City. Construction is expected to begin in early 2019 and is expected to be complete in late 2020, subject to regulatory review and approval.

**3. Design Phase Change Order – Park Pump Station Upgrade – September 25, 2017**

This design phase change order requested by the design engineer (WRA) is to capture additional design scope items that were unforeseen at the commencement of design phase. These additional items include: evaluation of feasibility and cost of increasing station design capacity to 24mgd, in lieu of obtaining additional design capacity at KIWWTP in main pump station; existing and ultimate station capacity evaluation based on existing PPL service size; replacement of sump pumps, replacement of surge relief valve on force main; removal of well water supply system and connection with City water; replacement of all roof mounted exhaust fans; wet well level control system design revision for a new bubbler type control system, and supporting specifications for all changes. Approval of the change order will be requested at the 9/25/17 meeting.

### **DISCUSSION ITEMS**

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### **INFORMATION ITEMS**

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**1. Allentown Division – Manhole Collars with Water Tight Frame and Covers: Cycle 4**

This project will permanently secure the frame and cover of approximately 10 aged brick manholes identified by current LCA staff. This work will eliminate inflow from entering these manholes and eliminate the potential for sanitary sewer overflows (SSOs) from these manholes. A kick-off meeting has occurred with the City. Board approval for construction was granted at the June 26, 2017 Meeting. Construction began at the end of July 2017 and was completed in early August 2017. The project is identified as Administrative Order and will be funded by the City. This is the final cycle of the project.

**2. Allentown Division – Wastewater Treatment Plant: Digester Cover Replacements**

This project involves the cover replacement of both the Primary Digester No. 1 and the Secondary Digester (the cover for Primary Digester No. 2 was previously replaced in 2010). A Major Capital Improvement (MCI) Conceptual Design has been approved by the City. Board



approval of the construction phase was received at the 2/8/16 Board Meeting. The new Secondary Digester cover was installed in late October 2016 and its construction was completed in late February of 2017. The new Primary No. 1 Digester Cover is also now installed and is expected to be fully operational by October 2017. This Project is identified in the Lease as a Schedule 7 (required) project and will be funded by the LCA Allentown Division.

3. **Allentown Division – Wastewater Treatment Plant: WWTP Security Upgrades**

This project involves the installation of security related equipment upgrades at the Kline's Island Wastewater Treatment Plant (WWTP). Enhanced security will further reduce the risk of breaches that may impair the operation of the facility. Board Approval of the CoStars Agreement with Tyco (to purchase the security cameras, doors, etc. upfront) was granted at the January 23, 2017 Board Meeting. Approval of the electrical contractor to install the security equipment was granted at the May 22, 2017 Board Meeting. Construction of the project began in late July of 2017 and will be completed in late September. This Project is identified as an Uncompleted Work (UW) in the Lease Agreement and will be funded by the City of Allentown.

4. **Allentown Division – Wastewater Treatment Plant: Electrical Substation Replacements**

This project involves the replacement of the existing 12.4 kV Switchgear and existing Substation No. 1 and 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. Approval of the construction contract will be requested at the December 11, 2017 Board Meeting. Construction of the project is expected to begin in January of 2018 and be completed by early 2019. This Major Capital Project will be funded by the LCA Allentown Division.

5. **Allentown Division – Wastewater Treatment Plant: Miscellaneous Improvements**

In December 2016, the drive unit on Final Clarifier #5 at Kline's Island WWTP experienced a complete failure. The drive was the original unit that was installed during construction of the clarifier in 1968. An emergency declaration was declared to reduce the installation time by several weeks. A request for a retroactive emergency declaration was requested and approved at the January 9, 2017 Board meeting. The drive was installed in April 2017 and is now fully operational. The remaining mechanisms of Final Clarifier #5, and the drive unit and similar mechanisms of Final Clarifier #6 have also reached the end of their useful life and will be replaced in late 2017. Construction approval was granted at the August 28, 2017 Board meeting. Construction should be completed by 1Q 2018. This capital project will be funded by the LCA Allentown Division.

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. Design of the project is 90% complete, with an expected start of bid phase in September 2017. The water quality management Part 2 permit was received in August 2017.

7. **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 is expected to finish by the end of Summer 2017; additional scope work is being completed. **(No Change)**

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

This project will upgrade the wastewater treatment plant (WWTP) headworks to install a mechanical fine screen, in order to protect the influent pumps and mitigate rag buildup. The project is being funded by the Lynn Township Suburban Division. The Notice to Proceed was issued on 4/24/17. Due to the long lead time for delivery of the mechanical screen, work under the general construction contract is not anticipated to start until late September. Some electrical work is being undertaken in the meantime. **(No Change)**

9. **Suburban Division – SCARP**

The City is no longer pursuing the execution of a MOU among the City and the City Signatories as a result of at least one Signatory stating they would not sign it. Discussions are occurring internally and with the City of Allentown on what impact the lack of an MOU will have on the basis of payment, the common projects, and the submission to EPA in order to determine if an MOU is necessary for Phase 1 or if an agreement between LCA and the City would be appropriate.

10. **Suburban Division – Park Pump Station Upgrade Design**

The Park Pump Station is to be upgraded to address station capacity and age/condition issues, and prolong the service life of this critical facility. The existing pumps are to be replaced with dry pit submersible units, existing motors are to be replaced with high efficiency units, and the old rheostat type motor drives are to be replaced with variable speed drives. The MCC is also to be replaced along with miscellaneous mechanical improvements. The DEP Part 2 Water Quality Management Permit application was submitted to DEP in June 2017. Design completion is anticipated for late 2017. **(No change)**

11. **Suburban Division – Tank Painting Project – Heidelberg Heights Wastewater Treatment Plant**

This project is part of LCA's Asset Management Program and involves the draining, cleaning, surface preparation, and painting of the interior and exterior Sequencing Batch Reactor tanks at the Heidelberg Heights wastewater treatment plant. The exposed tanks are 16 years old and require recoating to prevent degradation from the corrosive effects of wastewater and wastewater gases, and the environment. Bids were opened in May and the project was authorized for bid at the June 12, 2017 board meeting. Construction is anticipated to finish by Fall 2017. **(No change)**

12. **Suburban Division – Buss Acres Pump Station Replacement Design**

This project includes the consolidation of two well stations into a single double pumping system and new water storage tank, which will replace two hydropneumatic tanks that have exceeded their service life and are not in compliance, along with addressing numerous system deficiencies. Feasibility and costs for installing fire protection and radon removal systems will be evaluated. The design phase was authorized at the 8/28/17 board meeting and the project is anticipated to be ready for bid in Spring 2018.