LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

FINAL DRAFT

5-YEAR CAPITAL PLAN

ALLENTOWN DIVISION

2018-2022

SEPTEMBER 2017

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2018-2022

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2018-2022 Capital Plan

Glossary of Acronyms & Terms

The following is a listing of acronyms and terms used in the Capital Plan Summary and Project Detail Sheets.

LCA Water and/or Wastewater Divisions/Systems

LCA Water and/or Wastewater Divisions/Systems			
		Water	**Wastewater**
AD	Allentown Division	X	X
AWD	Arcadia West Division	X	X
BHD	Beverly Hills Division	X	
CLD	Central Lehigh Division	X	
CFD	Clear View Farms Division	X	
ECD	Emmaus Consecutive Division	X	
HHD	Heidelberg Heights Division	X	X
LLRI-1	Little Lehigh Relief Interceptor, Phase 1		X
LLRI-2	Little Lehigh Relief Interceptor, Phase 2		X
LTD	Lynn Township Division		X
MCD	Mill Creek Division	X	
MND	Madison Park Division	X	
NWD	North Whitehall Division	X	
PLD	Pine Lakes Division	X	
SSD	Sands Spring Division		X
UMD	Upper Milford Division	X	X
UMCD	Upper Central Milford Division (Buss Acres)	X	
WLI	Western Lehigh Interceptor		X
WTD	Washington Township Division	X	X
WWD	Wynnewood Division		X

Project Type

Project Type	Description
AO	Administrative Order
UW	Uncompleted Work [(1)]
S-7-MCI	Schedule-7 *(Lease Required)* Major Capital Improvement[(2)]
LCA-MCI	LCA Developed Major Capital Improvement[(2)]
Regular	A project that does not fit in any of the aforementioned special categories

(1) Uncompleted Work: City Projects that were supposed to be complete by the time of settlement. The City and LCA have reached an agreement for LCA to execute them.

(2) Major Capital Improvement: In accordance with the Lease, all Major Capital Improvements must be approved by the City.

Project Funding

Project Funding	Description
LCA	Funded by LCA
100% Reimb	All costs are 100% reimbursable by fees charged
Fees & LCA	Costs partly recovered through fees charged and partly funded by LCA
Allentown	Funded by the City of Allentown
CCRC	Capital Cost Recovery Charge(1); Applies only to City approved MCI

(1) *Capital Cost Recovery Charge: An on-going user fee that is above the rate caps set forth in the Lease to allow the recovery of the cost of an MCI. Rate payers are charged based upon usage.*

Project Category

Projects have been categorized to identify the primary and secondary reasons for the need. In some cases there is no secondary reason that would be applicable.

Project Category	Description
Regulatory	Required to meet Regulatory requirements
New Cust	New Customers
CA/OS	Concession Lease/Operating Standards
AM - Low	Asset Management - Low Risk
AM - Med	Asset Management - Medium Risk
AM - High	Asset Management - High Risk
AM - Varies	Asset Management - Varies(1)
Efficiency	Efficiency
Sys Imp	System Improvement
Rev Opprt	Revenue Opportunity
Planning	Planning
N/A	Not Applicable

(1) *Applies to Asset Management Projects, where there are multiple standalone sub-projects of varied levels of "risk".*

Approval Stage

Approval Stage	Description
A	Annual Project, no approvals required
S	Study/Planning Phase
D	Design Phase
C	Construction/Implementation Phase
E	Entire Project
V	Various Phases
P	Pending Board approval

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
CAPITAL PLAN
2018–2022

SUMMARY

The Allentown Division Capital Plan (Plan) is a five year plan that covers the years 2018 through 2022. The Plan includes water and wastewater projects to assure facility / infrastructure reliability and to comply with the Lease required projects. It also includes projects and studies deemed necessary by LCA, where the latter will identify and evaluate upgrades and improvements that will be incorporated in future Capital Plans. The Lease requires that LCA submit a 5-year Capital Plan to the City for review and approval.

The projects identified in the Plan fall into to two primary categories, those funded by LCA and those funded by the City, with the latter further categorized as Administrative Order (AO) projects and Uncompleted Work (UW).

Administrative Order (AO) Projects: This includes projects necessary to bring the City's wastewater system into compliance with the US Environmental Protection Agency (USEPA) Administrative Order to eliminate Sanitary Sewer Overflows / By-passes at Outfall 003 of the wastewater treatment plant. Pursuant to the Concession Lease Agreement (Lease), the City is responsible for making all decisions related to this work and for funding said work. LCA is responsible for the execution of the work.

Uncompleted Work (UW) Projects: This category includes projects that the City expected to be completed before the Lease began, but were not completed prior to the Lease start. The City and LCA reached an agreement providing that LCA will manage these projects but be reimbursed by the City for all project costs. Of these projects, the WWTP Bar Rack, Sanitary Sewer Evaluation Study, WWTP SCADA Upgrades, WFP Chemical Building Roof Replacements, the alternate remedy for the Schantz Spring Chlorine Booster Station and Rehabilitation of the 28th Street Elevated Tank, have been completed by LCA since the Lease inception.

Funding by Budget Area and category is as follows:

CAPITAL FUNDING 2018-2022					
Budget Area	**LCA**	**CITY**			**Totals**
		UW	**AO**	**Sub-Total**	
Water	$59,622,000	$300,000	$0	$300,000	$59,622,000
Wastewater	$11,593,000	$0	$20,340,000	$20,340,000	$31,933,000
Totals	**$70,915,000**	**$300,000**	**$20,340,000**	**$20,640,000**	**$91,555,000**

Water Projects: Focus on regulatory compliance, asset management, immediate and future needs at the Water Filtration Plant (WFP) and addressing the Lease operating standards. Projects of note include the completion of filter upgrades and the intake improvements that were identified in the WFP Master Plan. The recently completed WFP Master Plan identified capital improvements to address future regulatory requirements and/or operational needs. The installation of Emergency Power (generators) at the WFP will assure water production from Schantz and Crystal Springs during a power outage. Funding is also provided to replace a leaking segment of the Schantz Spring main located on Martin Luther King Blvd, the annual replacement of 2-miles of aged and/or failing spun and pit cast water main as required by the Lease and other infrastructure replacement as needed.

Wastewater Projects: The Projects focus on regulatory compliance, asset management, immediate and future needs at the Wastewater Treatment Plant (WWTP) and addressing the Lease operating standards. Projects of note include the Phase 1A Administrative Order improvements, replacement of the two-aged Electrical Substations at the WWTP, a WWTP Master Plan that will identify capital improvements to address future regulatory requirements and/or operational needs and for the replacement and/or rehabilitation of defective sewer mains when warranted.

Additional information regarding these and other projects can be found in the Plan's individual Project Detail Sheets.

Supplemental Revenues: Under the Concession Agreement, LCA is able to charge Capital Cost Recovery Fees and Capital Recovery Fees to City customers. These charges will be applied to all Major Capital Improvements (MCI), which are defined as projects exceeding $1 million (indexed for inflation in the future) within the proposed Plan. We expect the projects to generate capital cost recovery charges, which over the span of the Plan will rise from $889,000 in 2018 to $4,062,000 in 2022 - generating total charges of $12,237,000 over the five year period.

FINANCIAL JUSTIFICATION

In 2018 and beyond, LCA anticipates that Capital Projects will be funded through a combination of available reserves, operating surplus and/or additional borrowings.

2018-2022 Capital Plan Allentown Division Funding Sources							
	LCA SOURCES				CITY SOURCES		
Budget Area	**Contributions**	**Operating Reserves**	**Capital Reserves**	**New Borrowing**	**AO**	**UW**	**Total Sources**
Water	$0	$16,619,000	$13,000,000	$30,003,000	$0	$300,000	$59,622,000
Wastewater	$0	$16,000,000	$12,636,000	$3,297,000	$28,940,000	$0	$31,933,000
Totals	**$0**	**$32,619,000**	**$25,636,000**	**$33,300,000**	**$28,940,000**	**$300,000**	**$91,555,000**

WATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2018-2022 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	(1) Prj. Type	(1) Funding	Approval Stage (1)	Project Cost		This Capital Program						Project Category (1)	
					Total Cost	Prior to Years (2)	2018	2019	2020	2021	2022	Total	Primary	Secondary
	LCA FUNDED PROJECTS													
	Annual													
AD-W-A	Annual Projects	Regular	LCA	A	$ 7,289,000	$ 29,000	$ 1,531,000	$ 1,499,000	$ 1,510,000	$ 1,510,000	$ 1,210,000	$ 7,260,000	AM - Varies	Sys Imp
	Subtotal				**$ 7,289,000**	**$ 29,000**	**$ 1,531,000**	**$ 1,499,000**	**$ 1,510,000**	**$ 1,510,000**	**$ 1,210,000**	**$ 7,260,000**		
	Previously Authorized													
AD-W-7	Water Main Replacements	S-7-MCI	CCRC	V	$ 24,000,000	$ -	$ 4,800,000	$ 4,800,000	$ 4,800,000	$ 4,800,000	$ 4,800,000	$ 24,000,000	CA/OS	AM - High
AD-W-9	Various Water System Related Studies	Regular	LCA	V	$ 101,000	$ -	$ 20,000	$ 21,000	$ 20,000	$ 20,000	$ 20,000	$ 101,000	CA/OS	Planning
AD-W-13	Facility Roof Replacements Phases 2 & 3	Regular	LCA	C	$ 671,000	$ -	$ 100,000	$ 100,000	$ 100,000	$ 171,000	$ 200,000	$ 671,000	AM - High	Sys Imp
	Subtotal				**$ 24,772,000**	**$ -**	**$ 4,920,000**	**$ 4,921,000**	**$ 4,920,000**	**$ 4,991,000**	**$ 5,020,000**	**$ 24,772,000**		
	Pending Authorization													
AD-W-10	Emergency Power at WFP - Crystal & Schantz Springs Pumps	LCA-MCI	CCRC	P	$ 1,790,000	$ -	$ -	$ -	$ -	$ 890,000	$ 900,000	$ 1,790,000	Sys Imp	Efficiency
AD-W-11	Schantz Spring Main Replacement & Leak Rehabilitation	S-7-MCI	CCRC	P	$ 2,290,000	$ 1,955,000	$ 335,000	$ -	$ -	$ -	$ -	$ 335,000	CA/OS	AM - Med
AD-W-21	Fixed-Base Meter Reading System	Regular	LCA	P	$ 1,705,000	$ -	$ -	$ -	$ 1,705,000	$ -	$ -	$ 1,705,000	Efficiency	Sys Imp
AD-W-22	Filter Upgrades	LCA-MCI	CCRC	P	$ 12,340,000	$ -	$ 200,000	$ 7,020,000	$ 5,120,000	$ -	$ -	$ 12,340,000	Sys Imp	Efficiency
AD-W-23	Intake Upgrades	LCA-MCI	CCRC	P	$ 11,120,000	$ -	$ -	$ -	$ 440,000	$ 5,340,000	$ 5,340,000	$ 11,120,000	Sys Imp	Efficiency
	Subtotal				**$ 29,245,000**	**$ 1,955,000**	**$ 535,000**	**$ 7,020,000**	**$ 7,265,000**	**$ 6,230,000**	**$ 6,240,000**	**$ 27,290,000**		
	TOTAL LCA FUNDED PROJECTS				**$ 61,306,000**	**$ 1,984,000**	**$ 6,986,000**	**$ 13,440,000**	**$ 13,695,000**	**$ 12,731,000**	**$ 12,470,000**	**$ 59,322,000**		
	CITY FUNDED PROJECTS													
AD-W-15	Itron/AMR Meter Project	UW	Allentown	V	$ 300,000	$ -	$ 140,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 300,000	CA/OS	Efficiency
	TOTAL CITY FUNDED PROJECTS				**$ 300,000**	**$ -**	**$ 140,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 300,000**		
	GRAND TOTAL				**$ 61,606,000**	**$ 1,984,000**	**$ 7,126,000**	**$ 13,480,000**	**$ 13,735,000**	**$ 12,771,000**	**$ 12,510,000**	**$ 59,622,000**		

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) Includes estimate of expenditures through 2017.

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	ANNUAL PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-W-A
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This is an annual project that has been previously listed as separate projects. This new annual project includes the following: New & Replacement Meter Installation, Distribution Mains - Development & Service Connections, Distribution Mains - Upsizing, Other Equipment, WFP General Improvements, Reservoir Rehabilitation/Maintenance, Mobile Equipment, General Water System Replacements/Improvements and WFP SCADA Upgrades.

Purpose and Needs to be Met by the Project

Annual items that help maintain the operation of the distribution system and the WFP.

Project Status - Describe what work, if any has been completed or underway for this project

This is an annual project.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	
Assessment, Contribution in Aid-of-Construction	
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-A
Project Name	ANNUAL PROJECTS

Estimated Project Costs :		
LCA Staff	$	500,000
Land Acquisition		
Construction/Equipment	$	6,089,000
Professional Services	$	500,000
Other	$	100,000
Contingencies	$	100,000
Total Project Cost	**$**	**7,289,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**7,260,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ 29,000				
1st Year	2018	$ 1,531,000				$ 1,531,000
2nd Year	2019	$ 1,499,000				$ 1,215,000
3rd Year	2020	$ 1,510,000				$ 1,510,000
4th Year	2021	$ 1,510,000				$ 1,510,000
5th Year	2022	$ 1,210,000				$ 1,210,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	WATER MAIN REPLACEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	6/22/2017	**Project No.**	AD-W-7
Location	Allentown			**Prj. Type**	S-7-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	CA/OS	**Secondary**	AM - High	**Preparer**		JMP

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
X	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	100	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

Through the Operating Standards of the Concession Agreement, LCA is required to replace 2-miles of pipe per year until such time as the City deems it not necessary as a majority of the City's water distribution system is pit cast iron or spun cast iron mains. Some of the pit cast mains date back to the turn of the century, however the spun cast mains have a higher failure. Although the entire system will be evaluated, LCA will work closely with the City Streets department to coordinate main replacements in advance of the annual City Street paving schedule. ***Note:*** *In 2017, LCA did not execute any main replacements and instead utilized 2-miles of main replacement credit from previous cycles to comply with the Lease requirements. The required main replacements will resume in 2018 with the replacement of approximately 2-miles of water main.*

Purpose and Needs to be Met by the Project

Replacing cast iron mains will reduce the frequency of breaks in the system causing customer outages and will reduce the potential for damage which can occur to private property.

Project Status - Describe what work, if any has been completed or underway for this project

As of July 2017, the construction of 7.69 miles have been completed. Currently the prioritization of 2-miles of main replacements for 2018 are underway. Additionally the prioritizing of the next 5 years' worth of water main replacements is also being conducted at this time.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-7
Project Name	WATER MAIN REPLACEMENTS

Estimated Project Costs :	
LCA Staff	$ 750,000
Land Acquisition	$ -
Construction/Equipment	$ 18,750,000
Professional Services	$ 1,950,000
Other	$ 850,000
Contingencies	$ 1,700,000
Total Project Cost	**$ 24,000,000**

Requested in this Capital Program	**$ 24,000,000**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ 4,800,000				$ 4,800,000
2nd Year	2019	$ 4,800,000				$ 4,800,000
3rd Year	2020	$ 4,800,000				$ 4,800,000
4th Year	2021	$ 4,800,000				$ 4,800,000
5th Year	2022	$ 4,800,000				$ 4,800,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	VARIOUS WATER SYSTEM RELATED STUDIES						
Budget Area	Water	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-W-9
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	CA/OS	**Secondary**	Planning	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
X	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	20	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project consists of the following: **1. West End Pressure Booster Station Feasibility Study (to begin in 2020):** conduct a study to assess the location, cost, etc. for a pump station/storage tank on the city's west end where typical pressures have historically been only slightly higher than the regulatory limit of 20 psi. The remaining years will have money set aside for unforseen studies that may be needed.

Purpose and Needs to be Met by the Project

The project ensures the highest quality water and to plan for future upgrades at the WFP in order to meet water production needs. Focus will be made on keeping both ground water sources fully operational and reliable (as the groundwater is less costly to treat than surface water).

Project Status - Describe what work, if any has been completed or underway for this project

The Master Plan was completed in 2017.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-9
Project Name	VARIOUS WATER SYSTEM RELATED STUDIES

Estimated Project Costs :		
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	50,000
Other	$	-
Contingencies	$	1,000
Total Project Cost	**$**	**101,000**

Requested in this Capital Program	**$**	**101,000**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ 20,000				$ 20,000
2nd Year	2019	$ 21,000				$ 21,000
3rd Year	2020	$ 20,000				$ 20,000
4th Year	2021	$ 20,000				$ 20,000
5th Year	2022	$ 20,000				$ 20,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	EMERGENCY POWER AT WFP - CRYSTAL & SCHANTZ SPRING PUMPS						
Budget Area	Water	**Department**	Capital Works	**Date**	7/13/2017	**Project No.**	AD-W-10
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
X	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

The water filtration plant currenly relies on dual electrical feeds to support relibale water production. The distribution system currently has sufficient emergency storage to support approximately two days of supply without the Water Filtration Plant being online. However, a regional and/or prolonged power outage could result in significant level of service and regulatory impacts. For these reasons, many utilities are considering an on-site auxiliary generator as a "best practice" for ensuring a reliable water supply. Under this project, an auxiliary generator will be installed at the water filtration plant to power the Schantz and Crystal Spring high service pumps which will allow the spring sources to be used during a power outage.

Purpose and Needs to be Met by the Project

Enchanced resiliency to provide water during prolonged power outages.

Project Status - Describe what work, if any has been completed or underway for this project

This evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan project.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	$	1,000
Debt Service	$	-
Net	**$**	**1,000**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

The estimated expected increase in maintenance and operational costs are to be determined. $1,000/year is an estimate for maintenance.

Project No.	AD-W-10
Project Name	EMERGENCY POWER AT WFP - CRYSTAL & SCHANTZ SPRING PUMPS

Estimated Project Costs :		
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,530,000
Professional Services	$	80,000
Other	$	110,000
Contingencies	$	20,000
Total Project Cost	**$**	**1,790,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**1,790,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ -				
2nd Year	2019	$ -				
3rd Year	2020	$ -				
4th Year	2021	$ 890,000				$ 890,000
5th Year	2022	$ 900,000				$ 900,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	SCHANTZ SPRING MAIN REPLACEMENT & LEAK REHABILITATION						
Budget Area	Water	**Department**	Capital Works	**Date**	6/22/2017	**Project No.**	AD-W-11
Location	Allentown			**Prj. Type**	S-7-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	CA/OS	**Secondary**	AM - Med	**Preparer**		JMP

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
X	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	100	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project involves the replacement of approximately 2,000 linear feet of 1903 vintage 30-inch diameter main in Martin Luther King Jr. Boulevard from Schriber's Bridge to the Water Filtration Plant. The project also includes addressing other leaks that were identified during the SmartBall leak detection work. This is a required Schedule 7 Project as identified in the Lease Agreement.

Purpose and Needs to be Met by the Project

This project is needed to maintain the integrity of the Schantz Spring water supply transmission main. A previous SmartBall survey conducted by the City indicated that there are a dozen some leaks in the last 2,000 feet of the Schantz Transmission main prior to the water plant. The SmartBall leaks have been identified by PaDEP as needing to be repaired.

Project Status - Describe what work, if any has been completed or underway for this project

The SmartBall survey was completed by the City prior to the Lease Agreement. This survey indentified roughly twelve leaks upstream of the water filtration plant. In addition, the majority of the construction for this project was completed in 2017.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-11
Project Name	SCHANTZ SPRING MAIN REPLACEMENT & LEAK REHABILITATION

Estimated Project Costs :		
LCA Staff	$	70,000
Land Acquisition	$	-
Construction/Equipment	$	1,900,000
Professional Services	$	235,000
Other	$	10,000
Contingencies	$	75,000
Total Project Cost	**$**	**2,290,000**

Requested in this Capital Program	**$**	**335,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ 1,955,000				
1st Year	2018	$ 335,000				$ 335,000
2nd Year	2019	$ -				
3rd Year	2020	$ -				
4th Year	2021	$ -				
5th Year	2022	$ -				

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	FACILITY ROOF REPLACEMENTS PHASE 2 & 3						
Budget Area	Water	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-W-13
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

In 2014, 49 different roof systems in the water and sewer assests were evaluated. Many of them were the original slate roofs from as far back as 1916. In order to keep safe and healthy work environments for all employees (not to mention keeping all operational equipment safe, dry and fully functional), a remediation and/or replacement project is needed to protect the assets of both the City of Allentown and LCA. The roof evaluations and condition assessments, performed by a consultant that specializes in roofs and buildings, has determined that immediate replacements are required on a significant amount of buildings.

Purpose and Needs to be Met by the Project

Many roof systems at the water plant, wastewater plant, distribution/collection building and water system remote station are in various stages of disrepair. This project will fix these roof system issues.

Project Status - Describe what work, if any has been completed or underway for this project

The roof evaluation and condition assessment was completed in 2014. The Roof Phase I construction project was completed in 2016 and contained a mixture of water and wastewater roof facilities. Phase II and Phase III construction only contain two roof facilities at the wastewater treatment plant. The remaining eleven roofs are water related facilities.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-13
Project Name	FACILITY ROOF REPLACEMENTS PHASE 2 & 3

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	611,000
Professional Services	$	20,000
Other	$	10,000
Contingencies	$	10,000
Total Project Cost	**$**	**671,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
X	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**671,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ 100,000				$ 100,000
2nd Year	2019	$ 100,000				$ 100,000
3rd Year	2020	$ 100,000				$ 100,000
4th Year	2021	$ 171,000				$ 171,000
5th Year	2022	$ 200,000				$ 200,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	ITRON/AMR METER PROJECT						
Budget Area	Water	**Department**	Capital Works	**Date**	7/13/2017	**Project No.**	AD-W-15
Location	Allentown			**Prj. Type**	UW	**Prj. Funding**	Allentown
Prj. Category	**Primary**	CA/OS	**Secondary**	Efficiency	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	20	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This completes the remaining work on the City's Automatic Meter Reading (AMR) project. The City AMR project included the replacement of roughly 27,000 aged residential meters ranging in size from 5/8" to 2" (small meters) and roughly 155 commercial meters that were 3" or greater (large meters) in size. Radio read capability was included on all meter exchanges, allowing for mobile read application. There were 747 meter (small) installs that were not completed in the city AMR because the sites were either vacant or not accessible. The project also includes the purchase and implementation of Water Analytics software package (to be purchased in 2018) which is a data repository to store massive amounts of data that will be gathered from the meters in the Allentown division.

Purpose and Needs to be Met by the Project

Replacement of aged meters that may not be registering all water usage is expected to reduce the amount of non-revenue water. Analysis of metering data will allow for enhanced customer service including data-backed resolution of customer metering complaints, flow analysis and other useful functions. In addition, the data stored in the repository will be used in identifying and addressing customer metering issues.

Project Status - Describe what work, if any has been completed or underway for this project

Approximately 300 meters out of 747 residential meters remain to be replaced. The City has already paid for these meters. In addition, three out of the six commerical meters that were included in this project remain to be replaced.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	$	18,000
Debt Service	$	-
Net	**$**	**18,000**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	$ -
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

The exact IT operational expenses (for the data repository) per year are to be determined. $18,000 is an estimate.

Project No.	AD-W-15
Project Name	ITRON/AMR METER PROJECT

Estimated Project Costs :		
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	130,000
Professional Services	$	40,000
Other	$	-
Contingencies	$	30,000
Total Project Cost	**$**	**300,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**300,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid (1)	Reserves
Prior Years		$ -				
1st Year	2018	$ 140,000				$ 140,000
2nd Year	2019	$ 40,000				$ 40,000
3rd Year	2020	$ 40,000				$ 40,000
4th Year	2021	$ 40,000				$ 40,000
5th Year	2022	$ 40,000				$ 40,000

(1) This is an Uncompleted Work (UW) Project that will be funded by the City of Allentown.

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	FIXED-BASE METER READING SYSTEM						
Budget Area	Water	**Department**	Capital Works	**Date**	7/13/2017	**Project No.**	AD-W-21
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
X	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	20	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

The City of Allentown's original AMR project started in 2011 and ran into 2013. There were insufficient funds from the Pennvest Loan to cover all 33,000 water meters. The original AMR was installed as a hybrid system which is upgradeable to a fixed-base system. A fixed-base system provides instantaneous readings of any water meter via a radio signal sent directly to the customer care center through a series of transmitters (exact number is to be determined) and repeaters installed throughout the water system service area.

Purpose and Needs to be Met by the Project

A fixed-base system would allow for instantaneous readings (and monthly reads) on any account. In order to implement the fixed base system, a data repository must be installed to house the enormous volume of data that will accumulate. The data repository was an original component of the City's AMR project. This repository will be purchased under AD-W-15 in 2018.

Project Status - Describe what work, if any has been completed or underway for this project

None.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	TBD
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	TBD
Assessment, Contribution in Aid-of-Construction	TBD
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Affixing transmitters to third party properties will require annual paymets - exact cost is to be determined.

Project No.	AD-W-21
Project Name	FIXED-BASE METER READING SYSTEM

Estimated Project Costs :		
LCA Staff	$	95,000
Land Acquisition	$	-
Construction/Equipment	$	1,050,000
Professional Services	$	110,000
Other	$	250,000
Contingencies	$	200,000
Total Project Cost	**$**	**1,705,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**1,705,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ -				
2nd Year	2019	$ -				
3rd Year	2020	$ 1,705,000				$ 1,705,000
4th Year	2021	$ -				
5th Year	2022	$ -				

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	FILTER UPGRADES						
Budget Area	Water	**Department**	Operations	**Date**	7/13/2017	**Project No.**	AD-W-22
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	Varies	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

The filter underdrains are approximately 58 years old and are beyond their nominal useful life. A recent inspection of the underdrain in Filter No. 6 determined that the underdrains are in poor condition and must soon be replaced. In addition, a number of filter components are obsolete including the filter control valves and filter control panels. There has been difficulty in obtaining spare parts. Properly functioning filter underdrains and optimized filter media and backwash routines will be critical to maintaining regulatory compliance.

Purpose and Needs to be Met by the Project

Primary benefit will be enhanced regulatory compliance, improved operability and reduced maintenance. Secondary benefits include better asset management and process reliability. In addition, replacing the underdrains and rebuilding the filters will allow for the addition of air scour auxiliary wash and modified media configuration, which will improve reliability and performance of the filters.

Project Status - Describe what work, if any has been completed or underway for this project

This evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan project.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-22
Project Name	FILTER UPGRADES

Estimated Project Costs :		
LCA Staff	$	130,000
Land Acquisition	$	-
Construction/Equipment	$	11,000,000
Professional Services	$	1,150,000
Other	$	-
Contingencies	$	60,000
Total Project Cost	**$**	**12,340,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**12,340,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ 200,000				$ 200,000
2nd Year	2019	$ 7,020,000				$ 7,020,000
3rd Year	2020	$ 5,120,000				$ 5,120,000
4th Year	2021	$ -				
5th Year	2022	$ -				

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	INTAKE UPGRADES						
Budget Area	Water	**Department**	Operations	**Date**	8/9/2017	**Project No.**	AD-W-23
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	Varies	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project includes multiple items: **(1)** the Big Lehigh intake facility is limited to 3 MGD due to taste and odor complaints and manual cleaning of the existing bar screens. The first portion of the project will include the installation of traveling screens/screenings handling facility at the Big Lehigh facility; **(2)** replace the corroded housing on the existing traveling screen in the 1953 screening building until a new intake/screenings facility can be constructed; **(3)** new 30 MGD Little Lehigh intake structure and screenings building including coarse screens, traveling screens and screenings handling facilities. New buried piping and tie-in to connection to existing raw water line.

Purpose and Needs to be Met by the Project

Asset management, regulatory compliace, enhanced redundancy, improved process reliability, improved operations and maintenance and improved water quality.

Project Status - Describe what work, if any has been completed or underway for this project

This evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan project.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-W-23
Project Name	INTAKE UPGRADES

Estimated Project Costs :		
LCA Staff	$	60,000
Land Acquisition	$	-
Construction/Equipment	$	10,100,000
Professional Services	$	900,000
Other	$	-
Contingencies	$	60,000
Total Project Cost	**$**	**11,120,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**11,120,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ -				
2nd Year	2019	$ -				
3rd Year	2020	$ 440,000				$ 440,000
4th Year	2021	$ 5,340,000				$ 5,340,000
5th Year	2022	$ 5,340,000				$ 5,340,000

WASTEWATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2018-2022 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	(1) Type	(1) Funding	Approval Stage (1)	Project Cost		This Capital Program						Project Category (1)	
					Total Cost	Prior to Years (2)	2018	2019	2020	2021	2022	Total	Primary	Secondary
	LCA FUNDED PROJECTS													
	Annual													
AD-S-A	Annual Projects	Regular	LCA	A	$ 5,988,000	$ -	$ 1,049,000	$ 1,360,000	$ 1,350,000	$ 1,279,000	$ 950,000	$ 5,988,000	AM - High	Sys Imp
	Subtotal				**$ 5,988,000**	**$ -**	**$ 1,049,000**	**$ 1,360,000**	**$ 1,350,000**	**$ 1,279,000**	**$ 950,000**	**$ 5,988,000**		
	Previously Authorized													
AD-S-5	WWTP Electrical Substation Replacements	LCA-MCI	CCRC	D	$ 3,665,000	$ 180,000	$ 3,360,000	$ 125,000	$ -	$ -	$ -	$ 3,485,000	AM - High	Efficiency
AD-S-9	Various Wastewater System Related Studies	Regular	LCA	V	$ 445,000	$ 65,000	$ 300,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 380,000	CA/OS	Planning
	Subtotal				**$ 4,110,000**	**$ 245,000**	**$ 3,660,000**	**$ 145,000**	**$ 20,000**	**$ 20,000**	**$ 20,000**	**$ 3,865,000**		
	Pending Authorization													
AD-S-6	WWTP Disinfection Upgrade	LCA-MCI	CCRC	P	$ 1,740,000	$ -	$ -	$ -	$ -	$ 850,000	$ 890,000	$ 1,740,000	Efficiency	Sys Imp
AD-S-18	Indenture Report Improvements	Regular	LCA	A	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	AM - Varies	Sys Imp
	Subtotal				**$ 1,740,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 850,000**	**$ 890,000**	**$ 1,740,000**		
	TOTAL LCA FUNDED PROJECTS				**$ 11,838,000**	**$ 245,000**	**$ 4,709,000**	**$ 1,505,000**	**$ 1,370,000**	**$ 2,149,000**	**$ 1,860,000**	**$ 11,593,000**		
	CITY FUNDED PROJECTS													
AD-S-11	Administrative Order Phase 1A WWTP Improvements	AO	Allentown	P	$ 19,000,000	$ -	$ 1,000,000	$ 9,000,000	$ 9,000,000	$ -	$ -	$ 19,000,000	Regulatory	CA/OS
AD-S-16	WWTP Interim Blending Pumping System	AO	Allentown	P	$ 1,340,000	$ -	$ 1,340,000	$ -	$ -	$ -	$ -	$ 1,340,000	Regulatory	CA/OS
	TOTAL CITY FUNDED PROJECTS				**$ 20,340,000**	**$ -**	**$ 2,340,000**	**$ 9,000,000**	**$ 9,000,000**	**$ -**	**$ -**	**$ 20,340,000**		
					-									
	Grand Total				**$ 32,178,000**	**$ 245,000**	**$ 7,049,000**	**$ 10,505,000**	**$ 10,370,000**	**$ 2,149,000**	**$ 1,860,000**	**$ 31,933,000**		

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) Includes estimate of expenditures through 2017.

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	ANNUAL PROJECTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-S-A
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This is an annual project that has been previously listed as separate projects. This new annual project includes the following: Collection System - Development and Service Connections, Other Equipment, WWTP General Improvements, Sanitary Sewer Main Replacements & Rehabilitation, Mobile Equipment and WWTP Dewatering SCADA Upgrades.

Purpose and Needs to be Met by the Project

Annual items that help maintain the operation of the collection system and the WWTP.

Project Status - Describe what work, if any has been completed or underway for this project

This is an annual project.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	$ -
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-S-A
Project Name	ANNUAL PROJECTS

Estimated Project Costs :		
LCA Staff	$	500,000
Land Acquisition		
Construction/Equipment	$	4,788,000
Professional Services	$	500,000
Other	$	100,000
Contingencies	$	100,000
Total Project Cost	**$**	**5,988,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**5,988,000**

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ 1,049,000				$ 1,049,000
2nd Year	2019	$ 1,360,000				$ 1,360,000
3rd Year	2020	$ 1,350,000				$ 1,360,000
4th Year	2021	$ 1,279,000				$ 1,049,000
5th Year	2022	$ 950,000				$ 950,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	WWTP ELECTRICAL SUBSTATION REPLACEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/13/2017	**Project No.**	AD-S-5
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project will include the replacement of both existing electrical substations with new electrical substations. The existing 2.4kV switchgear will also be replaced. The majority of the project is expected to be completed in 2018.

Purpose and Needs to be Met by the Project

The WWTP contains two substations (Substation No. 1 and No. 2). Both substations were installed in the 1970s and have reached the end of their useful life. In addition, Substation No. 2 is overloaded. These are critical pieces of electrical equipment that must continue to function properly. Replacement of these substations will provide electrical reliabilty for the next 40 years at the WWTP.

Project Status - Describe what work, if any has been completed or underway for this project

An evaluation study for Substation No. 1 and No. 2 was completed in 2016 and the design was completed in 2017.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-S-5
Project Name	WWTP ELECTRICAL SUBSTATION REPLACEMENTS

Estimated Project Costs :		
LCA Staff	$	106,000
Land Acquisition	$	-
Construction/Equipment	$	3,000,000
Professional Services	$	259,000
Other	$	-
Contingencies	$	300,000
Total Project Cost	**$**	**3,665,000**

Requested in this Capital Program	**$ 3,485,000**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ 180,000				
1st Year	2018	$ 3,360,000				$ 3,360,000
2nd Year	2019	$ 125,000				$ 125,000
3rd Year	2020	$ -				
4th Year	2021	$ -				
5th Year	2022	$ -				

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	WWTP DISINFECTION UPGRADE						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/20/2017	**Project No.**	AD-S-6
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility	**X**	Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories, and Western Lehigh signatories are positively impacted.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

The WWTP currently uses gasesous chlorine to disinfect treated wastewater prior to the discharge to the Lehigh River. This project will involve a detailed study to investigate alternatives to the existing disinfection method. Results of this study will lead into a construction project to eliminate chlorine gas with an alternate disinfection method.

Purpose and Needs to be Met by the Project

The use of chlorine gas to disinfect wastewater is an outdated practice. Replacement of chlorine disinenfection with either sodium hypochlorite of ultraviolet (UV) disinfection will provide a safer working area for the WWTP employees. Health and safety concerns with chlorine gas, plus increasingly stringent regulatory requirements have brought on the need to consider alternatives.

Project Status - Describe what work, if any has been completed or underway for this project

None.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	TBD
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

The expected exact increase in maintenance and operational annual costs are to be determined.

Project No.	AD-S-6
Project Name	WWTP DISINFECTION UPGRADE

Estimated Project Costs :		
LCA Staff	$	55,000
Land Acquisition	$	-
Construction/Equipment	$	1,550,000
Professional Services	$	80,000
Other	$	20,000
Contingencies	$	35,000
Total Project Cost	**$**	**1,740,000**

Requested in this Capital Program	**$ 1,740,000**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ -				
2nd Year	2019	$ -				
3rd Year	2020	$ -				
4th Year	2021	$ 850,000				$ 850,000
5th Year	2022	$ 890,000				$ 890,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	VARIOUS WASTEWATER SYSTEM RELATED STUDIES						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-S-9
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	CA/OS	**Secondary**	Planning	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement		Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
X	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	N/A	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

As infrastructure ages and regulations become more stringent, there are periodic needs for professional services to study the feasibility of changes, upgrades, etc. The following study is requested in 2018: **(1)** WWTP Master Plan - Some original components of the Allentown WWTP are bearing in on 90 years old. A general condition assessment of the WWTP is long overdue and would be very similar to the type of study which is being implemented at the Allentown Water Plant for the same reason. In addition, this is a requirement of the Lease.

Purpose and Needs to be Met by the Project

Engineering studies are periodically required to address feasibility of implementing new programs or changing existing ones. The WWTP Master Plan is a requirement of the Lease Agreement.

Project Status - Describe what work, if any has been completed or underway for this project

The RFP for the Master Plan was issued in 2017.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-S-9
Project Name	VARIOUS WASTEWATER SYSTEM RELATED STUDIES

Estimated Project Costs :		
LCA Staff	$	70,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	375,000
Other	$	-
Contingencies	$	-
Total Project Cost	**$**	**445,000**

Requested in this Capital Program	**$ 380,000**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds

		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ 65,000				
1st Year	2018	$ 300,000				$ 300,000
2nd Year	2019	$ 20,000				$ 20,000
3rd Year	2020	$ 20,000				$ 20,000
4th Year	2021	$ 20,000				$ 20,000
5th Year	2022	$ 20,000				$ 20,000

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	ADMINISTRATIVE ORDER PHASE 1A WWTP IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	8/9/2017	**Project No.**	AD-S-11
Location	Allentown			**Prj. Type**	AO	**Prj. Funding**	Allentown
Prj. Category	**Primary**	Regulatory	**Secondary**	CA/OS	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
X	New Facility		Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

Phase 1A WWTP Improvements include: plant blending for a peak flow of 120 MGD; screening system for the Park Pumping Station force main extension for the KIWWTP and related interconnection piping and valves; and replacement of impellers for the main influent pumps. The Park Pump Station force main extension itself is also included.

Purpose and Needs to be Met by the Project

This project is a component of the work that will be necessary to comply with the EPA Administrative Order.

Project Status - Describe what work, if any has been completed or underway for this project

Conceptual Design has been completed.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	TBD
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	$ -
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

The exact increase in operational and maintenance costs are to be determined.

Project No.	AD-S-11
Project Name	ADMINISTRATIVE ORDER PHASE 1A WWTP IMPROVEMENTS

Estimated Project Costs :		
LCA Staff	$	150,000
Land Acquisition	$	-
Construction/Equipment	$	16,000,000
Professional Services	$	1,050,000
Other	$	1,600,000
Contingencies	$	200,000
Total Project Cost	**$**	**19,000,000**

Project Estimate Level	
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ 19,000,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid (1)	Reserves
Prior Years		$ -				
1st Year	2018	$ 1,000,000				$ 1,000,000
2nd Year	2019	$ 9,000,000				$ 9,000,000
3rd Year	2020	$ 9,000,000				$ 9,000,000
4th Year	2021	$ -				
5th Year	2022	$ -				

(1)This is an Administrative Order (AO) Project that will be funded by the City of Allentown.

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	WWTP INTERIM BLENDING PUMPING SYSTEM						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/13/2017	**Project No.**	AD-S-16
Location	Allentown			**Prj. Type**	AO	**Prj. Funding**	Allentown
Prj. Category	**Primary**	Regulatory	**Secondary**	CA/OS	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade		Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
	Improved Service		Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	N/A	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project provides for the installation of four diesel power pumps and associated pipeline to increase the hydraulic capacity of Kline's Island WWTP (KIWWTP) during significant wet-weather events which result from the remnants of hurricane and tropical storms. Once installed, blending of wastewater that has received primary treatment with fully treated plant effluent will be made possible, reducing environmental concerns related to the current practice of discharging raw sewage to the Little Lehigh Creek during these extreme wet-weather events.
Note: *This Project is contingent upon PADEP approval of the NPDES Permit renewal that includes blending.*

Purpose and Needs to be Met by the Project

The peak hydraulic capacity of KIWWTP is currently limited to 86 millions gallons per day (MGD) by a number of hydraulic bottlenecks located throughout the facility. When the hydraulic capacity of the facility is exceeded, untreated sewage and storm water from inflow & Infiltration (I&I) is bypassed to the Little Lehigh Creek through Outfall 003 located at the plant headworks. The proposed project represents a portion of the scope of work necessary to increase the peak flow capacity of the facility to 95 MGD. The four pumps and connected pipeline will provide for the blending of 10 MGD of primary settling tank effluent with the fully treated plant effluent. This will occur in the chlorine contact tank and the discharge of this blended effluent will flow to the Lehigh River.

Project Status - Describe what work, if any has been completed or underway for this project

None.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	$ -
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-S-16
Project Name	WWTP INTERIM BLENDING PUMPING SYSTEM

Estimated Project Costs :		
LCA Staff	$	40,000
Land Acquisition	$	-
Construction/Equipment	$	1,090,000
Professional Services	$	80,000
Other	$	20,000
Contingencies	$	110,000
Total Project Cost	**$**	**1,340,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
X	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**1,340,000**

Source of Funds

		Need	Source			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid (1)	Reserves
Prior Years		$ -				
1st Year	2018	$ 1,340,000				$ 1,340,000
2nd Year	2019	$ -				
3rd Year	2020	$ -				
4th Year	2021	$ -				
5th Year	2022	$ -				

(1) This is an Administrative Order (AO) Project that will be funded by the City of Allentown.

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	INDENTURE REPORT IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	8/18/2017	**Project No.**	AD-S-18
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		PMD

Purpose of Expenditure *(check all that apply)*			
	New Facility	**X**	Correct Known or Potential Safety Issue
X	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
X	Scheduled Replacement		Comply with Regulatory Requirements
X	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	40	**Comments**
Approx. No. of Customers Benefitted	*	*All customers of the City of Allentown, City signatories and Western Lehigh signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	N/A	

Detailed Project Description

This project includes the following: **1.** General repairs on concrete, reinforcing steel and exposed wood; **2.** Pipe protection upgrades including preparation, painting and dehumidification particularly sub-grade sites; **3.** Structural upgrades including roofs; **4.** Water tank and reservoir upgrades; **5.** Security upgrades including fencing, lighting and vegetation control; **6.** Electrical upgrades.

Purpose and Needs to be Met by the Project

This project addresses the deficiences identified in the annual Indenture Report. Funding will be split 2/3 between Sewer and 1/3 between Water.

Project Status - Describe what work, if any has been completed or underway for this project

N/A.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ -
Net	**$ -**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	AD-S-18
Project Name	INDENTURE REPORT IMPROVEMENTS

Estimated Project Costs :	
LCA Staff	$ -
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ -
Other	$ -
Contingencies	$ -
Total Project Cost	**$ -**

	Project Estimate Level
	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ -**

Source of Funds					
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
Prior Years		$ -				
1st Year	2018	$ -				
2nd Year	2019	$ -				
3rd Year	2020	$ -				
4th Year	2021	$ -				
5th Year	2022	$ -				