



## BOARD MEETING AGENDA – August 14, 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

- *July 24, 2017 Board meeting minutes*

4. Public Comments

5. Action / Discussion Items:

**FINANCE AND ADMINISTRATION**

- *Full-Year Financial Forecast (ivory)*

**WATER**

- *Suburban Division – Buss Acres Pumping Station Replacement (purple)*

**WASTEWATER**

- *Allentown Division – Wastewater Treatment Plant: Miscellaneous Improvements (yellow)*
- *EPA Administrative Order Update – Packet includes: Cover memo (blue), Suburban Division (tan), Allentown Division (green)*

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

August 28, 2017

September 11, 2017

September 25, 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**  
**July 24, 2017**

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The Regular Meeting of the Lehigh County Authority was called to order at 12:01 p.m. on Monday, July 24, 2017, Chairman Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Jeff Morgan, Richard Bohner, Scott Bieber, Ted Lyons and Deana Zosky. Authority Staff present were Liesel Gross, Brad Landon, Ed Klein, Pat Mandes, Chris Moughan, John Parsons, Susan Sampson, Phil DePoe, Amy Kunkel, and Lisa Miller.

**REVIEW OF AGENDA**

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

Liesel Gross noted there are no Agenda changes but there will be an Executive Session regarding potential litigation.

**APPROVAL OF MINUTES**

**July 10, 2017 Regular Meeting Minutes**

On a motion by Richard Bohner, seconded by Linda Rosenfeld, the Board approved the Minutes of the July 10, 2017 meeting (5-0). Ted Lyons and Jeff Morgan abstained.

Kevin Baker arrived at 12:03 p.m.

**PUBLIC COMMENTS**

None.

**ACTION AND DISCUSSION ITEMS**

**Allentown Division – Schantz Spring Main Replacement**

Phil DePoe gave an overview of the project that involves the replacement of approximately 2,000 linear feet of 1903 vintage 30" diameter cast iron water main that conveys water from Schantz Spring to the water filtration plant for approximately 4.80 miles. The project also addresses approximately 15 leaks that were identified during the SmartBall leak detection work undertaken by the City prior to the lease. These leaks are located at various areas throughout the water main from Schantz Spring to Schribers Bridge. The project will be funded by the LCA Allentown Division and is identified in the lease in Schedule 7 as a Required Capital Improvement. The lowest responsible bidder was Michels Civil a Division of Michels Corporation (Michels). Mr. DePoe noted that the Authority has not previously worked with Michels but reference checks have identified no negative issues and the firm has completed numerous projects of similar size.

Mr. DePoe is asking for approval of the Capital Project Authorization for the Construction Phase in the amount of \$2,070,458.00 which includes the Contract Award for the General Construction to Michels in the amount of \$1,688,158.00 and the Professional Services Authorization for Construction Engineering, Management and Inspection Service Amendment No. 1 to Gannett Fleming, Inc. in the amount of \$130,300.00.

There was some discussion in regard to questions from the Board to understand details of the public bidding laws applicable to the Authority.

The Board inquired about additional projects regarding this Schantz Spring main. Mr. DePoe responded that a small section of piping that has become exposed by erosion will need to be taken care of later in the year, but is not related to this particular project. John Parsons commented that the Authority will be conducting a leak survey every few years due to the age of its piping.

On a motion by Linda Rosenfeld, seconded by Ted Lyons, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$2,070,458.00 which includes the Contract Award for the General Construction to Michels in the amount of \$1,688,158.00 and the Professional Services Authorization for Construction Engineering, Management and Inspection Service Amendment No. 1 to Gannett Fleming, Inc. in the amount of \$130,300.00 (8-0).

### **Suburban Division – Crestwood Alternate Water Supply**

Amy Kunkel gave an overview of the project that consists of the abandonment of two existing wells and the construction of approximately 600 linear feet of 6" diameter water main in order to interconnect the primary North Whitehall Division system to the Crestwood Pumping Station. The existing groundwater supply source has low yields and high manganese levels, which cause operational problems and customer complaints. A SCADA system will also be installed to allow full remote control and monitoring of the facilities. This project will result in water being supplied to this development by the primary North Whitehall Division via interconnections with the Northampton Borough Municipal Authority and other Authority wells.

Deana Zosky asked how the rate structure is defined for Crestwood rate payers. Liesel Gross explained the common rate structure and how it is used and tied into the North Whitehall Division.

On a motion by Scott Bieber, seconded by Linda Rosenfeld, the Board approved the Capital Project Authorization for the Construction Phase in the amount of \$355,403.00 which includes the General Construction Contract award to Zimmerman Environmental, LLC in the amount of \$229,588.00, award of the Electrical Contract to Barry J. Hoffman Co., Inc. in the amount of \$48,000.00, the Professional Services Authorization – Construction Phase Engineering to JMT, Inc. in the amount of \$9,050.00, and a Professional Services Authorization – Construction Phase Inspection to Cowan Associates, Inc. in the amount of \$8,765.00 (8-0).

### **Suburban Division – Well Abandonments**

Amy Kunkel provided an overview of the project which consists of the abandonment of six wells. The wells are no longer in use and have been listed as reserve or emergency status for many years. Upcoming DEP regulations will require that these wells must either be placed in permanent active status or abandoned. Well Nos. 4 and 7 in the Central Lehigh Division (CLD) are designated as groundwater under the influence of surface water and require filtration facilities in order to be used as a water source. Well Nos. 7, 8, 9, and 10 in the North Whitehall Division (NWD) have high levels of manganese which require treatment and is not cost effective based on their yields. Therefore, the Authority has no plans to use these wells in the foreseeable future and recommend that they be officially abandoned to comply with upcoming DEP regulations.

Scott Bieber asked for an explanation of how a well becomes designated as being "under the influence of surface water." Ms. Kunkel explained that the wells were tested years ago through a DEP-regulated process to identify water quality parameters that indicate influence from surface water or rain events and would require more stringent treatment or filtration.

Brian Nagle inquired if any of the wells are in buildings, and if so, what are the plans for them. Ms. Kunkel replied CLD Wells 4 and 7 are in buildings but buildings are not part of this contract. Removing the buildings is costly. The NWD wells are located on properties that could be evaluated for eventual sale for other uses. Ms. Gross said the Authority periodically reviews its properties and facilities no longer in use for determination of potential sale, and these six properties would be evaluated as part of that process in the future.

On a motion by Linda Rosenfeld, seconded by Ted Lyons, the Board approved the Capital Project Authorization – Construction Phase in the amount of \$95,766.00 which includes the Professional Services Contract to ARRO Consulting, Inc. in the amount of \$73,766.00 (8-0).

### **Suburban Division – Water Main Replacement Program Cycle 3**

Phil DePoe gave an overview of the project that will replace approximately 1 mile of pipe and appurtenances within Lower Macungie Township. This project is part of the Authority's ongoing program to identify and replace aging and failing infrastructure to prevent excessive leakage or disruptive water main breaks. In one area, temporary water service will be needed to facilitate the "remove and replace" type construction of the main. The Authority will notify homeowners of the temporary water service prior to the construction.

On a motion by Ted Lyons, seconded by Scott Bieber, the Board approved the Capital Project Authorization for the Construction Phase, Cycle 3 in the amount of \$1,505,234.00 which includes the Professional Services Authorization Cycle 3 for Construction Engineering and Management Services, Amendment No. 2 to Gannett Fleming Inc. in the amount of \$51,100.00, the Construction Inspection Services Amendment No. 1 to Keystone Consulting Engineers in the amount of \$75,000.00 and Award of the Contract Cycle 3 for General Construction to JOAO & Bradley Construction Co., Inc. in the amount of \$1,157,134.00 (8-0).

### **MONTHLY FINANCIAL REVIEW**

Ed Klein gave an overview of the June 2017 Financial Report, including a short PowerPoint presentation outlining key performance indicators. Deana Zosky stated concerns regarding budget sustainability and rate structure to address negative net income. Liesel Gross stated this will be discussed in more detail during the Suburban Water Division rate study which will kick off in August or September. Ted Lyons questioned how much of the capital budget is rolled from the previous year. Ed Klein explained that historically the Authority does not complete all the capital improvement projects that are budgeted each year, and the subsequent year's capital plan and budget are adjusted to reflect changed circumstances and refined project schedules. More discussion on this matter will be appropriate for the 2018-2022 Capital Plan presentation planned for August.

### **MONTHLY SYSTEM OPERATIONS OVERVIEW**

John Parsons reviewed the June 2017 Operations Report that was attached to the Board agenda. Mr. Parsons explained the Sanitary Sewer Overflow (SSO) that occurred in the City of Allentown was a result of a blockage from grease and rags and the SSO in the Suburban Division at Heidelberg Heights was from 3" of heavy rain within a 12-hour period. Brian Nagle inquired about the SSOs at Heidelberg Heights and what work is being done to rectify them. Liesel Gross said that some significant investigation of inflow and infiltration has been done over the years, along with certain repair projects, but many more problems exist on the private customer-owned sewer laterals. Mr. Nagle asked for a more comprehensive update to be provided at an upcoming Board meeting.

### **STAFF COMMENTS**

Liesel Gross brought to the Board's attention items for discussion coming up at the August and September meetings. The Administrative Order is slated to be discussed at the August 14<sup>th</sup> meeting, along with the draft Capital Plans and Budget discussions in August and September. The Suburban Water Rate Study will be coming up for discussion at a September meeting. Also, Ms. Gross will be on vacation for the August 28<sup>th</sup> Board meeting and Brad Landon will oversee the meeting from the management perspective in her place.

### **SOLICITOR'S COMMENTS**

None.

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

None.

Chairman Nagle called a break at 1:08 p.m. The meeting reconvened at 1:11 p.m.

**EXECUTIVE SESSION**

Chairman Nagle called an Executive Session at 1:11 p.m. to discuss potential litigation.

The Executive Sessions ended at 1:46 p.m.

**ADJOURNMENT**

There being no further business, the Chairman adjourned the meeting at 1:46 p.m.

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Richard H. Bohner  
Secretary

LEHIGH COUNTY  
AUTHORITY

2017 QUARTER 3  
FORECAST REPORT

## FORECAST REPORT 2017 Q3 FORECAST

### 1. SUMMARY

	Forecast	Budget	Last FC	Variance to	
				Budget	Last FC
<b>INCOME STATEMENT</b>					
Suburban Water	(21,018)	(34,673)	(240,736)	13,655	219,718
Suburban Wastewater	326,504	(237,977)	(235,352)	564,481	561,856
City Division	(9,723,562)	(10,217,568)	(10,277,443)	494,006	553,881
TOTAL LCA	(9,418,077)	(10,490,218)	(10,753,531)	1,072,141	1,335,454
<b>CASH FLOW STATEMENT</b>					
Suburban Water	3,726,974	(81,469)	8,746,795	3,808,444	(5,019,821)
Suburban Wastewater	(501,737)	7,121,675	37,287,310	(7,623,412)	(37,789,047)
City Division	(4,095,791)	(4,479,360)	(4,538,598)	383,569	442,807
TOTAL LCA	(870,554)	2,560,846	41,495,507	(3,431,400)	(42,366,062)
<b>DEBT SERVICE COVERAGE RATIO</b>					
Suburban Water	1.38	1.27	1.20	0.12	0.19
Suburban Wastewater	7.96	2.45	2.52	5.51	5.44
City Division	1.21	1.21	1.18	0.00	0.03

#### Net income

The net income forecast for the suburban wastewater fund is positive. Net incomes are forecasted to be negative for the suburban water and city divisions.

Net incomes are up across all funds compared to the prior forecast. Suburban wastewater is leading with an increase of \$562k followed by the city division with an increase of \$554k, and suburban water has an increase of \$220k.

Compared to Budget, net incomes are better for all three funds. Suburban wastewater leads the way with a favorable variance of \$564k followed by the city division with a favorable variance of \$494k and then suburban water with a favorable variance of \$14k.

The budget had all three funds reporting losses. We have turned from negative to positive in suburban wastewater and have lowered the expected loss in the city division as well as suburban wastewater.

#### Cash Flows

Suburban water is reporting positive cash flows. Suburban wastewater and city division are producing negative figures. Suburban water was positively impacted by the proceeds of \$5.9m of cash from the issuance of bonds in June after investing some of the proceeds.

The cash flows for the city division have increased by \$443k from the last forecast. Suburban water was down by \$5.1 and suburban wastewater decreased by \$37.8m from a reduction in forecasted borrowing of \$41.1m to no borrowing. If we adjust for the borrowing reduction, cash flows would have been up to forecast by \$3.0m and that would have resulted in all three funds showing an increase in net cash flows over the previous forecast.

Forecasted cash flows for suburban water are \$3.8m favorable to budget while suburban wastewater is unfavorable by \$7.6m and the city division is up by \$384k. Suburban Water has a

favorable outcome to budget from higher borrowing while suburban wastewater has an unfavorable effect of borrowing less.

### Debt Service Coverage Ratio

Debt service coverage ratios for all three funds increased from the last forecast and favorable to budget. City division ratio of 1.21 is just slightly above indenture target of 1.20.

## 2. SUBURBAN WATER

### A. Net Income

SUBURBAN WATER	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	L FC Var
Income Statement					
Operating Revenues	9,236,985	9,134,000	9,134,469	102,985	102,516
Operating (Expenses)	(8,586,734)	(8,814,412)	(8,813,792)	227,678	227,058
Operating Income	650,251	319,588	320,677	330,663	329,574
Non-Operating Revenues (Expenses)	790,886	794,000	790,798	(3,114)	88
Income Before Interest	1,441,136	1,113,588	1,111,475	327,549	329,661
Interest Income	124,715	200,000	81,539	(75,285)	43,176
Interest Expense	(1,586,870)	(1,348,261)	(1,433,750)	(238,609)	(153,120)
Capital Contributions	-	-	-	-	-
<b>NET INCOME</b>	<b>(21,018)</b>	<b>(34,673)</b>	<b>(240,736)</b>	<b>13,655</b>	<b>219,718</b>

### Current Forecast vs. Previous Forecast

Net Income is \$220k higher than last forecast drive by higher operating revenues, lower operating expenses, favorable non-operating revenues (expenses), and higher interest income was partially offset by higher interest expense.

Operating revenues are higher by \$103k on higher industrial/commercial revenues.

Operating expenses are \$227k lower with lower service costs, particularly on maintenance services.

Non-Operating revenues (expenses) are \$88k favorable to last forecast.

Interest income is up by \$43k on higher invested balances.

Interest expense is higher. The 2017 bonds issued were higher than originally forecasted.

### Current Forecast vs. Budget

Net income is forecasted to be \$14k higher than budget. When the previous forecast was reported, we had recognized an unfavorable variance to budget \$206k. In the current forecast we are making up \$220k to become favorable to budget. Major factors for the unfavorable budget variance are higher operating revenues, lower operating expenses, slightly unfavorable non-operating revenues (expenses), lower interest income, and higher interest expense.

Operating revenues are up by \$103k due to higher industrial/commercial revenues.

Operating expenses are \$228k lower than budget with lower expenses on maintenance services being a primary driver. We budgeted for valve exercising and for easement clearing that will bump up costs in 2<sup>nd</sup> half compared to the 1<sup>st</sup> half, but overall spending for the year is forecasted to be favorable with respect to budget.

Non-operating revenues (expenses) are only unfavorable to budget by \$3k.

Interest Income is down by \$75k due to lower invested balances as a large volume of invested balances converted to cash resulting in lower invested balances earning interest.

Interest expense is higher by \$239k. The budget had financing of \$5.9m and we borrowed almost \$15m with the issuance of the 2017 bonds. The higher loan value pushed interest expense well above budget.

## B. Cash Flows

SUBURBAN WATER	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	L FC Var
Cash Flow Statement (Indirect)					
Net Income	(21,018)	(34,673)	(240,736)	13,655	219,718
Add: Depreciation & Amortization	2,949,984	2,950,000	2,949,984	(16)	-
Add: Non-Cash Interest Expense	(12,000)	-	9	(12,000)	(12,009)
Add: Capex Charged to Expense	103,765	100,000	100,243	3,765	3,522
Principal Payments	(1,636,596)	(1,833,796)	(1,833,779)	197,200	197,183
Investments Converting To Cash	1,159,937	284,000	284,000	875,937	875,937
New Borrowing	5,900,500	5,900,000	14,925,000	500	(9,024,500)
Net Cash Available For Capital Spending	8,444,572	7,365,531	16,184,721	1,079,042	(7,740,149)
Capital Expenditures	(4,717,598)	(7,447,000)	(7,437,926)	2,729,402	2,720,328
<b>NET FUND CASH FLOWS</b>	<u>3,726,974</u>	<u>(81,469)</u>	<u>8,746,795</u>	<u>3,808,444</u>	<u>(5,019,821)</u>

### Current Forecast vs. Previous Forecast

Cash flows are down to last forecast by \$5.0m from higher cash generated by operations aided by lower principal payments along with significantly lower capital spending to partially offset lower proceeds from the bond issue after investing \$8.7m in US government investments.

### Current Forecast vs. Budget

Cash flows are better than budget by \$3.8m primarily due to the lower capital spending.

### 3. SUBURBAN WASTEWATER

#### A. Net Income

SUBURBAN WASTEWATER	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
Income Statement					
Operating Revenues	18,189,323	18,259,000	18,257,758	(69,677)	(68,435)
Operating (Expenses)	(18,457,240)	(18,557,349)	(18,505,437)	100,109	48,198
Operating Income	(267,916)	(298,349)	(247,679)	30,432	(20,238)
Non-Operating Revenues (Expenses)	806,124	793,000	794,302	13,124	11,822
Income Before Interest Expense	538,208	494,651	546,623	43,556	(8,416)
Interest Income	4,669	119,000	55,223	(114,331)	(50,554)
Interest Expense	(216,373)	(851,628)	(837,199)	635,255	620,826
Capital Contributions	-	-	-	-	-
<b>NET INCOME</b>	<b>326,504</b>	<b>(237,977)</b>	<b>(235,352)</b>	<b>564,481</b>	<b>561,856</b>

#### Current Forecast vs. Previous Forecast

Net income is forecasted to increase by \$561k. Lower operating expenses, favorable variances on non-operating revenues (expenses) and significantly lower interest expenses more than offset the effects of lower operating revenues and lower interest income.

Operating income is down by \$68k, which is 0.4%.

Operating expenses are down by \$48k, which is 0.3%.

Non-operating revenues (expenses) are favorable by 12k, which is 1.5%.

Interest income is down due to lower invested balances.

Interest expense is down as borrowing requirements have decreased as this forecast has no borrowing. The last forecast had significant borrowing while we have taken the need to borrow out of this forecast as alternatives to bonds are being contemplated along with higher projected project reserves that are in investments right now that will be maturing in early 2018.

#### Current Forecast vs. Budget

Net income is higher than budget by \$564k as lower operating expenses, favorable non-operating revenues (expenses) variances and significantly lower interest expenses more than offset the effects of slightly lower operating revenues and lower interest income. The variance to budget for the last forecast was only a \$3k favorable variance so the changes in this forecast aided the favorable position with respect to budget. Similar to above, the only major variances are lower interest income from lower investment income and lower interest expenses from the change in borrowing. We had budgeted \$10.9m in borrowing for this year.

## B. Cash Flows

SUBURBAN WASTEWATER	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
<b>Cash Flow Statement (Indirect)</b>					
Net Income	326,504	(237,977)	(235,352)	564,481	561,856
Add: Depreciation & Amortization	4,376,328	3,925,000	4,376,328	451,328	-
Add: Non-Cash Interest Expense	34,164	-	35,135	34,164	(971)
Add: Capex Charged to Expense	301,034	300,000	-	1,034	301,034
Principal Payments	(473,999)	(1,127,348)	(1,175,224)	653,349	701,225
Investments Converting To Cash	-	-	-	-	-
New Borrowing	-	10,875,000	41,056,000	(10,875,000)	(41,056,000)
Net Cash Available For Capital Spending	4,564,031	13,734,675	44,056,888	(9,170,644)	(39,492,857)
Capital Expenditures	(5,065,768)	(6,613,000)	(6,769,577)	1,547,232	1,703,809
<b>NET FUND CASH FLOWS</b>	<b>(501,737)</b>	<b>7,121,675</b>	<b>37,287,310</b>	<b>(7,623,412)</b>	<b>(37,789,047)</b>

### This Forecast vs. Last Forecast

Net cash flows are forecasted to be down \$37.8m to last forecast as the drop-off of \$41.6m of borrowing more than offset favorable cash generated by operations and lower capital spending. A better way to look at this is to take borrowing out altogether and compare. This would yield a favorable forecast variance in cash flows of \$3.3m attributable to the higher cash from operations and lower capital spending. Lower capital spending would have been \$1.7m of the adjusted change in forecasts of \$3.3m.

### This Forecast vs. Budget

Net cash flows are forecasted to be down to budget by \$7.6m. We had budgeted borrowing of \$10.9m so adjusting for that, cash flows would be \$3.3m better than budget. Lower capital spending is aiding the budget variance as well.

#### 4. CITY DIVISION

##### A. Net Income

CITY DIVISION	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
Operating Revenues	32,031,496	31,809,000	31,844,653	222,496	186,843
Operating (Expenses)	(22,122,780)	(22,462,068)	(22,422,257)	339,288	299,477
Operating Income	9,908,716	9,346,932	9,422,396	561,784	486,320
Non-Operating Revenues (Expenses)	(3,619,799)	(3,406,000)	(3,420,995)	(213,799)	(198,804)
Income Before Interest Expense	6,288,917	5,940,932	6,001,401	347,985	287,516
Interest Income	448,021	302,000	181,448	146,021	266,573
Interest Expense	(16,460,500)	(16,460,500)	(16,460,292)	-	(208)
Capital Contributions	-	-	-	-	-
<b>NET INCOME</b>	<b>(9,723,562)</b>	<b>(10,217,568)</b>	<b>(10,277,443)</b>	<b>494,006</b>	<b>553,881</b>

#### Current forecast vs. Previous Forecast

Net income is forecasted to increase by \$554k. Higher operating revenues, lower operating expenses, and higher interest income are being partially offset by lower non-operating revenues and slightly higher interest expenses.

Operating revenues are up by \$186k or 0.5% primarily in residential and commercial segments.

Operating expenses are lower by \$299k or 1.3% primarily from lower purchased services expenses.

Non-operating revenues (expenses) are \$199k unfavorable due to lower tapping fees and higher capex charged to expense.

Interest income is up by \$267k on higher invested balances.

Interest expense is unfavorable by only \$208k.

#### This Forecast vs. Budget

Net income is forecasted to be \$494k better than budget. Similar to above with higher operating revenues, lower operating expenses, and higher interest income being partially offset by lower non-operating revenues. The nature of the variances to budget are similar to the forecast variances above. In the 2<sup>nd</sup> quarter forecast \$59k was reported in an unfavorable report. For the previous forecast, we reported an unfavorable variance to budget of \$59k. With the favorable forecast changes this quarter of \$554k to the budget projection favorable with respect to budget.

## B. Cash Flows

CITY DIVISION	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
<b>Cash Flow Statement (Indirect)</b>					
Net Income	(9,723,562)	(10,217,568)	(10,277,443)	494,006	553,881
Add: Depreciation & Amortization	5,400,000	5,600,000	5,600,000	(200,000)	(200,000)
Add: Non-Cash Interest Expense	3,412,779	3,412,778	3,412,570	1	209
Add: Capex Charged to Expense	7,959,887	7,904,000	7,897,855	55,887	62,032
Principal Payments	-	-	-	-	-
Cash Outlays on Lease & Lease Reserve	(508,000)	(508,000)	(508,000)	-	-
Investments Converting To Cash	-	-	-	-	-
New Borrowing	-	-	-	-	-
Net Cash Available For Capital Spending	6,541,104	6,191,210	6,124,982	349,894	416,122
Capital Expenditures	(10,636,895)	(10,670,570)	(10,663,580)	33,675	26,685
<b>NET FUND CASH FLOWS</b>	<u>(4,095,791)</u>	<u>(4,479,360)</u>	<u>(4,538,598)</u>	<u>383,569</u>	<u>442,807</u>

### **This Forecast vs. Last Forecast**

Net Cash Flows are up to last forecast by \$443k. This is due to higher cash from operations along with lower capital spending.

### **This Forecast vs. Budget**

Net Cash Flows are \$384k higher than budget. This is due to higher cash from operations and lower capital spending.

SUBURBAN WATER	2017 Q3 FORECAST - FULL YEAR				
<u>Income Statement</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>L FC Var</u>
Operating Revenues	9,236,985	9,134,000	9,134,469	102,985	102,516
Operating (Expenses)	<u>(8,586,734)</u>	<u>(8,814,412)</u>	<u>(8,813,792)</u>	<u>227,678</u>	<u>227,058</u>
Operating Income	650,251	319,588	320,677	330,663	329,574
Non-Operating Revenues (Expenses)	<u>790,886</u>	<u>794,000</u>	<u>790,798</u>	<u>(3,114)</u>	<u>88</u>
Income Before Interest	1,441,136	1,113,588	1,111,475	327,549	329,661
Interest Income	124,715	200,000	81,539	(75,285)	43,176
Interest Expense	(1,586,870)	(1,348,261)	(1,433,750)	(238,609)	(153,120)
Capital Contributions	-	-	-	-	-
<b>NET INCOME</b>	<u>(21,018)</u>	<u>(34,673)</u>	<u>(240,736)</u>	<u>13,655</u>	<u>219,718</u>
SUBURBAN WATER	2017 Q3 FORECAST - FULL YEAR				
<u>Cash Flow Statement (Indirect)</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>L FC Var</u>
Net Income	(21,018)	(34,673)	(240,736)	13,655	219,718
Add: Depreciation & Amortization	2,949,984	2,950,000	2,949,984	(16)	-
Add: Non-Cash Interest Expense	(12,000)	-	9	(12,000)	(12,009)
Add: Capex Charged to Expense	103,765	100,000	100,243	3,765	3,522
Principal Payments	(1,636,596)	(1,833,796)	(1,833,779)	197,200	197,183
Investments Converting To Cash	1,159,937	284,000	284,000	875,937	875,937
New Borrowing	<u>5,900,500</u>	<u>5,900,000</u>	<u>14,925,000</u>	<u>500</u>	<u>(9,024,500)</u>
Net Cash Available For Capital Spending	8,444,572	7,365,531	16,184,721	1,079,042	(7,740,149)
Capital Expenditures	<u>(4,717,598)</u>	<u>(7,447,000)</u>	<u>(7,437,926)</u>	<u>2,729,402</u>	<u>2,720,328</u>
<b>NET FUND CASH FLOWS</b>	<u>3,726,974</u>	<u>(81,469)</u>	<u>8,746,795</u>	<u>3,808,444</u>	<u>(5,019,821)</u>

SUBURBAN WATER	2017 Q3 FORECAST - FULL YEAR				
Cash Flow Statement (Direct)	Forecast	Budget	Last FC	Bud Var	L FC Var
Operating Revenues	9,236,985	9,134,000	9,134,469	102,985	102,516
Operating Expenses (Ex Depreciation)	<u>(5,636,750)</u>	<u>(5,864,412)</u>	<u>(5,863,808)</u>	<u>227,662</u>	<u>227,058</u>
Cash Flow From Operations	3,600,235	3,269,588	3,270,661	330,647	329,574
Non-Operating Revenues (Expenses)	790,886	794,000	790,798	(3,114)	88
Add: Capex Charged to Expense	103,765	100,000	100,243	3,765	3,522
Less: Project Reimbursement	(145,795)	(334,000)	(334,000)	188,205	188,205
Interest Income	<u>124,715</u>	<u>200,000</u>	<u>81,539</u>	<u>(75,285)</u>	<u>43,176</u>
Net Cash Available For Debt Service	4,473,806	4,029,588	3,909,241	444,218	564,565
Interest Payments	(1,598,870)	(1,348,261)	(1,433,741)	(250,609)	(165,129)
Principal Payments	<u>(1,636,596)</u>	<u>(1,833,796)</u>	<u>(1,833,779)</u>	<u>197,200</u>	<u>197,183</u>
Net Cash After Debt Service	1,238,340	847,531	641,721	390,810	596,619
Project Reimbursement	145,795	334,000	334,000	(188,205)	(188,205)
Capital Contributions	-	-	-	-	-
Investments Converting To Cash	1,159,937	284,000	284,000	875,937	875,937
New Borrowing	<u>5,900,500</u>	<u>5,900,000</u>	<u>14,925,000</u>	<u>500</u>	<u>(9,024,500)</u>
Net Cash Available For Capital Spending	8,444,572	7,365,531	16,184,721	1,079,042	(7,740,149)
Capital Expenditures	<u>(4,717,598)</u>	<u>(7,447,000)</u>	<u>(7,437,926)</u>	<u>2,729,402</u>	<u>2,720,328</u>
<b>NET FUND CASH FLOWS</b>	<u><u>3,726,974</u></u>	<u><u>(81,469)</u></u>	<u><u>8,746,795</u></u>	<u><u>3,808,444</u></u>	<u><u>(5,019,821)</u></u>
<b>DEBT SERVICE COVERAGE RATIO</b>					
Net Cash Available For Debt Service	4,473,806	4,029,588	3,909,241	444,218	564,565
Debt Service	<u>3,235,465</u>	<u>3,182,057</u>	<u>3,267,520</u>	<u>(53,408)</u>	<u>32,055</u>
<b>DSCR</b>	<u><u>1.38</u></u>	<u><u>1.27</u></u>	<u><u>1.20</u></u>	<u><u>0.12</u></u>	<u><u>0.19</u></u>

SUBURBAN WASTEWATER		2017 Q3 FORECAST - FULL YEAR				
<u>Income Statement</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>Last FC Var</u>	
Operating Revenues	18,189,323	18,259,000	18,257,758	(69,677)	(68,435)	
Operating (Expenses)	<u>(18,457,240)</u>	<u>(18,557,349)</u>	<u>(18,505,437)</u>	<u>100,109</u>	<u>48,198</u>	
Operating Income	(267,916)	(298,349)	(247,679)	30,432	(20,238)	
Non-Operating Revenues (Expenses)	<u>806,124</u>	<u>793,000</u>	<u>794,302</u>	<u>13,124</u>	<u>11,822</u>	
Income Before Interest Expense	538,208	494,651	546,623	43,556	(8,416)	
Interest Income	4,669	119,000	55,223	(114,331)	(50,554)	
Interest Expense	(216,373)	(851,628)	(837,199)	635,255	620,826	
Capital Contributions	-	-	-	-	-	
<b>NET INCOME</b>	<u>326,504</u>	<u>(237,977)</u>	<u>(235,352)</u>	<u>564,481</u>	<u>561,856</u>	
SUBURBAN WASTEWATER		2017 Q3 FORECAST - FULL YEAR				
<u>Cash Flow Statement (Indirect)</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>Last FC Var</u>	
Net Income	326,504	(237,977)	(235,352)	564,481	561,856	
Add: Depreciation & Amortization	4,376,328	3,925,000	4,376,328	451,328	-	
Add: Non-Cash Interest Expense	34,164	-	35,135	34,164	(971)	
Add: Capex Charged to Expense	301,034	300,000	-	1,034	301,034	
Principal Payments	(473,999)	(1,127,348)	(1,175,224)	653,349	701,225	
Investments Converting To Cash	-	-	-	-	-	
New Borrowing	-	<u>10,875,000</u>	<u>41,056,000</u>	<u>(10,875,000)</u>	<u>(41,056,000)</u>	
Net Cash Available For Capital Spending	4,564,031	13,734,675	44,056,888	(9,170,644)	(39,492,857)	
Capital Expenditures	<u>(5,065,768)</u>	<u>(6,613,000)</u>	<u>(6,769,577)</u>	<u>1,547,232</u>	<u>1,703,809</u>	
<b>NET FUND CASH FLOWS</b>	<u>(501,737)</u>	<u>7,121,675</u>	<u>37,287,310</u>	<u>(7,623,412)</u>	<u>(37,789,047)</u>	

SUBURBAN WASTEWATER	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
<b>Cash Flow Statement (Direct)</b>					
Operating Revenues	18,189,323	18,259,000	18,257,758	(69,677)	(68,435)
Operating Expenses (Ex Depreciation)	<u>(14,080,912)</u>	<u>(14,632,349)</u>	<u>(14,129,109)</u>	<u>551,437</u>	<u>48,198</u>
Cash Flow From Operations	4,108,412	3,626,651	4,128,649	481,760	(20,238)
Non-Operating Revenues (Expenses)	806,124	793,000	794,302	13,124	11,822
Add: Capex Charged to Expense	301,034	300,000	-	1,034	301,034
Less: Project Reimbursement	-	-	-	-	-
Interest Income	<u>4,669</u>	<u>119,000</u>	<u>55,223</u>	<u>(114,331)</u>	<u>(50,554)</u>
Net Cash Available For Debt Service	5,220,239	4,838,651	4,978,175	381,588	242,064
Interest Payments	(182,209)	(851,628)	(802,063)	669,419	619,854
Principal Payments	<u>(473,999)</u>	<u>(1,127,348)</u>	<u>(1,175,224)</u>	<u>653,349</u>	<u>701,225</u>
Net Cash After Debt Service	4,564,031	2,859,675	3,000,888	1,704,356	1,563,143
Project Reimbursement	-	-	-	-	-
Capital Contributions	-	-	-	-	-
Investments Converting To Cash	-	-	-	-	-
New Borrowing	<u>-</u>	<u>10,875,000</u>	<u>41,056,000</u>	<u>(10,875,000)</u>	<u>(41,056,000)</u>
Net Cash Available For Capital Spending	4,564,031	13,734,675	44,056,888	(9,170,644)	(39,492,857)
Capital Expenditures	<u>(5,065,768)</u>	<u>(6,613,000)</u>	<u>(6,769,577)</u>	<u>1,547,232</u>	<u>1,703,809</u>
<b>NET FUND CASH FLOWS</b>	<u><u>(501,737)</u></u>	<u><u>7,121,675</u></u>	<u><u>37,287,310</u></u>	<u><u>(7,623,412)</u></u>	<u><u>(37,789,047)</u></u>
<b>DEBT SERVICE COVERAGE RATIO</b>					
Net Cash Available For Debt Service	5,220,239	4,838,651	4,978,175	381,588	242,064
Debt Service	<u>656,208</u>	<u>1,978,976</u>	<u>1,977,287</u>	<u>1,322,768</u>	<u>(1,689)</u>
<b>DSCR</b>	<u><u>7.96</u></u>	<u><u>2.45</u></u>	<u><u>2.52</u></u>	<u><u>5.51</u></u>	<u><u>5.44</u></u>

CITY DIVISION	2017 Q3 FORECAST - FULL YEAR				
<u>Income Statement</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>Last FC Var</u>
Operating Revenues	32,031,496	31,809,000	31,844,653	222,496	186,843
Operating (Expenses)	<u>(22,122,780)</u>	<u>(22,462,068)</u>	<u>(22,422,257)</u>	<u>339,288</u>	<u>299,477</u>
Operating Income	9,908,716	9,346,932	9,422,396	561,784	486,320
Non-Operating Revenues (Expenses)	<u>(3,619,799)</u>	<u>(3,406,000)</u>	<u>(3,420,995)</u>	<u>(213,799)</u>	<u>(198,804)</u>
Income Before Interest Expense	6,288,917	5,940,932	6,001,401	347,985	287,516
Interest Income	448,021	302,000	181,448	146,021	266,573
Interest Expense	(16,460,500)	(16,460,500)	(16,460,292)	-	(208)
Capital Contributions	-	-	-	-	-
<b>NET INCOME</b>	<u>(9,723,562)</u>	<u>(10,217,568)</u>	<u>(10,277,443)</u>	<u>494,006</u>	<u>553,881</u>
CITY DIVISION	2017 Q3 FORECAST - FULL YEAR				
<u>Cash Flow Statement (Indirect)</u>	<u>Forecast</u>	<u>Budget</u>	<u>Last FC</u>	<u>Bud Var</u>	<u>Last FC Var</u>
Net Income	(9,723,562)	(10,217,568)	(10,277,443)	494,006	553,881
Add: Depreciation & Amortization	5,400,000	5,600,000	5,600,000	(200,000)	(200,000)
Add: Non-Cash Interest Expense	3,412,779	3,412,778	3,412,570	1	209
Add: Capex Charged to Expense	7,959,887	7,904,000	7,897,855	55,887	62,032
Principal Payments	-	-	-	-	-
Cash Outlays on Lease & Lease Reserve	(508,000)	(508,000)	(508,000)	-	-
Investments Converting To Cash	-	-	-	-	-
New Borrowing	-	-	-	-	-
Net Cash Available For Capital Spending	6,541,104	6,191,210	6,124,982	349,894	416,122
Capital Expenditures	<u>(10,636,895)</u>	<u>(10,670,570)</u>	<u>(10,663,580)</u>	<u>33,675</u>	<u>26,685</u>
<b>NET FUND CASH FLOWS</b>	<u>(4,095,791)</u>	<u>(4,479,360)</u>	<u>(4,538,598)</u>	<u>383,569</u>	<u>442,807</u>

CITY DIVISION	2017 Q3 FORECAST - FULL YEAR				
	Forecast	Budget	Last FC	Bud Var	Last FC Var
<b>Cash Flow Statement (Direct)</b>					
Operating Revenues	32,031,496	31,809,000	31,844,653	222,496	186,843
Operating Expenses (Ex Depreciation)	(16,722,780)	(16,862,068)	(16,822,257)	139,288	99,477
Cash Flow From Operations	15,308,716	14,946,932	15,022,396	361,784	286,320
Non-Operating Revenues (Expenses)	(3,619,799)	(3,406,000)	(3,420,995)	(213,799)	(198,804)
Add: Capex Charged to Expense	7,959,887	7,904,000	7,897,855	55,887	62,032
Less: Project Reimbursement	(3,947,192)	(3,648,200)	(3,930,389)	(298,992)	(16,803)
Interest Income	448,021	302,000	181,448	146,021	266,573
Net Cash Available For Debt Service	16,149,633	16,098,732	15,750,315	50,901	399,318
Interest Payments	(13,047,721)	(13,047,722)	(13,047,722)	1	1
Principal Payments	-	-	-	-	-
Cash Outlays on Lease & Lease Reserve	(508,000)	(508,000)	(508,000)	-	-
Net Cash After Debt & Lease Service	2,593,912	2,543,010	2,194,593	50,902	399,319
Project Reimbursement	3,947,192	3,648,200	3,930,389	298,992	16,803
Capital Contributions	-	-	-	-	-
Investments Converting To Cash	-	-	-	-	-
New Borrowing	-	-	-	-	-
Net Cash Available For Capital Spending	6,541,104	6,191,210	6,124,982	349,894	416,122
Capital Expenditures	(10,636,895)	(10,670,570)	(10,663,580)	33,675	26,685
<b>NET FUND CASH FLOWS</b>	<b>(4,095,791)</b>	<b>(4,479,360)</b>	<b>(4,538,598)</b>	<b>383,569</b>	<b>442,807</b>
<b>DEBT SERVICE COVERAGE RATIO</b>					
Net Cash Available For Debt Service	15,795,999	15,769,632	15,421,215	26,367	374,784
Debt Service	13,047,721	13,047,722	13,047,721	1	-
<b>DSCR</b>	<b>1.21</b>	<b>1.21</b>	<b>1.18</b>	<b>0.00</b>	<b>0.03</b>

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## MEMORANDUM

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**Date:** August 14, 2017

**To:** Lehigh County Authority Board  
**From:** Amy Kunkel, LCA Project Engineer  
Chuck Volk, Chief Capital Works Officer  
**Subject:** Suburban Division – Buss Acres Pump  
Station Replacement- Design Phase

### MOTIONS / APPROVALS REQUESTED

No.	Item	Amount
1	Capital Project Authorization – Design Phase	\$167,405
2	Professional Services Authorization – Buchart Horn (1), (2)	\$92,405

- (1) *Included in the Capital Project Authorization.*  
(2) *Does not includes Construction phase related engineering services.*

### PROJECT OVERVIEW

The Buss Acres Water System (also known as the Upper Milford Central Division) is a small “developer built” system that was acquired by LCA in 2006 and serves 98 residential homes and 2 commercial properties. There are two wells, each with its own well station and hydro-pneumatic tank. UMCD-3 is permitted at 79 GPM and is located at the end of Gary Drive and UMCD-2 is permitted at 45 GPM and is located at the end of Laurie Drive. Water from the two wells is treated with sodium hydroxide for pH adjustment and liquid sodium hypochlorite for chlorination at each station and discharged into the distribution system from each station’s buried hydro-pneumatic tanks. The hydro-pneumatic tanks at both facilities have exceeded their useful life and are not in compliance with regulatory requirements for pressure vessels. In addition, both well house facilities were evaluated as part of the 2016 Asset Management Evaluation and numerous deficiencies were identified.

In 2007 PaDEP selected LCA to participate in a sampling program for radon to monitor the levels in the water supply at both the entry points. Sampling results showed elevated radon levels. Radon is currently not regulated, but the US EPA has been considering mandating limits. In 2013 a Radon Mitigation Study was prepared by Cowan and Associates, Inc. to evaluate alternatives for reducing radon levels in the drinking water supply. The conceptual construction cost for a radon mitigation alternative presented in the study was approximately \$1.2 million at the existing Gary well station.

The proposed project involves the consolidation of both stations on the largest well station parcel (Gary Drive) with a single new pump station and a new, larger water storage tank. The new station will be a variable frequency drive controlled double pumping system with full SCADA telemetry/control. Design provisions will be incorporated to facilitate the future addition of radon mitigation equipment, conditioned on the establishment of a regulatory limit. The engineer will also evaluate the feasibility and costs to provide fire protection to customers (currently there is no fire protection provided).

### FUNDING

This Project will be funded by the LCA Suburban Division

**BUDGET AMENDMENT**

Not required for this approval

**PROJECT STATUS**

Pending Board approval of the Design Phase.

**THIS APPROVAL-DESIGN PHASE**

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide design related services. Approval for construction related engineering services will be requested with the Construction Phase. The following table summarizes the professional services to be performed:

<b>Professional Services <sup>(1)</sup></b>
1. Attend kickoff meeting.
2. Evaluate well pumps, fire protection system and costs, and radon removal system and costs.
3. New pump station and tank design. New raw waterline design from Laurie well site to Gary well site.
4. Apply for and secure state and local permits.
5. Prepare construction bid documents (plans and specifications).
6. Provide bidding services

1. For Design Phase Only.

**CONSULTANT SELECTION PROCESS**

Four engineering firms, Buchart Horn, Cowan Associates, SSM Group, and Carroll Engineering were invited to submit proposals for the project in July 2017. The firms were selected based on prior LCA project performance and/or general expertise with water booster stations. Individual pre-proposal meetings were held with each consultant on June 29 and 30, 2017 at the Buss Acres well sites where the consultants were able to tour the facilities, assess the conditions and ask questions related to the design work. Proposals were received on July 24, 2017, the results of which follow:

<b>Consultant</b>	<b>Cost <sup>(1)</sup></b>
Cowan Associates	\$90,180
Carroll Engineering	\$91,109
<b>Buchart Horn</b>	<b>\$92,405</b>
SSM Group, Inc.	\$153,000

(1) Total Proposal Cost

Based upon our review of all aspects of both the Technical and Cost Proposals submitted by the four firms, we recommend award of the Design Phase services to Buchart Horn. Their proposal best demonstrates understanding of the project scope, consideration of innovative design elements, and represents what we believe is the best overall value for the Authority. Buchart Horn will perform the services outlined in their proposal dated July 24, 2017.

**BUCHART HORN -COMPANY INFORMATION & REFERENCE CHECK**

Buchart Horn is a multi-disciplinary engineering consulting firm headquartered in York, PA, with regional offices located in seven states. With more than 200 professional and support staff, BH has sufficient personnel in the required disciplines to guarantee continuity and continued progress on all disciplines this contract requires. Using staff based in the Marlton NJ office, augmented by staff available in York, PA and elsewhere as necessary, personnel will be assigned to meet the needs of this project. Buchart Horn's project references include projects of similar scope and size.

**PROJECT SCHEDULE**

Assuming Board authorization of design phase at the 8/14/17 meeting, this project is anticipated to be bid in March 2018 with completion of the work in early 2019.

**FUTURE AUTHORIZATIONS- CONSTRUCTION PHASE**

After the construction contract(s) bids are received, a Capital Project Authorization (CPA) Amendment will be presented to the Board for approval of the Construction Phase and will include construction contract award(s), professional services amendment for construction related services, staff costs and other related components.

## CAPITAL PROJECT AUTHORIZATION

<b>PROJECT NO.:</b>	SD-W-17-4	<b>BUDGET FUND:</b>	Suburban Div\Water\Capital
<b>PROJECT TITLE:</b>	Buss Acres Pump Station Replacement	<b>PROJECT TYPE:</b>	<input checked="" type="checkbox"/> Design for Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment
<b>THIS AUTHORIZATION:</b>	<b>\$167,405</b>		
<b>TO DATE (W/ ABOVE)</b>	<b>\$167,405</b>		

**DESCRIPTION AND BENEFITS:**

This Project will include combining two well booster stations into a single double pumping system and new water storage tank with a consolidated raw water treatment system, and upgrade of the SCADA system. The feasibility and costs of installing fire protection and radon removal systems will also be evaluated. Buchart Horn will be used for the engineering consulting services. The project is anticipated to be bid ready by March of 2018.

Reference the attached Memorandum for additional information.

Previous Authorizations	
none	\$0

REQUESTED THIS AUTHORIZATION	
Design Phase	
<b>Staff</b>	<b>\$40,000</b>
<b>Engineering Consultant – Buchart Horn</b>	<b>\$92,405</b>
<b>Misc.</b>	<b>\$10,000</b>
<b>Contingency</b>	<b>\$25,000</b>
<b>Total This Authorization</b>	<b>\$167,405</b>

Future Authorization	
Construction Phase	\$1,092,595

<i>Total Estimated Project</i>	<i>\$1,260,000</i>
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**REVIEW AND APPROVALS:**

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



Lehigh County Authority

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

**PROFESSIONAL SERVICES AUTHORIZATION**

**Professional:** Buchart Horn  
2 Eves Drive  
Suite 110  
Marlton, NJ 08053-3127

**Date:** August 7, 2017  
**Requested By:** Amy Kunkel  
**Approvals**  
**Department Head:** \_\_\_\_\_  
**Chief Executive Officer:** \_\_\_\_\_

**Suburban Division- Buss Acres Pump Station Replacement**

*Previous Authorizations- None.*

**This Authorization – Design Phase:                      \$92,405**

Buchart Horn will provide Design Services for the aforementioned project in accordance with the RFP and as outlined in their proposal dated July 24, 2017.

<b>Professional Services<sup>(1)</sup></b>
1. Attend kickoff meeting.
2. Evaluate well pumps, fire protection system and costs, and radon removal system and costs.
3. New pump station and reservoir design. New raw waterline design from Gary well site to Laurie well site.
4. Apply for and secure state and local permits.
5. Prepare construction bid documents (plans and specifications).
6. Provide bidding services

(1) For Design Phase Only

**Cost Estimate** (not to be exceeded without further authorization):                      **\$ 92,405**

**Time Table and Completion Deadline:** As required to meet design timeline requirements

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**(For Authority Use Only)**

**Authorization Completion:**

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

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## MEMORANDUM

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**Date:** August 14, 2017

**To:** Lehigh County Authority Board  
**From:** Phil DePoe, Capital Works Program Manager  
**Subject:** Allentown Division – Kline’s Island WWTP 2017 Clarifier Equipment Replacement: Construction Phase

**MOTIONS / APPROVALS REQUESTED:**

No.	Item	Amount
1	Capital Project Authorization – Construction Phase	\$879,592
2 <sup>(1)</sup>	Professional Services Authorization – D’Huy Engineering	\$19,400
3 <sup>(1)</sup>	General Contract Award – Blooming Glen Contractors WW	\$785,192

*(1) Included in the Capital Project Authorization.*

**PROJECT OVERVIEW:**

In December 2016, the drive unit of 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. A new drive was installed in April 2017 and is now fully operational. The remaining steel mechanisms of Final Clarifier #5 and the drive unit and similar steel mechanisms of Final Clarifier #6 have also reached the end of their useful life. All will be replaced during this project. In addition, both clarifiers will receive new fiberglass launder covers.

**FINANCIAL:**

This Project will be funded by the LCA Allentown Division.

**PROJECT STATUS:**

The project was advertised for bid on July 13, 2017. A mandatory pre-bid meeting was held on July 19, 2017. Bids were received on August 3, 2017.

**THIS APPROVAL – CONSTRUCTION PHASE:**

The construction phase includes activities that are necessary to install the new clarifier equipment. The General Contractor will be responsible for all construction activities. The design engineer will be responsible for periodic oversight of the construction, which will be supplemented by in-house project management provided by LCA.

**BIDDING SUMMARY:**

The project requires a General Construction (GC) Contract. The bid results are summarized below:

<b>Bidder</b>	<b>Bid Results</b>
<b>Blooming Glen Contractors WW</b>	<b>\$785,192</b>
Heisey Mechanical, Ltd.	\$830,357
Eastern Environmental Contractors, Inc.	\$839,800
JEV Construction LLC	\$862,500
DESCCO Design Construction, Inc.	\$856,507
JP Environmental, LLC	\$919,765
Allan Myers	\$937,687
Hickers Associates, Inc.	\$950,285
Quad Construction Company	\$985,200
GMH Associates	\$1,206,395.90

Based upon the review of the bids, we recommend award of the General Construction contract to Blooming Glen, subject to the receipt of the necessary Performance Bonds, Insurance and other required documentation. LCA staff has reviewed the supplied references and Blooming Glen is qualified to complete this project. In fact, this contractor has completed numerous jobs for LCA at the WWTP over the past few years.

**PROFESSIONAL SERVICES:**

D'Huy Engineers has been our design consultant on this project and will provide construction engineering and on-site inspection services for the construction phase of the project. Their work will also include:

1. Prepare for, attend, and facilitate a pre-construction conference
2. Prepare for and attend three job conference meetings
3. Review and approve contractor's submittals and respond to RFIs
4. Process and necessary change orders
5. Provide limited construction observation
6. Prepare punch list and final project close-out
7. As-built drawing preparation

**PROJECT SCHEDULE:**

The specifications require the project to be complete by the end of February 2018.

**FUTURE AUTHORIZATIONS:**

No future authorizations are anticipated for this project.

## CAPITAL PROJECT AUTHORIZATION

<b>PROJECT NO.:</b>	AD-S-17-2G	<b>BUDGET FUND:</b>	Allentown Div\Wastewater\Capital
<b>PROJECT TITLE:</b>	Allentown Division – Kline’s Island WWTP 2017 Clarifier Equipment Replacement: Construction Phase		<b>PROJECT TYPE:</b>
<b>THIS AUTHORIZATION:</b>	\$879,592	<input checked="" type="checkbox"/>	Construction
<b>TO DATE (W/ ABOVE)</b>	\$974,992	<input type="checkbox"/>	Engineering Study
		<input type="checkbox"/>	Equipment Purchase
		<input checked="" type="checkbox"/>	<b>Amendment No. 1</b>

**DESCRIPTION AND BENEFITS:**

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. The new drive was installed in April 2017 and is now fully operational. The remaining steel 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 during this project.

This capital project will be funded by the LCA Allentown Division.

Please see attached Board Memo for further project details.

**Authorization Status:**

<i>Previous Authorizations</i>	
<i>Design Phase</i>	<i>\$36,000</i>
<i>Purchase of Clarifier #5 Drive Unit</i>	<i>\$59,400</i>

<b>Requested This Authorization</b>	
<b>Construction Phase</b>	
<b>Staff</b>	<b>\$15,000</b>
<b>Construction Contractor</b>	<b>\$785,192</b>
<b>Engineering Consultant</b>	<b>\$19,400</b>
<b>Miscellaneous</b>	<b>10,000</b>
<b>Contingency</b>	<b>50,000</b>
<b>Total This Authorization</b>	<b>\$879,592</b>

Future Authorizations	None Anticipated
Total Estimated Project	\$974,992

**REVIEW AND APPROVALS:**

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



**Lehigh County Authority**

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

**PROFESSIONAL SERVICES AUTHORIZATION  
AMENDMENT NO. 1**

**Professional:** D'HUY ENGINEERING, INC.  
One East Broad Street, Suite 310  
Bethlehem, PA 18018

**Date:** August 14, 2017  
**Requested By:** Phil DePoe

**Approvals**  
**Department Head:** \_\_\_\_\_  
**Chief Executive Officer:** \_\_\_\_\_

**Allentown Division – Kline’s Island WWTP 2017 Clarifier Equipment Replacement: Construction Administration Phase**

D’Huy Engineering, Inc. will assist LCA with construction administration support for the clarifier equipment replacement project.

**This Authorization** – Professional Services Authorization Amendment No. 1: **\$19,400**

<b>Professional Services (1)</b>
1. Prepare for, attend, and facilitate a pre-construction conference
2. Prepare for and attend three job conference meetings
3. Review and approve contractor’s submittals and respond to RFIs
4. Process and necessary change orders
5. Provide limited construction observation
6. Prepare punch list and final project close-out
7. As-built drawing preparation

(1) For construction administration phase services only.

Previous Authorizations – Design Phase: \$28,500

This amendment addresses construction administration services that were not specifically accounted for in the original authorization.

**Cost Estimate** (not to be exceeded without further authorization): **\$47,900**

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

**(For Authority Use Only)**

**Authorization Completion:**

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



1053 SPRUCE ROAD \* P.O. BOX 3348 \* ALLENTOWN, PA 18106-0348  
610-398-2503 \* FAX 610-398-8413 \* [www.lehighcountyauthority.org](http://www.lehighcountyauthority.org)  
email: [service@lehighcountyauthority.org](mailto:service@lehighcountyauthority.org)

## MEMORANDUM

---

**TO:** LCA Board of Directors  
**FROM:** Liesel Gross, CEO  
**DATE:** August 7, 2017  
**RE:** USEPA Administrative Order – 8/14/17 LCA Update & Action Items

At the August 14, 2017 meeting of the Lehigh County Authority Board of Directors, the staff has planned a presentation of the current status of the USEPA Administrative Order (AO) to eliminate sanitary sewer overflows (SSOs) within the Western Lehigh, Allentown and surrounding service areas in Lehigh County. As you are aware, the AO was issued to LCA, the City of Allentown and the 12 other municipal entities that are served by this regional sewer system in 2009 with a 2014 deadline to eliminate SSOs. Based on the active collaboration among several partnering municipalities to develop a long-term solution, an extension was granted for all municipalities to submit a corrective action plan by December 31, 2017. Coinciding with the EPA action, the Pa. Department of Environmental Protection (DEP) has a similar action filed for LCA and the communities served by the Western Lehigh Interceptor and its relief facilities, to address related conveyance system capacity issues.

The purpose of the LCA Board presentation and discussion at our upcoming meeting is to share information on the progress made to date, and to discuss key action items that are required to keep forward movement on this complex project and meet the upcoming regulatory submission deadline. In addition to presenting information and seeking input from the Board, staff is also requesting action be taken on two specific items:

- Authorization for professional services required to develop LCA's submission of a corrective action plan to EPA & DEP (more details provided in the **tan** pages attached to this memo)
- Approval of a contract for engineering services to complete final design of Phase 1 improvements determined by the City of Allentown (more details provided in the **green** pages attached to this memo)

This memo serves to introduce the issues that will be discussed at the August 14 meeting from the context of LCA's often-complicated set of roles and responsibilities as well as in recognition of how far we have already come. It is important to forge a clear path to compliance, including meeting the year-end deadline for submission of our plan to the regulators. We are hopeful this memo and subsequent presentation to the Board will help all of us see the path more clearly.

### Review of LCA Roles, Relationships & Responsibilities

---

LCA serves in several different roles in this AO work, and understanding this perspective is important as we discuss how the work has been progressing.

*Every drop matters. Every customer counts.*

1. **LCA's Ownership Role in Western Lehigh County** – LCA actually owns very little of the infrastructure that serves this region. However, for Western Lehigh County, it is the infrastructure that ties several municipalities together. Therefore, LCA has an obligation to maintain and expand its facilities to meet the needs of the communities we serve. LCA-owned facilities include:
  - a. Approximately 30 miles of “interceptor” pipeline
  - b. Two pump stations with associated force mains (Spring Creek and Park pump stations)
  - c. A 5 million gallon per day Industrial Pretreatment Plant (PTP) in Fogelsville
  - d. A 3 million gallon Flow Equalization Basin (located at the PTP)
  - e. Collector systems serving about 800 homes and businesses in Upper Milford, Weisenberg and Lowhill townships

For facilities listed in items a – d above, LCA must ensure they are sized appropriately to transport wastewater to its final destination at the Kline's Island Wastewater Treatment Plant (KIWWTP) in Allentown, but we have limited control or input regarding what each community is doing to limit rainwater inflow and infiltration from entering the system.

2. **LCA's Leadership & Facilitation Role in Western Lehigh County** – While LCA owns just a small portion of the infrastructure that is subject to the AO, they are highly visible assets that run through and alongside beloved community features such as the Little Lehigh Creek and several park systems in Lehigh County. SSOs that occur in these areas are troublesome for many reasons including impacts to environmental quality, drinking water source quality, and quality of life / community enjoyment of these natural features. Many of the municipalities we serve are smaller communities that may not have resources available to conduct engineering work to develop detailed corrective action plans. Some of the proposed projects will be managed by LCA to add system capacity that can be used by all of the connected municipalities we serve. In turn, all municipalities who use LCA's regional facilities contribute to the cost of their operation, maintenance, replacement and expansion. For these and many other reasons, LCA has an obligation to facilitate regional collaboration to address the SSO problem and to assist the communities we serve in developing solutions that work from a financial, environmental and long-term social perspective.

LCA's leadership in facilitating these discussions also includes a fiduciary and legal responsibility to the municipalities we serve, governed by long-standing inter-municipal agreements.

3. **LCA's Complex Relationship with Allentown** – LCA has a dual relationship with the City of Allentown as it relates to the AO and the solutions that are being developed.
  - a. LCA as a Customer – LCA and the Western Lehigh municipalities we represent (Lower Macungie, Upper Macungie, Weisenberg, Lowhill and Upper Milford townships and the boroughs of Macungie and Alburtis) is the second largest user of the City's KIWWTP. We own 10.78 million gallons of the facility's 40 million-gallon treatment capacity. As a result, LCA and its signatories pay for 27% of the capital improvements completed at the plant. If future capacity is needed to serve still-growing portions of our signatories' service areas, we will pay for the expansion costs at the plant as well. From that

perspective, it is important to LCA that the City's response to the AO is well developed, cost-effective and keeps options available for future needs of our service area.

- b. LCA as Operator / Lessee – Under the terms of the 50-year lease agreement with the City, LCA is obligated to operate the KIWWTP and other City sewer infrastructure in a manner that meets both regulatory and lease requirements. As it relates to the AO, however, the City maintains financial, legal and regulatory responsibility and liability for the work, and LCA must complete the work under the City's direction. From this perspective, while the City is directing LCA's work at the KIWWTP, it is important to LCA that the projects make sense from an operational viewpoint and that the consultant selection process follows LCA's purchasing approval protocols.

To balance these dual roles, several LCA staff members have spent considerable time collaborating with the City to forge a strong relationship and develop plans and strategies that make sense from both operator and customer perspectives.

4. **LCA's Relationship with City Signatories** – Just as our relationship with the City is complicated, so is our relationship with the other municipalities served by the City system – Salisbury, South Whitehall and Hanover townships, Coplay-Whitehall Sewer Authority, and the Borough of Emmaus.
  - a. On one hand, LCA is one of the signatories – the largest one, as described above – with an interest in ensuring the City's projects are cost effective and costs are fairly distributed.
  - b. On the other hand, as the system operator under the lease, LCA is also acting as the agent of the City to collect fees and ensure the municipalities are contributing to the solution in an equitable manner. To address this aspect, the City has played an active role in communicating with the signatories to share the City's perspectives on the AO and to negotiate how costs will be shared.

It is important to understand the various roles and responsibilities LCA has, and the complicated relationships we share with some of the municipalities we have been collaborating with over the past several years to address the AO, as we head into the discussion at our August 14, 2017 Board meeting about what's next.

#### **Quick Review – Prior Presentations & Discussions**

---

Over the past few years, LCA has conducted several public meetings, Board discussions and other events to share information about the progress that has been made to address SSOs in Lehigh County. It is not our intent to go back and review all of the information and decisions that have been covered previously, but it might be helpful to recall the following issues that have been presented and addressed over the past few years:

**2014** – Throughout the year, and at a broadly attended public meeting in November 2014, LCA provided a detailed review of flow metering / system modeling data used to determine where the rainwater is getting into the system to cause overflows during wet-weather events. This information is critical to develop meaningful solutions, and also served as a call to communities and homeowners to remove unauthorized connections such as sump pumps, floor drains and roof leaders into the sewer system.

**2015** – Over the course of the year, LCA presented results of a detailed analysis of regional strategies to address SSOs, including cost analysis of different combinations of projects such as building new interceptors, new flow equalization facilities and/or pump stations vs. dedicated work to remove rainwater leakage into the collector systems. From this analysis, a phased approach was selected to focus on collector systems work (source removal) and certain key projects in phase 1, followed by a more capital intensive conveyance capacity program in phase 2.

**2016** – A refined project approach was presented in several parts including review of selected alternatives for the Western Lehigh communities, development of the Rainstorm Ready communications strategy, integrating the Western Lehigh and City of Allentown project approaches, and detailed review of the City’s preferred use of blending technology at the KIWWTP to address peak wet-weather flows. At this point, communities became more aware of the magnitude of the issue in terms of total cost, with a \$400 million price tag discussed as being the likely scope of work needed to address the issues. The estimated LCA (Western Lehigh) portion of the refined list of projects is shown below, with the municipalities’ source removal work in addition to this list:

Project Name	Spend Year	Spend Year Capital
WLI Trunk Line Rehab	2016	\$ 812,000
Park Pump Station Refurbishment	2017	\$ 2,719,794
WLI Main Rehab 2	2018	\$ 3,346,171
Park Force Main Refurbishment	2018	\$ 3,032,467
Park Force Main Extension	2020	\$ 2,429,534
Phase 1 Allentown Projects	2020	\$ 5,386,420
Trexletown Interceptor	2021	\$ 14,622,411
End of Phase 1 Performance Evaluation	2026	\$ 1,177,949
Little Sister Force Main	2028	\$ 21,253,937
Little Sister Pump Station	2029	\$ 16,813,466
Phase 2 Allentown Projects	2029	\$ 12,317,557
Kecks Bridge Park Interceptor	2030	\$ 6,137,575
AMTL Relief Trunk Line	2034	\$ 17,745,063
Ancient Oaks Interceptor Phase 2	2036	\$ 12,509,104
End of Phase 2 Performance Evaluation	2037	\$ 1,387,564
Phase 3 Allentown Projects (if needed)	2041	\$ 10,308,967

**2017** – In February, LCA presented concepts that would be part of ongoing negotiations with all municipalities impacted by the AO about how each community will pay for the work that is needed to address SSOs. The initial discussion focused on paying for phase 1 work via traditional debt service cost-allocation procedures already in place through inter-municipal agreements, followed by a flow metering and modeling effort after phase 1 work was completed in 2026. Using this data, phase 2 work was envisioned to be paid for based on peak-flow contributions by each municipality.

**Ongoing** – Throughout this time period, LCA’s Board along with many other municipalities have authorized studies and projects to work toward real system improvements, even while the major planning and collaboration work was continuing. Such approvals included:

- Western Lehigh Interceptor “test & seal” project
- Park Pump Station refurbishment project design
- Spring Creek Pump Station screening & comminutor project
- Western Lehigh Interceptor easement clearing program
- Western Lehigh Sewerage Partnership (WLSP) rehab effectiveness metering / modeling
- Numerous projects by each Western Lehigh municipality
- LCA projects directed by the City including numerous manhole lining projects and conceptual design of City phase 1 AO improvements

Much of this detailed information can be found online by going to [www.lehighcountyauthority.org](http://www.lehighcountyauthority.org) and following the link to Your Wastewater → What About Sewer Overflows? Presentations made to LCA’s Board directly are also available by going to About LCA → Meetings & Minutes. Additional information about the Western Lehigh communities’ work on the AO is available at [www.rainstormready.com](http://www.rainstormready.com).

### What’s Next?

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Considering all the different “hats” LCA wears in the delivery of sewer service in our community, and how far we have come to develop relationships, data and solutions to address the SSO problem, the next steps are relatively straightforward and will be presented at the August 14 Board meeting.

At this time, we are taking a short-term view to achieve a long-term goal. That is, we are focused now on getting to the December 31, 2017 deadline to submit a great plan to EPA / DEP, which will pave the way for future work to achieve the long-term goal of having a system that can appropriately respond to wet-weather events as well as any future growth that occurs.

Some details we plan to share with the Board include:

1. LCA & WLSP projects & progress to date
2. Quick preview of upcoming LCA projects
3. City & City signatory progress
4. Regulatory Review – overview of recent EPA/DEP meeting
5. Status of pay-basis negotiations with Western Lehigh communities
6. Status of pay-basis negotiations with City / City signatories
7. Critical documents to develop (maintenance plans, guidance manuals, implementation plan)
8. Future LCA Board approvals needed between now and year-end

Based on this presentation and discussion, LCA staff will request approval for a professional services authorization for the development of the documents to be used to create the submission to EPA / DEP by the end of the year (see item 7 above). See **tan** pages attached.

In addition, a representative of the City will be available at the August 14 meeting to answer any questions the Board may have about the City’s projects, and approval will be requested for awarding the contract for final design services of the City’s selected alternative for their phase 1 work plan. See **green** pages attached.

Ms. Pat Mandes  
Wastewater Services Director  
Lehigh County Authority  
P.O. Box 3348  
Allentown, PA 18106

Arcadis U.S., Inc.  
1128 Walnut Street  
Suite 400  
Philadelphia  
Pennsylvania 19107  
Tel 215 625 0850  
Fax 215 625 0172  
[www.arcadis.com](http://www.arcadis.com)

Subject:  
2017 SCARP Improvement Implementation Plan

Dear Ms. Mandes:

ARCADIS is pleased to provide Lehigh County Authority (LCA) with this scope and budget to prepare the draft and final 2017 SCARP Improvements Implementation Plan (2IP) for submission to PADEP and USEPA by December 31, 2017 and to document the work completed to date for future reference.

## **OBJECTIVES**

The goal of this work is present a capital improvements implementation plan that:

- Dovetails with the City of Allentown's pending AO Corrective Action Plan
- Gains Western Lehigh Sewer Partnership acceptance
- Provides flexibility for scope and implementation of Phase 2 project
- Is approvable by PADEP and USEPA.

## **SCOPE OF WORK**

### **TASK 1 – DEVELOP DETAILED PLAN OUTLINE**

Arcadis will prepare a detailed plan outline for the 2IP for review by LCA, the WLSP, and outside counsel, and for comment and input by City of Allentown (City). This detailed outline will identify all subsections, figures, tables, graphs, etc., anticipated in the report and provide a bulleted outline of what will be discussed in each subsection. The purpose of this step is to:

- Ensure internal documentation of both completed evaluations and determinations and future work are sufficiently detailed to allow implementation of the SCARP consistent with the 2017 intent through the start of Phase 2 in 2028. For example:
  - The identified and the completed clearwater disconnections are only captured in various semiannual reports; there is no single database of findings and corrections. This is true for most of the SSES findings.

Date:  
June 16, 2017

Contact:  
Jim Shelton

Phone:  
302.723.1450

Email:  
James.Shelton@arcadis.com

Our ref:  
60000247.0058

- The Source Reduction Program areas have been reported in various powerpoints, but limited actual documentation of why these areas are prioritized has been made.
- The KISS model calibration, weaknesses, and various model runs have not been formally documented.
- The cost estimates and cash flows for the selected approach have not been formally documented.
- Make early decisions about what information should be included in the regulatory plan submission versus what should be documented for ongoing implementation.

## **TASK 2 – DEVELOP DRAFT PLAN**

Arcadis will prepare a detailed draft outline for the 2IP for review by LCA, the WLSP, and outside counsel, and for comment and input by City of Allentown (City). This detailed draft will be preliminarily written around the below table of contents.

### 1. Introduction

- 1.1. Regulatory History and Background
- 1.2. System Description
- 1.3. Satellite System Contractual Obligations to LCA
- 1.4. LCA Contractual Obligations to City of Allentown
- 1.5. Western Lehigh Interceptor Overflow History

### 2. Hydraulic Condition Assessment

- 2.1. Flow and Rain Monitoring
- 2.2. Model Development
- 2.3. Design Conditions for Evaluations
- 2.4. Model Findings
- 2.5. SSES Program Implementation
- 2.6. Clearwater Connections
- 2.7. Leaking Public Sewers
- 2.8. Private Sewer Leakage

### 3. Underlying Reasons for WLI SSOs

- 3.1. Generalized Problem Definition
- 3.2. Specific Issues Contributing to SSOs
  - 3.2.1. Design Capacity of WLI and Its Trunklines
  - 3.2.2. Anticipated Growth
  - 3.2.3. Industrial Expansions
  - 3.2.4. Inflow and Infiltration
  - 3.2.5. Downstream City of Allentown Sewer Capacity and Treatment Plant Limitations

### 4. Alternative Analysis Summary<sup>1</sup>

- 4.1. Objectives
  - 4.1.1. Elimination of Overflows

- 4.1.2. Dry Weather Operating Depth Goals
- 4.1.3. Wet Weather Operating Depth Goals
- 4.2. Preliminary Screening of Alternatives
- 4.3. Final Screening of Alternatives
- 4.4. Selected Approach
- 4.5. System Upgrades Necessary for Future Flows
- 5. Level of Protection Goals
  - 5.1. Level of Protection Evaluation
  - 5.2. Regulatory Level of Protection Goal
  - 5.3. Hydraulic Basis of Design for Improvements
    - 5.3.1. 10 Year Depth of Flow Reoccurrence
- 6. Improvements Plan Overview
  - 6.1. Phase 1
  - 6.2. Interregnum
  - 6.3. Phase 2
  - 6.4. CMOM Plans
- 7. Phase 1 Improvements
  - 7.1. Source Reduction Programs
  - 7.2. Interim Flow and Rain Monitoring and KISS Model Recalibration
  - 7.3. Park Pump Station Refurbishment
  - 7.4. Park Pump Station Forcemain and ARV Rehabilitation
  - 7.5. Spring Creek Pump Station Wet Well and Operating Logic Modifications
  - 7.6. Spring Creek Pump Station Force Main and ARV Rehabilitation
  - 7.7. Trexlertown Interceptor Paralleling
  - 7.8. Iron Run Pump Station and Forcemain
- 8. Interregnum 8-1
  - 8.1. 2026 Flow and Rain Fall Monitoring
    - 8.1.1. WLSP Metering Network
    - 8.1.2. Allentown and Other Signatory Metering Network
  - 8.2. 2026 KISS Model Recalibration
  - 8.3. 2026 Level of Protection Evaluation
  - 8.4. Act 537 Future Development Flow Predictions for 2030, 2040, and 2050 Planning Horizons
  - 8.5. Phase 2 Confirmation of Approach
  - 8.6. Sizing of New Conveyance and Storage
  - 8.7. Sizing of Little Sister Pump Station and Forcemain
  - 8.8. Sizing of Klines Island Peak Flow Treatment Facilities
  - 8.9. Negotiation with Other Signatories and Allentown for Allocation of Costs for Common Conveyance, Storage, and Treatment Facilities
- 9. Currently Anticipated Phase 2 Improvements
  - 9.1. Little Sister Pump Station and Forcemain
  - 9.2. Kecks Bridge Interceptor

- 9.3. Upper Milford Relief Trunkline
- 9.4. Albutis Macungie Relief Trunkline
- 9.5. Ancient Oaks Interceptor
- 10. Final Level of Protection Proof
  - 10.1. 2038 Flow and Rain Fall Monitoring
  - 10.2. 2038 KISS Model Recalibration
  - 10.3. 2038 Final Level of Protection Proof
- 11. Progress Reporting
  - 11.1. Annual Reports
  - 11.2. Development Flow Credits Reporting
  - 11.3. Phase 2 Improvements Plan
  - 11.4. Final Level of Protection Proof Report

### **TASK 3 – DRAFT PLAN REVIEWS**

Arcadis will provide full hard copy and pdf copies of the draft report to LCA and the WLSP at the 70% and 95% complete stage. Arcadis will collate the comments from these two submittals and provide consolidated tracked changes documents for review by Arcadis as part of the monthly WLSP Engineer and Municipal Leader meetings.

### **TASK 4 – PREPARE FINAL PLAN**

Arcadis will prepare the final 2IP for ratification by the WLSP and submission to USEPA and PADEP.

### **DELIVERABLES**

The following deliverables will be made:

- Detailed 2IP outline
- 70% 2IP draft
- 95% 2IP draft
- Final 2IP.

### **BUDGET ESTIMATE**

It is difficult to accurately assess the level of effort for this assignment. We estimate this work will take 440 hours and a cost of \$75,000. We propose to complete these services on a time and materials basis in accordance with the June 17, 1997 Agreement with LCA and the current Summary of Standard Charges for Lehigh County Authority. We will not exceed this budget without prior authorization from LCA. Payment for services will be based upon the actual labor and expenses incurred.

Please contact me with your authorization to proceed if this scope and budget are acceptable to you. If you have any questions, please do not hesitate to call me.

Ms. Pat Mandes  
August 7, 2017

Sincerely,

Arcadis U.S., Inc.

A handwritten signature in blue ink that reads "James W. Shelton". The signature is written in a cursive style with a light blue background behind it.

James W. Shelton, PE  
Vice President

Copies:

**CAPITAL PROJECT AUTHORIZATION  
AMENDMENT NUMBER 27**

**PROJECT No.:** S-08-5 **BUDGET FUND:** WLI Sewer Capital

**PROJECT TITLE:** Signatory I & I Investigation/Remediation Program **PROJECT TYPE:**

**TOTAL PROJECT THIS AUTHORIZATION** **Prior:** \$6,638,331 **Current:** \$75,000

Construction  
 Engineering Study  
 Equipment Purchase  
 Amendment

**DESCRIPTION AND BENEFITS:**

**Full Project Overview:**

Based on the EPA Compliance Order and the PADEP Chapter 94 requirements, LCA and the LCA Signatories are required to reduce infiltration and inflow from the system and eliminate SSOs from the LCA and Signatory sewer systems. The SCARP Program has been developed to investigate the sources of I & I and to remediate areas identified as having excessive I & I. The SCARP Program consists of engineering tasks necessary to define and quantify the problems, to evaluate methods of redress and to determine the corrective actions required to meet the regulatory requirements and prepare the CAP and schedule to be submitted to EPA by December 31, 2017.

**Preparation of AO Program Summary and Draft Capital Improvements Implementation Plan:**

The work completed by the Arcadis, the LCA I & I Program Consultant includes the following:

Task 1: Develop Detailed Summary and Draft Capital Improvements Implementation Plan Outlines

Task 2: Develop Draft Summary Document and Draft Capital Improvements Implementation Plan

Task 3: Draft Summary and Draft Capital Improvements Implementation Plan Review by LCA and Partners and Revisions

Task 4: Finalize Summary Document and Prepare Final Draft Capital Improvements Implementation Plan for Submission to Regulators

Previously Approved		This Amendment	Total Approval
Flow Monitoring ADS (thru 2014)	\$1,775,031		\$ 1,775,031
Flow Monitoring TFE	\$294,000		\$294,000
Engineering Consulting	\$2,629,300	\$75,000	\$2,704,300
Rehabilitation	\$1,590,000		\$1,590,000
Staff	\$330,000		\$330,000
Contingencies	\$20,000		\$20,000
<b>Totals</b>	<b>\$6,713,331</b>		<b>\$6,713,331</b>

**REVIEW AND APPROVALS:**

Pat Mandes 7/25/2017 \_\_\_\_\_  
 Chief Compliance Officer Date Chief Executive Officer Date

\_\_\_\_\_  
 Capital Works Manager Date Chairman Date



Lehigh County Authority

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

**PROFESSIONAL SERVICES AUTHORIZATION**

**AMENDMENT NUMBER 28**

**Professional:**

Arcadis  
Jim Shelton  
1128 Walnut St.  
Philadelphia, PA 19107

**Date:** 7/26/17

**Requested By:** Pat Mandes

**Approvals**

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

**Chief Executive Officer:** \_\_\_\_\_

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

This is an amendment to the current Arcadis authorization for the WLI EPA Administrative Order Project: The work covered by this amendment includes preparation of a summary of the work that has been completed on the I & I project 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:

Task 1: Develop Detailed Summary and Draft Capital Improvements Implementation Plan Outlines

Task 2: Develop Draft Summary Document and Draft Capital Improvements Implementation Plan

Task 3: Draft Summary and Draft Capital Improvements Implementation Plan Review by LCA and Partners and Revisions

Task 4: Finalize Summary Document and Prepare Final Draft Capital Improvements Implementation Plan for Submission to Regulators

The scope of work is described in more detail in the proposal dated June 16, 2017.

**Cost Estimate (not to be exceeded without further authorization):** This amendment is not to exceed \$75,000 for Document Preparation.

**Time Table and Completion Deadline:**

No later than December 25, 2017

**(For Authority Use Only)**

**Authorization Completion:**

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

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

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## MEMORANDUM

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**Date:** August 14, 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**

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(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:** August 14, 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 Engineer’s Report, updated construction cost estimate, and PA DEP Part II Permit
4. Prepare final design drawings and specifications, and other miscellaneous permits
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**

**1. Suburban Division Water & Wastewater Tapping Fees – August 28, 2017**

Staff is continuing to work with the Authority’s rate consultant on developing an updated tapping fee calculation methodology for the Suburban Division. New fees will be presented to the Board for adoption by resolution at the August 28, 2017 meeting.

**DISCUSSION ITEMS**

**1. Full-Year Financial Forecast – August 14, 2017**

With the completion of 2<sup>nd</sup> quarter financial statements, staff will provide a brief presentation on the full-year forecast for 2017. This forecast will include estimated revenues, expenses and capital expenses through year-end, and will serve as the basis for developing the 2018 budget.

**2. 2018-2021 Capital Plans – August 28, 2017**

Staff has prepared project details for the annual revision / update of the Authority’s 5-year Capital Plan. A preliminary draft plan will be delivered to the Board on August 14, 2017, followed by detailed presentation on August 28, 2017. Following a public comment period and distribution of the plan to external agencies and municipalities, the plan is expected to be finalized for Board adoption in September.

**3. 2018 Budget – August 28, 2017**

The 2018 budget will be required to be approved by October 31, 2018. Staff will present details of the budget development schedule and approval process at the August 28, 2017 meeting.

**4. Suburban Water Rate Study – September 2017 date to be determined.**

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**

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

CERTIFICATES OF DEPOSIT						
24-Jul-17			Gross	Date of	Date	Net Rate
Fund	Bank	Location	Amount	Purchase	Due	%
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)    | Consolidated Water (2)                            |
| LLRI CR         | Little Lehigh Relief Interceptor Capital Reserves |
| Cons LL2 (314)  | Consolidated Little Lehigh Relief Interceptor 2   |
| WW Capac        | Wastewater Capacity                               |
| 2010 Wtr Cons A | 2010 Water Construction, Series A Bond            |
| Wtr R&R         | Renewal and Replacement                           |

## WATER

### ACTION ITEMS

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1. **Suburban Division – Buss Acres Pumping Station Replacement – August 14, 2017**

This project involves the consolidation of two well stations into a single new pump station and a new, larger water storage tank to replace the aged hydro-pneumatic tanks located at each well. The station is to be upgraded to a double pumping variable speed system with full SCADA telemetry. Engineering services will also include a review of the feasibility of providing fire protection and radon removal for the system. Proposals for engineering services were received on July 24, 2017 and authorization to award design phase is requested at the August 14, 2017 Board meeting.

### 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.

### 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 end of August 2017. This capital project is funded by the LCA Allentown Division.

2. **Allentown Division – Schantz Spring Exposed Main Replacement**

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. Application was made to DEP for a Public Water Supply Permit. The project will be funded by the LCA Allentown Division and is anticipated to be constructed in late 2017. **(No change)**

3. **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)**

4. **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)**

5. **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 and construction will begin in late August 2017. This Project is identified as Schedule-7 Work and will be funded by LCA Allentown Division.

6. **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.

7. **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 an upcoming Suburban Division main replacement project **(No Change)**.

8. **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.

9. **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 May 6, 2017 Anrich Inc., our contractor has completed all punch list item deficiencies. LCA is under discussions with Anrich, Inc. to close out the project. **(No Change)**

10. **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. Design of the water line will commence once the easements are obtained. **(No Change)**

11. **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. The project bids were opened on June 1 and authorization to award was given at the June 26, 2017 Board meeting. Construction is anticipated to begin in August 2017 and be completed by the end of 2017. **(No Change)**

**12. 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)**

**13. 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 September 2017 and be completed in early 2018.

**14. 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.

**15. Developments**

Water system construction is occurring in the following developments:

- Fields at Indian Creek, Phase 2, 35 private, age-restricted/senior residential units (sfd), UMiIT, 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. **Allentown Division – Wastewater Treatment Plant: Miscellaneous Improvements – August 14, 2017**

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 is requested at the August 14, 2017 Board meeting. This capital project will be funded by the LCA Allentown Division.

2. **EPA Administrative Order Update – August 14, 2017**

The Board will be updated on recent activities associated with both the City and LCA EPA AOs including a meeting with the regulators, the Memo of Cooperation between the LCA Signatories, and the MOU with the City Signatories. Two actions will be requested as part of this discussion as follows:

■ **Suburban Division – Documentation / EPA Submission of Capital Improvements Plan**

Board approval for a Professional Services Authorization and Capital Project Authorization Amendment for Arcadis to prepare the Capital Improvements Implementation Plan for submission to the EPA is being requested at the August 14, 2017 Board Meeting. A final presentation to the Board will be presented prior to submission in December 2017. See the attached PSA and CPA.

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

This project includes the design of the AO improvements at the wastewater treatment plant. This conceptual design concept 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 August 14, 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. **CH2M Contract Extension – September meeting date TBD**

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.

### 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 July of 2017 and will be finished by late August 2017. The project is identified as Administrative Order and will be funded by the City. This will be 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. **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 bid date in September 2017. The water quality management Part 2 permit application was submitted to DEP for approval in June 2017.

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

Project consists of sanitary sewer cleaning, inspections via CCTV, cured-in-place point repairs, pressure testing and chemical grout sealing of joints, and post construction inspection for sanitary sewer lines located in western and central Lehigh County previously identified as areas subject to leakage. This project is part of the SCARP program. Construction began in August 2016 and is expected to finish by Summer 2017. **(No Change)**

7. **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 may be undertaken in the meantime.

8. **Suburban Division – SCARP**

Refer to Item #3 under wastewater action items.

9. **Suburban Division – Park Pump Station Upgrade**

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 project is currently in design phase with design completion and start of bid phase planned for late 2017. **(No change)**

10. **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)**