LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

FINAL 5-YEAR CAPITAL PLAN

ALLENTOWN DIVISION

2021-2025

APPROVED APRIL 13, 2020

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2021-2025

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2021-2025 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	Prior Administrative Order/Current Regional Flow Management Strategy
UW	Uncompleted Work (1)
S-7-MCI	Schedule-7 *(Lease Required)* Major Capital Improvement(2)
LCA-MCI	LCA Developed Major Capital Improvement(2)
COL	Change of Law(3)
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.*

(3) *Change of Law: In accordance with the Change of Law Memorandum of Understanding*

(4) *Prior EPA Administrative Order was lifted and projects currently being implemented under DEP Regional Flow Management Strategy*

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
AO/CCRC TBD	Funding to be determined in consultation with The City of Allentown

(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
Master Plan	Master Plan
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 Opt	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
2021–2025

SUMMARY

The Allentown Division Capital Plan (Plan) is a five-year plan that covers the years 2021 through 2025. 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 Regional Flow Management Strategy (RFMS) projects and Uncompleted Work (UW).

Regional Flow Management Strategy (RFMS) Projects: This includes projects necessary to bring the City's wastewater system into compliance with the DEP-mandated Regional Flow Management Strategy (RFMS), which replaces the US Environmental Protection Agency (USEPA) Administrative Order to eliminate Sanitary Sewer Overflows / By-passes at Outfall 003 of the wastewater treatment plant with a comprehensive program to reduce inflow and infiltration into the Kline's Island Sanitary Sewer Service Area (KISS) wastewater systems. Pursuant to the Concession Lease Agreement (Lease), the City is responsible for making all decisions related to work to be performed on the City's infrastructure 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 original 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), all except the AMR Project have been completed by LCA since the Lease inception.

Funding by Budget Area and category is as follows:

CAPITAL FUNDING 2021-2025					
Budget Area	**LCA**	**CITY**			**Totals**
		UW	**RFMS**	**Sub-Total**	
Water	$9,915,000	$85,000	$0	$85,000	$10,000,000
Wastewater	$8,400,000	$0	$2,415,000	$2,415,000	$10,815,000
Totals	**$18,315,000**	**$85,000**	**$2,415,000**	**$2,500,000**	**$20,815,000**

Water Projects: Focus on regulatory compliance, asset management, immediate and future needs at the Water Filtration Plant (WFP) and addressing the Lease operating standards. The recently completed WFP Master Plan identified capital improvements to address future regulatory requirements and/or operational needs. However, funding is not provided for the annual replacement of 2-miles of aged and/or failing spun and pit cast water main as required by the Lease.

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 replacement of gaseous chlorine disinfection at the WWTP with sodium hypochlorite. In addition, annual funding is available 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. Based upon the profile of projects in this capital plan, we are not expecting to generate any additional CCRC.

FINANCIAL JUSTIFICATION

In 2020 and beyond, LCA anticipates that Capital Projects will be funded through operating and project reserves.

2021-2025 Capital Plan Allentown Division Funding Sources						
	LCA SOURCES			**CITY SOURCES**		
Budget Area	**Contributions**	**Operating/Capital Reserves**	**New Borrowing**	**RFMS**	**UW**	**Total Sources**
Water	$0	$9,915,000	$0	$0	$85,000	$10,000,000
Wastewater	$0	$8,400,000	$0	$2,415,000	$0	$10,815,000
Totals	**$0**	**$18,315,000**	**$0**	**$2,415,000**	**$85,000**	**$20,815,000**

CONDENSED CASH FLOW - CITY DIVISION					
Dollars	**2021**	**2022**	**2023**	**2024**	**2025**
User Charges	39,206,889	40,231,087	41,286,011	42,372,583	43.491,752
Other Operating Revenues	499,966	499,966	499,966	499,966	499,966
Non-Operating Revenues	1,230,544	844,066	702,094	1,119,613	326,607
Operating expenses	(19,872,804)	(20,568,351)	(21,288,244)	(21,288,244)	(21,501,126)
Debt Service - Current Debt	(15,901,170)	(16,401,170)	(16,916,171)	(17,451,170)	(18,001,170)
Debt Service - NEW Debt	-	-	-	-	-
Investments Converting to Cash	-	-	-	-	-
Proceeds From NEW Debt	-	-	-	-	-
Capex - Admin Paygo	(250,000)	(225,000)	(212,500)	(187,500)	(137,500)
Capex - Paygo	(3,335,000)	(3,115,000)	(3,990,000)	(5,575,000)	(4,800,000)
Capex - NEW Borrowing	-	-	-	-	-
NET FUND FLOWS	**1,578,425**	**1,265,598**	**81,156**	**(509,752)**	**(121,471)**
User Charge Revenue Increase %	3.0%	3.0%	3.0%	3.0%	3.0%
Operating Cash Balance	9,800,287	10,143,297	10,498,312	10,498,312	10,603,295
Days on Hand	180	180	180	180	180
Project Reserve Balance	1,089,851	1,664,665	1,030,859	521,107	188,212
DEBT SERVICE COVERAGE RATIO	1.27	1.25	1.23	1.26	1.27

WATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2021-2025 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	Prj. Category	(1) Funding	Approval Stage (1)	Priority Ranking (2)	Plan Total Cost	This Capital Program 2020 *Budget Approved*	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2021-2025 Total	Prior Project Cost (3)	Future Project Cost (3)	Total Project Cost
	LCA FUNDED SOURCES															
	Operating/Capital Reserve Funds															
AD-W-A	Annual Projects	AM - Varies	LCA	A	-	$ 10,822,500	$ 972,500	$ 1,090,000	$ 1,290,000	$ 1,940,000	$ 2,690,000	$ 2,840,000	$ 9,850,000			$10,822,500
AD-W-9	Various Water System Related Studies (Master Plan)	CA/OS	LCA	S	-	$ 150,000	$ -	$ -	$ 150,000	$ -	$ -	$ -	$ 150,000	$300,000		$450,000
	TOTAL LCA FUNDED SOURCES					**$ 10,972,500**	**$ 972,500**	**$ 1,090,000**	**$ 1,440,000**	**$ 1,940,000**	**$ 2,690,000**	**$ 2,840,000**	**$ 10,000,000**	**$300,000**	**$ -**	**$ 11,272,500**
	CITY FUNDED SOURCES															
AD-W-15	Itron/AMR Meter Project	CA/OS	Allentown	C	-	$ 85,000	$ 85,000	$ -	$ -	$ -	$ -	$ -	$ -	$0	0	$85,000
	TOTAL CITY FUNDED SOURCES					**$ 85,000**	**$ 85,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$0**	**$ -**	**$ 85,000**
	GRAND TOTAL FUNDED SOURCES					**$ 11,057,500**	**$ 1,057,500**	**$ 1,090,000**	**$ 1,440,000**	**$ 1,940,000**	**$ 2,690,000**	**$ 2,840,000**	**$ 10,000,000**	**$300,000**	**$ -**	**$ 11,357,500**
	UNFUNDED SOURCES															
AD-W-G	General Improvements	AM-Varies	LCA	S	6	$ 1,250,000	$ -	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 1,250,000	$0		$1,250,000
AD-W-I	Indenture Report Improvements	AM-Varies	LCA	S	7	$ 2,500,000	$ -	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,500,000	$1,500,000	$3,800,000	$7,800,000
AD-W-7	Water Main Replacements *	CA/OS	CCRC	S	4	$ 19,000,000	$ -	$ 3,800,000	$ 3,800,000	$ 3,800,000	$ 3,800,000	$ 3,800,000	$ 19,000,000	$12,000,000		$31,000,000
AD-W-21	Fixed-Base Meter Reading System	Efficiency	LCA	S	8	$ 1,700,000	$ -	$ -	$ -	$ 850,000	$ 850,000	$ -	$ 1,700,000	$0	$0	$1,700,000
AD-W-22	Filter Upgrades	Master Plan	CCRC	S	3	$ 6,000,000	$ -	$ -	$ -	$ 300,000	$ 2,850,000	$ 2,850,000	$ 6,000,000	$0	$6,000,000	$12,000,000
AD-W-23	Intake Upgrades	Master Plan	CCRC	S	2	$ 2,000,000	$ -	$ -	$ 250,000	$ 1,750,000	$ -	$ -	$ 2,000,000	$0	$8,500,000	$10,500,000
AD-W-24	High Lift VFD/Pump Replacements	Master Plan	CCRC	S	1	$ 1,900,000	$ -	$ 50,000	$ 1,700,000	$ 150,000	$ -	$ -	$ 1,900,000	$90,000	$0	$1,990,000
AD-W-25	Tank and Reservoir Mechanical Upgrades	Master Plan	CCRC	S	5	$ 1,500,000	$ -	$ -	$ -	$ 100,000	$ 700,000	$ 700,000	$ 1,500,000	$0		$1,500,000
	TOTAL UNFUNDED SOURCES					**$ 35,850,000**	**$ -**	**$ 4,600,000**	**$ 6,500,000**	**$ 7,700,000**	**$ 8,950,000**	**$ 8,100,000**	**$ 35,850,000**	**$ 13,590,000**	**$ 18,300,000**	**$ 67,740,000**
	GRAND TOTAL FUNDED + UNFUNDED SOURCES					**$ 46,907,500**	**$ 1,057,500**	**$ 5,690,000**	**$ 7,940,000**	**$ 9,640,000**	**$ 11,640,000**	**$ 10,940,000**	**$ 45,850,000**	**$ 13,890,000**	**$ 18,300,000**	**$ 79,097,500**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) Ranking system of unfunded project priority, 1 being highest priority
(3) If blank project cost is not applicable (annual/repeating cost) or to be determined
*Lease requirement and/or regulatory requirement

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

Project Name	ANNUAL PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	N/A
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	No		

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Detailed Project Description

This annual project includes the following: New & Replacement Meter Installations, Distribution Mains - Development & Service Connections, Distribution Mains - Upsizing, Other Equipment, WFP General Improvements, Mobile Equipment, General Water System Replacements/Improvements, Capital Management, and WFP SCADA Upgrades (to be finished in 2020).

Project Drivers and Needs to be Met by the Project

Primary project drivers are asset management (to maintain level of service and system longevity) and system improvement. Annual projects 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)*	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

Annual cost impact to be determined as needed.

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

Prior Project Cost		N/A
Estimated Project Costs:		**2021-2025**
LCA Staff	$	500,000
Land Acquisition		
Construction/Equipment	$	7,972,500
Professional Services	$	500,000
Other	$	300,000
Contingencies	$	500,000
Total Project Cost	**$**	**10,822,500**

Requested in this Capital Program	**$**	**9,850,000**

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

			Need	**Phase of Work**
2020 Budget		$	972,500	procurement, planning, design & construction
1st Year	2021	$	1,090,000	procurement, planning, design & construction
2nd Year	2022	$	1,290,000	procurement, planning, design & construction
3rd Year	2023	$	1,940,000	procurement, planning, design & construction
4th Year	2024	$	2,690,000	procurement, planning, design & construction
5th Year	2025	$	2,840,000	procurement, planning, design & construction

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**	12/27/2019	**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	**Project inception date**	2016
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	TBD
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 2022: (1) WFP Master Plan. This is a requirement of the Lease as some original components of the Allentown WFP are over 60 years.

Project Drivers 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 WFP Master Plan is a requirement of the Lease Agreement and is to be completed every 5 years. The first Master Plan was completed in 2017 and the second will be completed in 2022.

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

The first 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

Annual cost impact to be determined as needed.

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

Prior Project Cost	300,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 20,000
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ 110,000
Other	$ 10,000
Contingencies	$ 10,000
Total Project Cost	**$ 150,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ 150,000**

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ -	
2nd Year	2022	$ 150,000	study
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	ITRON/AMR METER PROJECT						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	2013
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2020
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 AMR project is funded by the City and includes 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 is included on all meter exchanges, allowing for mobile read application. There were 747 small meter 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 as a service package (to be purchased in 2020) which will analyze water usage data gathered from the meters in the Allentown division, which will be important for tracking and identying water loss.

Project Drivers 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 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 83 meters out of 747 residential meters remain to be replaced. The City has already paid for these meters. In addition, all of the commercial meters that were included in this project (five in total) have been replaced.
Note: *One of the commercial meters was removed from the scope in 2017. By the end of 2018, all five of the commercial meters have been replaced with this project. Project is anticipated to be completed in 2020.*

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

Annual cost impact to be determined as needed.

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

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	5,000
Land Acquisition	$	-
Construction/Equipment	$	50,000
Professional Services	$	10,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**85,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**-**

			Need	**Phase of Work**
2020 Budget		$	85,000	procurement & construction
1st Year	2021	$	-	
2nd Year	2022	$	-	
3rd Year	2023	$	-	
4th Year	2024	$	-	
5th Year	2025	$	-	

(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	GENERAL IMPROVEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-W-G
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	**Project inception date**	N/A
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	No		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.

Detailed Project Description

This unfunded General Improvements project includes General Water System Replacements/Improvements at the Water Filtration Plant (WFP) and in Distribution & Collection. Some of these projects include the following: Roof Phase 3 and miscellaneous improvements to the D&C garages.

Project Drivers and Needs to be Met by the Project

Primary project driver is asset management for these projects that help maintain the operation of the Distribution and Collection System and the WFP as equipment reaches the end of its useful life.

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	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Annual cost impact to be determined as needed.

Project No.	AD-W-G
Project Name	GENERAL IMPROVEMENTS

Prior Project Cost		N/A
Estimated Project Costs:		**2021-2025**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,000,000
Professional Services	$	150,000
Other	$	20,000
Contingencies	$	30,000
Total Project Cost	**$**	**1,250,000**

Requested in this Capital Program	**$**	**1,250,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	250,000	construction
2nd Year	2022	$	250,000	construction
3rd Year	2023	$	250,000	construction
4th Year	2024	$	250,000	construction
5th Year	2025	$	250,000	construction

This project is unfunded.

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

Project Name	INDENTURE REPORT IMPROVEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-W-I
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	**Project inception date**	**2016**
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	No		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.

Detailed Project Description

This project includes the following, but not limited to: **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.

Project Drivers and Needs to be Met by the Project

The primary project driver is asset management. This project addresses the deficiencies identified in the annual Indenture Report. Funding needed to address the deficiencies is roughly split 50% between the sewer system and 50% between the water system.

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

A number of roofs have been completed in Phase 1 of a prior roof project (2016). Phase 2 included roofs on buildings in the distribution system and at the WWTP (2018). Phase 3 (date is to be determined) will include three roofs at the WFP and two roofs at the WWTP. In addition, minor routine maintenance was performed in 2019 as it relates to Indenture projects.

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

Annual cost impact to be determined as needed.

Project No.	AD-W-I
Project Name	INDENTURE REPORT IMPROVEMENTS

Prior Project Cost	$1,500,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 100,000
Land Acquisition	$ -
Construction/Equipment	$ 2,000,000
Professional Services	$ 200,000
Other	$ 100,000
Contingencies	$ 100,000
Total Project Cost	**$ 2,500,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ 2,500,000**

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ 500,000	construction
2nd Year	2022	$ 500,000	construction
3rd Year	2023	$ 500,000	construction
4th Year	2024	$ 500,000	construction
5th Year	2025	$ 500,000	construction

This project is unfunded.

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

Project Name	WATER MAIN REPLACEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-W-7
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	CA/OS	**Secondary**	AM - High	**Preparer**		JMP

Purpose of Expenditure *(check all that apply)*			
X	New Facility (replacement)		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	X	Other (explain): Lease requirement

Additional Information			
Expected Useful Life (Years)	100	**Project inception date**	2014
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2062
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 2018, LCA only executed 0.9 mile of main replacements and utilized 1.1-mile of main replacement credit from previous cycles to comply with the Lease requirements. The required main replacements will resume when funds are available.*

Project Drivers and Needs to be Met by the Project

Primary project drivers are lease requirements and asset management. Replacing cast iron mains will reduce the frequency of breaks in the system which create customer outages and unaccounted for water, and will reduce the potential for damage which can occur to private property from catastophic pipe breaks.

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

As of the end of 2019, the replacement of 9.00 miles of water main was completed. Cycle 4 construction was completed in 2019. The design of the next phase of water main replacement (Cycle 5) has been put on hold due to budget limitations. Also, the prioritization of the next 5 years' worth of water main replacements is on hold.

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

N/A

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

Prior Project Cost	$12,900,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 730,000
Land Acquisition	$ -
Construction/Equipment	$ 15,900,000
Professional Services	$ 1,870,000
Other	$ 50,000
Contingencies	$ 450,000
Total Project Cost	**$ 19,000,000**

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

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ 3,800,000	design & construction
2nd Year	2022	$ 3,800,000	design & construction
3rd Year	2023	$ 3,800,000	design & construction
4th Year	2024	$ 3,800,000	design & construction
5th Year	2025	$ 3,800,000	design & construction

This project is unfunded.

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**	12/27/2019	**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	**Project inception date**	2018
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2024
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 until 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.

Project Drivers and Needs to be Met by the Project

The primary project drivers are efficiency and system improvement. A fixed-base system would allow for instantaneous readings (and monthly reads) on any account. In order to implement the fixed base system, data analytics software must be procured and installed to house the enormous volume of data that will accumulate. The data analytics software was an original component of the City's AMR project. This software is planned for purchase under AD-W-15 in 2020.

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	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Annual cost impact to be determined as needed.

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

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	90,000
Land Acquisition	$	-
Construction/Equipment	$	1,100,000
Professional Services	$	110,000
Other	$	200,000
Contingencies	$	200,000
Total Project Cost	**$**	**1,700,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ 1,700,000**

		Need		**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	-	
2nd Year	2022	$	-	
3rd Year	2023	$	850,000	procurement & construction
4th Year	2024	$	850,000	procurement & construction
5th Year	2025	$	-	

This project is unfunded.

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

Project Name	FILTER UPGRADES						
Budget Area	Water	**Department**	Operations	**Date**	12/27/2019	**Project No.**	AD-W-22
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**Secondary**	Sys Imp	**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	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2030
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.

Detailed Project Description

The filter underdrains are nearly 60 years old and have exceeded their service 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. Also, there has been difficulty in obtaining spare parts. Properly functioning filter underdrains, coupled with optimized filter media and backwash routines, will be critical to maintaining regulatory compliance.

Project Drivers and Needs to be Met by the Project

The primary project drivers are asset management (Master Plan), system improvement, and regulatory compliance. 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. This project cost assumes two filters will be rehabilitated in 2024 and two in 2025. If the remaining four filters are to be rehabilitated, this Project will carry on beyond 2025.

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

Annual cost impact to be determined as needed.

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

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	5,500,000
Professional Services	$	250,000
Other	$	50,000
Contingencies	$	100,000
Total Project Cost	**$**	**6,000,000**

Requested in this Capital Program	**$**	**6,000,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	-	
2nd Year	2022	$	-	
3rd Year	2023	$	300,000	design & permitting
4th Year	2024	$	2,850,000	construction
5th Year	2025	$	2,850,000	construction

This project is unfunded.

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

Project Name	INTAKE UPGRADES						
Budget Area	Water	**Department**	Operations	**Date**	12/27/2019	**Project No.**	AD-W-23
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**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)	Varies	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	TBD
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.

Detailed Project Description

The Master Plan includes multiple upgrade phases: **(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. This portion of the project will include the installation of traveling screens/screenings handling facility at the Big Lehigh facility; **(2)** replace the existing traveling screen in the 1953 Little Lehigh screening building until a new intake/screenings facility can be constructed (this phase is within the 5-year capital plan); **(3)** new 30 MGD Little Lehigh intake structure and screenings building including coarse screens, traveling screens and screenings handling facilities. In addition, new buried piping and tie-in connection to the existing raw water line is needed.

Project Drivers and Needs to be Met by the Project

Asset management, regulatory compliance, enhanced redundancy, improved process reliability, improved operations and maintenance and improved water quality are the project drivers.

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. The first phase of this project consists of replacement of the existing Little Lehigh mechanical screen with some additional miscellaneous upgrades. This is the short term recommendation in the Master Plan. The long term recommendation includes a second intake structure (see above).

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

Annual cost impact to be determined as needed.

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

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	1,800,000
Professional Services	$	-
Other	$	50,000
Contingencies	$	50,000
Total Project Cost	**$**	**2,000,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**2,000,000**

				Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	-	
2nd Year	2022	$	250,000	design & permitting
3rd Year	2023	$	1,750,000	construction
4th Year	2024	$	-	
5th Year	2025	$	-	

This project is unfunded.

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

Project Name	HIGH LIFT VFD/PUMP REPLACEMENTS						
Budget Area	Water	**Department**	Operations	**Date**	12/27/2019	**Project No.**	AD-W-24
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**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)	Varies	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2023
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.

Detailed Project Description

A feasibility study was performed to peform a condtion assessment and evaluate and select pump capacities to meet current and future demands while operating at peak efficiency. The study evaluated replacing the aging high lift pumps, motors, and VFD, along with rehabilitation of the building and support facilities as required. The scope of design generally consists of VFD replacements and associated electrical improvements.

Project Drivers and Needs to be Met by the Project

Asset management, code compliance, physical and process reliability, energy efficiency, improved operations and maintenance are the project drivers for upgrade of this critical system.

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

An initial evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan project. A 2018 study of this system was conducted to identify replacement alternatives. Design phase was substantially completed in 2019. Project is on hold and will be bid when funds are available. This project scope consists of the installation of three new 2300V VFDs (two existing VFDs are to be replaced and one new VFD is to be installed where no pre-existing VFD exists on an existing constant speed pump).

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

Annual cost impact to be determined as needed.

Project No.	AD-W-24
Project Name	HIGH LIFT VFD/PUMP REPLACEMENTS

Prior Project Cost	$90,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 100,000
Land Acquisition	$ -
Construction/Equipment	$ 1,500,000
Professional Services	$ 150,000
Other	$ 50,000
Contingencies	$ 100,000
Total Project Cost	**$ 1,900,000**

Requested in this Capital Program	**$ 1,900,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ 50,000	final design & permitting
2nd Year	2022	$ 1,700,000	construction
3rd Year	2023	$ 150,000	construction
4th Year	2024	$ -	
5th Year	2025	$ -	

This project is unfunded.

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

Project Name	TANK AND RESERVOIR REHABILITATION						
Budget Area	Water	**Department**	Operations	**Date**	12/27/2019	**Project No.**	AD-W-25
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**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)	Varies	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, Central Lehigh Division and bulk water sales to other municipalities.

Detailed Project Description

The project involves the rehabilitation and repair of the following tanks and reservoirs: (a) Schantz Spring Tank, (b) Huckleberry Ridge Reservoir, (c) South Mountain Reservoir, (e) 16th Ward Tank, (f) 19th Ward Tank, (g) Wash Water Tank. The majority of the work will be located on the exterior of the tanks.

Project Drivers and Needs to be Met by the Project

Enhanced process and physical redundancy, improved operations and maintenance, and asset management are the project drivers.

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

This project was identified in 2017 as part of the Water Filtration Plant Master Plan project. The Master Plan's scope for this project is also linked to AD-W-I (Indenture Report Improvements); therefore, a portion of this project is allocated to that capital number as well.

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

Annual cost impact to be determined as needed.

Project No.	AD-W-25
Project Name	TANK AND RESERVOIR REHABILITATION

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	80,000
Land Acquisition	$	-
Construction/Equipment	$	1,300,000
Professional Services	$	100,000
Other	$	10,000
Contingencies	$	10,000
Total Project Cost	**$**	**1,500,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**1,500,000**

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	-	
2nd Year	2022	$	-	
3rd Year	2023	$	100,000	design
4th Year	2024	$	700,000	construction
5th Year	2025	$	700,000	construction

This project is unfunded.

WASTEWATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2021-2025 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	Prj. Category	(1) Funding	Approval Stage (1)	Priority Ranking (2)	Plan Total Cost	This Capital Program 2020 *Budget Approved*	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2021-2025 Total	Prior Project Cost (4)	Future Project Cost (4)	Total Project Cost
	LCA FUNDED SOURCES															
	Operating/Capital Reserve Funds															
AD-S-A	Annual Projects	AM - Varies	LCA	A	-	$ 9,460,000	$ 1,210,000	$ 1,410,000	$ 1,210,000	$ 1,560,000	$ 2,110,000	$ 1,960,000	$ 8,250,000			$9,460,000
AD-S-9	Various Wastewater System Related Studies (Master Plan)	CA/OS	LCA	S	-	$ 150,000	$ -	$ -	$ -	$ 150,000	$ -	$ -	$ 150,000	$200,000		$350,000
	TOTAL LCA FUNDED SOURCES					**$ 9,610,000**	**$ 1,210,000**	**$ 1,410,000**	**$ 1,210,000**	**$ 1,710,000**	**$ 2,110,000**	**$ 1,960,000**	**$ 8,400,000**	**$200,000**	**$0**	**$ 9,810,000**
	CITY FUNDED SOURCES															
AD-S-11	Regional Flow Management Strategy	Regulatory	Allentown	S	-	$ 3,145,000	$ 730,000	$ 835,000	$ 465,000	$ 340,000	$ 775,000	$ -	$ 2,415,000	$0		$3,145,000
AD-S-16	WWTP Interim Blending Pumping System(3)	Regulatory	Allentown	S	-	$ 1,500,000	$ 1,500,000	$ -	$ -	$ -	$ -	$ -	$ -	$0	$0	$1,500,000
	TOTAL CITY FUNDED SOURCES					**$ 4,645,000**	**$ 2,230,000**	**$ 835,000**	**$ 465,000**	**$ 340,000**	**$ 775,000**	**$ -**	**$ 2,415,000**	**$0**	**$0**	**$ 4,645,000**
	GRAND TOTAL FUNDED SOURCES					**$ 14,255,000**	**$ 3,440,000**	**$ 2,245,000**	**$ 1,675,000**	**$ 2,050,000**	**$ 2,885,000**	**$ 1,960,000**	**$ 10,815,000**	**$200,000**	**$0**	**$ 14,455,000**
	UNFUNDED SOURCES															
AD-S-G**	General Improvements	AM - Varies	LCA	S	2	$ 3,625,000	$ -	$ 725,000	$ 725,000	$ 725,000	$ 725,000	$ 725,000	$ 3,625,000	$0		$3,625,000
AD-S-I***	Indenture Report Improvements	AM - Varies	LCA	S	7	$ 3,500,000	$ -	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 3,500,000	$1,500,000		$5,000,000
AD-S-5A	WWTP Electrical Substation Replacement Phase 2	AM - High	CCRC	S	1	$ 3,250,000	$ -	$ 100,000	$ 1,250,000	$ 1,900,000	$ -	$ -	$ 3,250,000	$2,450,000	$0	$5,700,000
AD-S-19	WWTP Main Pump Station Improvements	AM - Varies	CCRC	S	4	$ 2,600,000	$ -	$ -	$ 600,000	$ 1,000,000	$ 1,000,000	$ -	$ 2,600,000	$0	$0	$2,600,000
AD-S-20	WWTP Solids Processing Boiler & Heating Systems Upgrade	AM - Varies	CCRC	S	3	$ 1,250,000	$ -	$ 100,000	$ 500,000	$ 650,000	$ -	$ -	$ 1,250,000	$0	$0	$1,250,000
AD-S-21	WWTP 480V MCC Replacement	AM - Varies	CCRC	S	5	$ 3,250,000	$ -	$ -	$ 200,000	$ 1,525,000	$ 1,525,000	$ -	$ 3,250,000	$0	$0	$3,250,000
AD-S-22	WWTP Final Clarifier 1-4 Rehabilitation	AM - Varies	CCRC	S	6	$ 1,800,000	$ -	$ -	$ -	$ 100,000	$ 850,000	$ 850,000	$ 1,800,000	$0	$0	$1,800,000
	TOTAL UNFUNDED SOURCES					**$ 19,275,000**	**$ -**	**$ 1,625,000**	**$ 3,975,000**	**$ 6,600,000**	**$ 4,800,000**	**$ 2,275,000**	**$ 19,275,000**	**$ 3,950,000**	**$ -**	**$ 23,225,000**
	GRAND TOTAL FUNDED + UNFUNDED SOURCES					**$ 33,530,000**	**$ 3,440,000**	**$ 3,870,000**	**$ 5,650,000**	**$ 8,650,000**	**$ 7,685,000**	**$ 4,235,000**	**$ 30,090,000**	**$ 4,150,000**	**$ -**	**$ 37,680,000**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) Ranking system of unfunded project priority, 1 being highest priority
(3) The 2020 budgeted item is a placeholder and does not count towards total project costs
******Includes Project Proposal 4,5,8 (portion),13 from WWTP Master Plan
*******Includes Project Proposal 7,11,12,14 (portion) from WWTP Master Plan
(4) If blank project cost is not applicable (annual/repeating cost) or to be determined

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

Project Name	ANNUAL PROJECTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	2014
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	No		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.

Detailed Project Description

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

Project Drivers and Needs to be Met by the Project

Asset management and system improvement are the primary drivers. Annual items help maintain the level of service for operation of the wastewater collection/conveyance system and the Kline's Island Wastewater Treatment Plant.

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	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Annual cost impact to be determined as needed.

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

Prior Project Cost	N/A
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 460,000
Land Acquisition	$ -
Construction/Equipment	$ 8,100,000
Professional Services	$ 600,000
Other	$ 100,000
Contingencies	$ 200,000
Total Project Cost	**$ 9,460,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$ 8,250,000**

		Need	**Phase of Work**
2020 Budget		$ 1,210,000	procurement & construction
1st Year	2021	$ 1,410,000	procurement & construction
2nd Year	2022	$ 1,210,000	procurement & construction
3rd Year	2023	$ 1,560,000	procurement & construction
4th Year	2024	$ 2,110,000	procurement & construction
5th Year	2025	$ 1,960,000	procurement & construction

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

Project Name	VARIOUS WASTEWATER SYSTEM RELATED STUDIES (MASTER PLAN)						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	2018
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	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 2023: WWTP Master Plan. As some original components of the Allentown WWTP are bearing in on 90 years old, a periodic update of the Master Plan is important to monitor the condition and performance of plant processes. This is a requirement of the Lease.

Project Drivers and Needs to be Met by the Project

The primary project driver is city lease requirement. 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 and is to be completed every 5 years. The first Master Plan was completed in 2018 and the second will be completed in 2023.

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

The first Master Plan was completed in 2018.

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

Annual cost impact to be determined as needed.

Project No.	AD-S-9
Project Name	VARIOUS WASTEWATER SYSTEM RELATED STUDIES (MASTER PLAN)

Prior Project Cost	180,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 20,000
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ 110,000
Other	$ -
Contingencies	$ 20,000
Total Project Cost	**$ 150,000**

Requested in this Capital Program	**$ 150,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ -	
2nd Year	2022	$ -	
3rd Year	2023	$ 150,000	planning
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	REGIONAL FLOW MANAGEMENT STRATEGY						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	2019
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2024
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

The I&I Improvements include the following: Year 1 (2020) consists of a lining project for a 30" sewer section along MLK Drive; Year 2 (2021), Year 3 (2022), Year 4 (2023), and Year 5 (2024) consists of a combination of heavy cleaning, grouting, lining point repairs, excavating point repairs, and pipe lining.

Project Drivers and Needs to be Met by the Project

The primary project driver is regulatory. This project is a component of the work that will be necessary to comply with the submitted Regional Flow Management Strategy (RFMS) in accordance with DEP, which is focused on reducing inflow and infiltration into the wastewater collection system.

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

The City's I&I Source Reduction Plan was submitted to the EPA in 2018. DEP is now in control of overseeing the RFMS implementation.

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

Annual cost impact to be determined as needed.

Project No.	AD-S-11
Project Name	REGIONAL FLOW MANAGEMENT STRATEGY

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	150,000
Land Acquisition	$	-
Construction/Equipment	$	2,655,000
Professional Services	$	250,000
Other	$	20,000
Contingencies	$	70,000
Total Project Cost	**$**	**3,145,000**

Requested in this Capital Program	**$**	**2,415,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget		$	730,000	construction
1st Year	2021	$	835,000	construction
2nd Year	2022	$	465,000	construction
3rd Year	2023	$	340,000	construction
4th Year	2024	$	775,000	construction
5th Year	2025	$	-	

(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**	12/27/2019	**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	**Project inception date**	2017
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

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 (remnants of hurricane and tropical storms, for example). Once installed, blending of wastewater that has received primary treatment with fully treated plant effluent will be made possible, thus 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 - if blending is included.*

Project Drivers and Needs to be Met by the Project

The peak hydraulic capacity of KIWWTP is currently limited to 86 million 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. The 2020 cost is a placeholder. This will be the last year of the placeholder.

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

Annual cost impact to be determined as needed.

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

Prior Project Cost	0
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 40,000
Land Acquisition	$ -
Construction/Equipment	$ 1,300,000
Professional Services	$ 80,000
Other	$ 20,000
Contingencies	$ 60,000
Total Project Cost	**$ 1,500,000**

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

Requested in this Capital Program	**$ -**

		Need	**Phase of Work**
2020 Budget		$ 1,500,000	planning/placeholder
1st Year	2021	$ -	
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

(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	GENERAL IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-G
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	**Project inception date**	2019
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	No		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.

Detailed Project Description

This unfunded General Improvement project includes General Wastewater Systems Replacement/Upgrades/Improvements at the Wastewater Treatment Plant (WWTP). These projects include the following, but not limited to: solids process upgrades (primary sludge digester feed line replacement, thiickener tank #3 mechanical imrpovements, digester and dewatering buildings piping replacement), replacement of the dewatering building second story floor, sewer line maintenance locker room refurbishment, dewatering process SCADA installation, Plastic Media Trickling Filter (PMTF) effluent flushing line replacement, Odor Control Unit 24 replacement, PMTF rehab (partial), drainage lift station rehab, etc.

Project Drivers and Needs to be Met by the Project

The primary project driver is asset management, to maintain level of service and system longevity. These projects are essentail to maintain the continuous operation of the WWTP as equipment reaches the end of its useful life.

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

These are annual projects identified by both staff and the Master Plan (Projects 4, 5, 6, 8 (portion), and 13).

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

Annual cost impact to be determined as needed.

Project No.	AD-S-G
Project Name 3/18	GENERAL IMPROVEMENTS

Prior Project Cost		N/A
Estimated Project Costs:		**2021-2025**
LCA Staff	$	125,000
Land Acquisition	$	-
Construction/Equipment	$	3,100,000
Professional Services	$	250,000
Other	$	50,000
Contingencies	$	100,000
Total Project Cost	**$**	**3,625,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

Requested in this Capital Program	**$**	**3,625,000**

				Need	Phase of Work
2020 Budget		$	-	
1st Year	2021	$	725,000	procurement, design & construction
2nd Year	2022	$	725,000	procurement, design & construction
3rd Year	2023	$	725,000	procurement, design & construction
4th Year	2024	$	725,000	procurement, design & construction
5th Year	2025	$	725,000	procurement, design & construction

This project is unfunded.

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

Project Name	INDENTURE REPORT IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-I
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	**Project inception date**	2016
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	N/A
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

This project includes the following, but not limited to: **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.

Project Drivers and Needs to be Met by the Project

This project addresses the deficiencies identified in the annual Indenture Report. Funding needed to address the deficiencies is roughly split 50% between the sewer system and 50% between the water system.

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

Minor routine maintenance work was performed in 2019 as it relates to specific items in the Indenture Report. Some of the Indenture projects were also identified in the Master Plan (Projects 7, 11 and 12).

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

Annual cost impact to be determined as needed.

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

Prior Project Cost	1,500,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 120,000
Land Acquisition	$ -
Construction/Equipment	$ 3,200,000
Professional Services	$ 150,000
Other	$ 10,000
Contingencies	$ 20,000
Total Project Cost	**$ 3,500,000**

Requested in this Capital Program	**$ 3,500,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ 700,000	construction
2nd Year	2022	$ 700,000	construction
3rd Year	2023	$ 700,000	construction
4th Year	2024	$ 700,000	construction
5th Year	2025	$ 700,000	construction

This project is unfunded.

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

Project Name	WWTP ELECTRICAL SUBSTATION REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**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	**Project inception date**	2016
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2023
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories are positively impacted.

Detailed Project Description

This project will include the replacement of existing electrical substation #1 with a new electrical substation at the Kline's Island Wastewater Treatment Plant. The existing 12.4kV switchgear will also be replaced. Substation #2 (Phase 1) was replaced in 2019. The switchgear and Substation #1 (Phase 2) will be replaced when funding is available.

Project Drivers and Needs to be Met by the Project

Asset management, efficiency and regulatory compliance are the project drivers. The WWTP contains 12.4kV switchgear and two substations (Substation Nos. 1 and 2). The equipment was installed in the 1970s and has reached the end of its useful life. In addition, prior to its recent replacement, substation #2 was overloaded during high flow events. These are critical pieces of electrical equipment that must continue to function properly in order to power the facility. Replacement of the equipment will provide electrical reliability from PP&L for the next 40 years at the WWTP.

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

An engineering study for Substation Nos. 1 and 2 was completed in 2016, followed up by the completion of design in 2018. Substation #2 was replaced in 2019. Substation #1 and the switchgear will be replaced at a future date (Phase 2).

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

Annual cost impact to be determined as needed.

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

Prior Project Cost		2,450,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,800,000
Professional Services	$	300,000
Other	$	20,000
Contingencies	$	30,000
Total Project Cost	**$**	**3,250,000**

Requested in this Capital Program	**$**	**3,250,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget				
1st Year	2021	$	100,000	final design & permitting
2nd Year	2022	$	1,250,000	construction
3rd Year	2023	$	1,900,000	construction
4th Year	2024	$	-	
5th Year	2025	$	-	

This project is unfunded.

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

Project Name	WWTP MAIN PUMP STATION IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-19
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
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	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2024
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

The main headworks pump station at the Kline's Island Wastewater Treatment Plant is critical to plant performance and the ability to maximize wet-weather flow into the KIWWTP. The existing pumps are 50 years old and approaching the end of their useful life. Valves and piping are corroded and predate the 1965 upgrade. Replacement of the valves and piping is required to allow maintenance to occur while simultaneously keeping the pumping station operational.

Project Drivers and Needs to be Met by the Project

The project drivers are asset management and system improvement. Pump replacement will provide improved equipment reliability and reduced long-term maintenance costs.

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

This project was identified in the 2018 Master Plan (Project 1). These pumps were also previously planned to be replaced as part of the blending project improvements (project on hold at 30% design). Project funding is to be determined.

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

Annual cost impact to be determined as needed.

Project No.	AD-S-19
Project Name	WWTP MAIN PUMP STATION IMPROVEMENTS

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	120,000
Land Acquisition	$	-
Construction/Equipment	$	2,300,000
Professional Services	$	140,000
Other	$	20,000
Contingencies	$	20,000
Total Project Cost	**$**	**2,600,000**

Requested in this Capital Program	**$**	**2,600,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	-	
2nd Year	2022	$	600,000	design & permitting
3rd Year	2023	$	1,000,000	construction
4th Year	2024	$	1,000,000	construction
5th Year	2025	$	-	

This project is unfunded.

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

Project Name	WWTP SOLIDS PROCESSING BOILER AND HEATING SYSTEMS REPLACEMENT AND UPGRADE						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-20
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CEV

Purpose of Expenditure *(check all that apply)*			
	New Facility		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)	30	**Project inception date**	2019
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2023
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

This project involves the replacement of the 3 boiler system that is used to heat the digesters, the digester control building, the boiler rooms, and sludge dewatering area. The scope includes, but is not limited to, the following new equipment and modifications: **1)** 2 each dual fuel digester boilers; 2) digester building addtion to house new boilers; 3) new methane booster pumps and gas piping; 4) new hot water recirculation pumps with expansion tank and associated piping; 5) new hot water air handling units and circulators in digester control building, boiler rooms, and dewatering room; 6) new unit heaters in associated areas; 7) new dedicated SCADA system with heating/boiler controls integration; 8) sprinkler system extension into new building; 9) new boiler water treatment system; 10) demolition and removal of old boilers, piping and related abandoned mechanical equipment.

Project Drivers and Needs to be Met by the Project

Asset management is the primary project driver, as the equipment has reached the end of its useful life and this equipment is critical to the heating of the anaerobic digesters, digester control building and sludge dewatering building. In addition, these projects should reduce maintenance costs on aging equipment.

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

Preliminary design has not been started to date. This project is identified in the KIWWTP Master Plan (No. 9).

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

Annual cost impact to be determined as needed.

Project No.	AD-S-20
Project Name	WWTP SOLIDS PROCESSING BOILER AND HEATING SYSTEMS REPLACEMENT AND UPGRADE

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,000,000
Professional Services	$	150,000
Other		
Contingencies	$	50,000
Total Project Cost	**$**	**1,250,000**

Requested in this Capital Program	**$**	**1,250,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	100,000	design & permitting
2nd Year	2022	$	500,000	construction
3rd Year	2023	$	650,000	construction
4th Year	2024	$	-	
5th Year	2025	$	-	

This project is unfunded.

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

Project Name	WWTP 480V MCC REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-21
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
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	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2014
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

Various 480V electrical motor control centers (MCCs) throughout the plant have exceeded their useful service life and should be replaced since a loss of power to key process mechanical components may affect the ability to both maintain mandated treatment permit levels and the requirements of the prior Administrative Order (now RFMS). Scope of work includes the following MCC replacements: IPS 6 and 7, PSPS 8 and 9, APS 12 and 13, 14 PST, 15 OCU 1 and 3, 4 Effluent PS. Additional work may include FPS 2, 3, and 4. Also new VFDs for PE Pumps 7, 9, 11 and PMTF Pumps 12, 14, and 16.

Project Drivers and Needs to be Met by the Project

An increase in operational reliability would be realized with new motor control centers and breakers,and a reduction in maintenance costs would result as older, failure prone equipment is replaced with newer equipment.

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

This project was identified in the 2018 Master Plan (Project 10).

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

Annual cost impact to be determined as needed.

Project No.	AD-S-21
Project Name	WWTP 480V MCC REPLACEMENT

Prior Project Cost	0
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 120,000
Land Acquisition	$ -
Construction/Equipment	$ 2,900,000
Professional Services	$ 150,000
Other	$ 40,000
Contingencies	$ 40,000
Total Project Cost	**$ 3,250,000**

Requested in this Capital Program	**$ 3,250,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ -	
2nd Year	2022	$ 200,000	design & permitting
3rd Year	2023	$ 1,525,000	construction
4th Year	2024	$ 1,525,000	construction
5th Year	2025	$ -	

This project is unfunded.

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

Project Name	WWTP FINAL CLARIFIER 1-4 REHABILITATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	AD-S-22
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
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	**Project inception date**	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	N/A		

*All customers of the City of Allentown, City signatories and Western Lehigh signatories.

Detailed Project Description

This project includes the following, but not limited to: 1) mechanism and drive replacement on all four clarifiers; 2) miscellaneous concrete repairs to all four clarifiers.

Project Drivers and Needs to be Met by the Project

The primary project driver is asset management. This project addresses the deficiencies with the existing Final Clarifiers Nos. 1 - 4 as identified in the Master Plan (Project 14). The concrete tanks are from 1931 and the mechanical equipment (operated 24/7) is from the late 1960s.

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

This project was identified both in the 2018 Master Plan (Project 14) and in a 2016 concrete report by Corrosion Probe. This project scope consists of the replacement of the four drive mechanisms. The additional concrete restoration work is listed in unfunded project AD-S-I.

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

Annual cost impact to be determined as needed.

Project No.	AD-S-22
Project Name	WWTP FINAL CLARIFIER 1-4 REHABILITATION

Prior Project Cost	0
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 50,000
Land Acquisition	$ -
Construction/Equipment	$ 1,600,000
Professional Services	$ 70,000
Other	$ 40,000
Contingencies	$ 40,000
Total Project Cost	**$ 1,800,000**

Requested in this Capital Program	**$ 1,800,000**

	Project Estimate Level
	Conceptual Estimate
	Preliminary Estimate
x	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ -	
2nd Year	2022	$ -	
3rd Year	2023	$ 100,000	design & permitting
4th Year	2024	$ 850,000	procurement & construction
5th Year	2025	$ 850,000	procurement & construction

This project is unfunded.