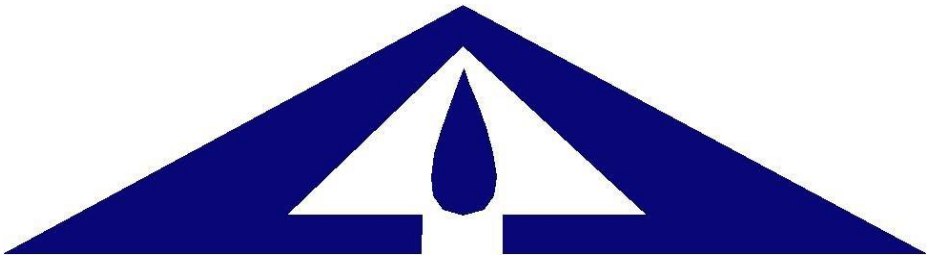

LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

FINAL 5-YEAR CAPITAL PLAN

ALLENTOWN DIVISION

2022-2026

APPROVED April 26, 2021

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2022-2026

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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
2022–2026

SUMMARY

The Allentown Division Capital Plan (Plan) is a five-year plan that covers the years 2022 through 2026. 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 2022-2026					
Budget Area	**LCA**	**CITY**			**TOTALS**
		UW	**RFMS**	**Sub-Total**	
Water	$39,480,400	$0	$0	$0	$39,480,400
Wastewater	$24,038,100	$0	$2,490,000	$2,490,000	$26,528,100
Totals	**$63,518,500**	**$0**	**$2,490,000**	**$2,490,000**	**$66,008,500**

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. Amended lease requirements include the annual replacement of 1-mile of aged and/or failing spun and pit cast water main.

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 the solids process boiler and HVAC upgrade project and replacement of electrical substation no. 1. 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. The capital plan includes five (5) potential wastewater MCI project and five (5) potential water MCI projects (not including the annual water main replacement).

FINANCIAL JUSTIFICATION

In 2021 and beyond, LCA anticipates that Capital Projects will be funded through operating revenues and project reserves.

2022-2026 Capital Plan Allentown Division Funding Sources

	LCA SOURCES			CITY SOURCES		
Budget Area	**Contributions**	**Operating/Capital Reserves**	**New Borrowing**	**RFMS**	**UW**	**Total Sources**
Water	$0	$39,480,400	$0	$0	$0	$39,480,400
Wastewater	$0	$24,038,100	$0	$2,490,000	$0	$26,528,100
Totals	**$0**	**$63,518,500**	**$0**	**$2,490,000**	**$0**	**$66,008,500**

CONDENSED CASH FLOW - CITY DIVISION					
Dollars	**2022**	**2023**	**2024**	**2025**	**2026**
User Charges	46,332,169	48,278,254	51,671,202	53,621,007	55,733,907
Other Operating Revenues	349,166	349,166	349,166	349,166	349,166
Non-Operating Revenues	535,439	51,099	486,619	(52,003)	(161,665)
Operating expenses	(20,491,625)	(22,006,374)	(21,966,565)	(22,625,561)	(23,304,327)
Debt Service - Current Debt	(14,729,652)	(15,244,562)	(15,778,457)	(16,331,337)	(16,899,752)
Debt Service - NEW Debt	-	-	-	-	-
Investments Converting to Cash	-	-	-	-	-
Proceeds From NEW Debt	-	-	-	-	-
Capex - Admin Paygo	(550,000)	(525,000)	(512,500)	(362,500)	(87,500)
Capex - Paygo	(10,900,250)	(11,366,500)	(11,203,900)	(16,804,000)	(15,733,850)
Capex - NEW Borrowing	-	-	-	-	-
NET FUND FLOWS	**545,247**	**(463,917)**	**3,045,565**	**(2,205,228)**	**(104,021)**
User Charge Revenue Increase %	3.0%	3.0%	3.0%	3.0%	3.0%
Operating Cash Balance	10,105,459	10,852,458	10,832,826	11,157,811	11,492,545
Days on Hand	180	180	180	180	180
Project Reserve Balance	2,825,055	1,614,139	4,679,336	2,149,123	1,710,368
DEBT SERVICE COVERAGE RATIO	1.75	1.72	1.88	1.91	1.93

WATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2022-2026 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	Prj. Category	Funding (1)	Approval Stage (1)	Plan Total Cost	This Capital Program							Prior Project Cost (3)	Future Project Cost (3)	Total Project Cost
						2021 *Budget Approved*	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5	2022-2026 Total			
	OPERATING/CAPITAL RESERVE FUNDS														
	ANNUAL PROJECTS														
AD-W-A	Annual Projects	AM - Varies	LCA	A	$ 9,466,750	$ 1,590,000	$ 1,554,250	$ 1,491,500	$ 1,632,000	$ 1,614,500	$ 1,584,500	$ 7,876,750	$0		$9,466,750
	TOTAL ANNUAL PROJECTS				**$ 9,466,750**	**$ 1,590,000**	**$ 1,554,250**	**$ 1,491,500**	**$ 1,632,000**	**$ 1,614,500**	**$ 1,584,500**	**$ 7,876,750**	**$ -**	**$ -**	**$ 9,466,750**
	NON-CCRC PROJECTS														
AD-W-1	Indenture Improvements	AM-high	LCA	C	$ 900,000	$ -	$ 300,000	$ 200,000	$ 200,000	$ 100,000	$ 100,000	$ 900,000	$0		$900,000
AD-W-25	Tank and Reservoir Rehabilitation	AM-high	LCA	V	$ 1,500,000	$ -	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 1,500,000	$0		$1,500,000
AD-W-26	Large Diameter Valve Repoacement Project	AM-high	LCA	P	$ 1,500,000		$ 100,000	$ 700,000	$ 700,000	$ -	$ -	$ 1,500,000	$0		$1,500,000
AD-W-9	Various Water System Related Studies	CA/OS	LCA	S	$ 150,000	$ -	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000	$300,000	0	$450,000
	TOTAL NON-CCRC PROJECTS				**$ 150,000**	**$ -**	**$ 150,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 150,000**	**$300,000**	**$ -**	**$ 450,000**
	CCRC PROJECTS - new borrowing (2)														
AD-W-7	Water Main Replacements	CA/OS	CCRC	C	$ 11,900,000	$ 1,900,000	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 2,000,000	$ 10,000,000	$12,900,000		$24,800,000
AD-W-16	Water Meter Replacement Program	AM-High	CCRC	P	$ 2,270,000	$ -	$ -	$ -	$ -	$ 1,500,000	$ 770,000	$ 2,270,000	$0		$2,270,000
AD-W-21	Fixed-Base Meter Reading System	Efficiency	CCRC	P	$ 1,700,000	$ -	$ -	$ -	$ -	$ 850,000	$ 850,000	$ 1,700,000	$0	$0	$1,700,000
AD-W-22	Filter Upgrades	Master Plan	CCRC	P	$ 6,100,000	$ -	$ 50,000	$ 50,000	$ 300,000	$ 2,850,000	$ 2,850,000	$ 6,100,000	$0	$0	$6,100,000
AD-W-23	Intake Upgrades	Master Plan	CCRC	P	$ 1,900,000	$ -	$ 200,000	$ 1,200,000	$ 500,000	$	$ -	$ 1,900,000	$0	$0	$1,900,000
AD-W-24	High Lift VFD/Pump Replacements	Master Plan	CCRC	C	$ 1,900,000	$ 800,000	$ 1,100,000	$ -	$ -	$ -	$ -	$ 1,100,000	$175,000	$0	$2,075,000
	TOTAL CCRC PROJECTS				**$ 25,770,000**	**$ 2,700,000**	**$ 3,350,000**	**$ 3,250,000**	**$ 2,800,000**	**$ 7,200,000**	**$ 6,470,000**	**$ 23,070,000**	**$ 13,075,000**	**$ -**	**$ 38,845,000**
	CITY FUNDED PROJECTS														
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				**$ 35,471,750**	**$ 4,375,000**	**$ 5,054,250**	**$ 4,741,500**	**$ 4,432,000**	**$ 8,814,500**	**$ 8,054,500**	**$ 31,096,750**	**$ 13,375,000**	**$ -**	**$ 48,846,750**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) Future projects listed under "CCRC Projects" have not secured formal approval by the City for Major Capital Improvement
(3) 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	Water	**Department**	Capital Works	**Date**	1/27/2021	**Project No.**	AD-W-A
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CV/JP

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		

\

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, PennDOT relocations, Mobile Equipment, reservoir rehab/maintenance, Indenture report preparation, General Water System Replacements/Improvements, Capital Management, and various water system studies.

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:	**2022-2026**
LCA Staff	$ 500,000
Land Acquisition	
Construction/Equipment	$ 7,666,750
Professional Services	$ 500,000
Other	$ 300,000
Contingencies	$ 500,000
Total Project Cost	**$ 9,466,750**

Requested in this Capital Program	**$ 7,876,750**

	Conceptual Estimate
X	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

		Need	**Phase of Work**
2021 Budget		$ 1,590,000	procurement, planning, design & construction
1st Year	2022	$ 1,554,250	procurement, planning, design & construction
2nd Year	2023	$ 1,491,500	procurement, planning, design & construction
3rd Year	2024	$ 1,632,000	procurement, planning, design & construction
4th Year	2025	$ 1,614,500	procurement, planning, design & construction
5th Year	2026	$ 1,584,500	procurement, planning, design & construction

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

Project Name	INDENTURE REPORT IMPROVEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	1/27/2021	**Project No.**	AD-W-I
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		TC

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 Indenture-related 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. 2021 Indenture upgrade work will include some concrete repairs at the WFP; this was budgeted under the 2021 annual water 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		$0
Estimated Project Costs:		**2022-2026**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	600,000
Professional Services	$	150,000
Other		
Contingencies	$	100,000
Total Project Cost	**$**	**900,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ 300,000	design & construction
2nd Year	2023	$ 200,000	design & construction
3rd Year	2024	$ 200,000	design & construction
4th Year	2025	$ 100,000	construction
5th Year	2026	$ 100,000	construction

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

Project Name	TANK AND RESERVOIR REHABILITATION						
Budget Area	Water	**Department**	Operations	**Date**	1/27/2021	**Project No.**	AD-W-25
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Master Plan	**Secondary**	Sys Imp	**Preparer**		TC

	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)	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**	Ongoing
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 mechanical upgrades, surface coatings and miscellaneous rehabilitation and repair of the high-level pumping stations, concrete tanks, and concrete reservoirs: (a) Schantz Spring Reservoir, (b) Huckleberry Ridge Reservoir, (c) South Mountain Reservoir, (d) East Side Reservoir, (e) Wash Water Tank, (f) Halstead Pump Station. The majority of the work will be located on the exterior of the tanks and within the adjacent process piping systems, but may include interior repairs and upgrades. This work would encompass work such as replacement of process valves, actuators, painting, HVAC, building rehabilitation, electrical components, and mixing systems. It would also encompass work to the interior of the three large concrete reservoirs which is not currently covered under a service agreement.

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:		**2022-2026**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,200,000
Professional Services	$	180,000
Other	$	10,000
Contingencies	$	60,000
Total Project Cost	**$**	**1,500,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ 300,000	design & construction
2nd Year	2023	$ 300,000	design & construction
3rd Year	2024	$ 300,000	design & construction
4th Year	2025	$ 300,000	design & construction
5th Year	2026	$ 300,000	design & construction

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

Project Name	LARGE DIAMETER VALVE REPLACEMENT PROJECT						
Budget Area	Water	**Department**		**Date**	1/27/2021	**Project No.**	AD-W-26
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Sys Imp	**Preparer**		CV/JG

	Purpose of Expenditure *(check all that apply)*		
	New Facility	**X**	Correct Known or Potential Safety Issue
X	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)	40	project incoption date	2020
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	project completion date	2022
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

This is a multi-year project to replace critical large diameter valves. The existing 36-inch cast iron water main that supplies the city with water from the South Mountain Reservoir is nearly 100 years old and has numerous large diameter valves that are inoperable or no longer seal properly. The valves have manual or electrical actuators and the current condition does not allow for isolation of the Reservoir in event of main breakage or maintenance. There are other critical large diameter valves that supply the city and the LCA Suburban Division that are inoperable or do not seal properly that require replacement as well.

Purpose and Needs to be Met by the Project

The replacement of critical inoperable major water supply valves will allow for isolating of reservoirs and other areas of the distribution system in event of a water main break or other essential maintenance operations.

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

The inception of this project is the result of a major break in the South Mountain transmission main that occurred in late 2020 and required emergency repair. The inoperable or otherwise poor condition of the valves on this line and adjacent connecting mains justify the need to replace key system valves as a separate 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-26
Project Name	LARGE DIAMETER VALVE REPLACEMENT PROJECT

Prior Project Cost	0
Estimated Project Costs :	
LCA Staff	$ 50,000
Land Acquisition	
Construction/Equipment	$ 1,300,000
Professional Services	$ 100,000
Other	
Contingencies	$ 50,000
Total Project Cost	**$ 1,500,000**

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

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2021 Budget		$ -				
1st Year	2022	$ 100,000				
2nd Year	2023	$ 700,000				
3rd Year	2024	$ 700,000				
4th Year	2025					
5th Year	2026					

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**	1/27/2021	**Project No.**	AD-W-9
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	CA/OS	**Secondary**	Planning	**Preparer**		TC

	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**	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 installment 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:		**2022-2026**
LCA Staff	$	25,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	110,000
Other	$	-
Contingencies	$	15,000
Total Project Cost	**$**	**450,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ 150,000	Master Plan
2nd Year	2023	$ -	
3rd Year	2024	$ -	
4th Year	2025	$ -	
5th Year	2026	$ -	

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

Project Name	WATER MAIN REPLACEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	1/27/2021	**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 original Operating Standards of the Lease Concession Agreement, LCA was required to replace 2 miles of aging spun cast or pit cast iron water mains per year, until such time as the City would deem it not necessary. LCA works closely with the City's Office of Compliance and Streets Department to coordinate the annual water main replacement projects, which are prioritized by LCA's engineer. The re-negotiated Lease and settlement with the City requires annual replacement of one mile of water main starting in 2021 up to and including 2024 (4 miles total). In 2024, a review of the program (including break history) will be performed by LCA and City to determine if greater than 1 mile, but no more than 2 miles, of water main replacement shall be required annually. The capital budget assumes 2 miles of annual water main replacement starting in 2025.

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 catastrophic 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. In 2020 the design of the next phase of water main replacement (Cycle 5) was started, although no main was replaced that year. Cycle 5 main replacement will be completed in 2021, followed by the next annual cycles of prioritized water main replacement.

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:		**2022-2026**
LCA Staff	$	400,000
Land Acquisition	$	-
Construction/Equipment	$	14,083,650
Professional Services	$	1,500,000
Other	$	-
Contingencies	$	400,000
Total Project Cost	**$**	**16,383,650**

Requested in this Capital Program	**$**	**14,483,650**

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

			Need	**Phase of Work**
2021 Budget		$	1,900,000	design & construction
1st Year	2022	$	1,947,500	design & construction
2nd Year	2023	$	1,996,200	design & construction
3rd Year	2024	$	2,046,100	design & construction
4th Year	2025	$	4,194,500	design & construction
5th Year	2026	$	4,299,350	design & construction

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

Project Name	METER REPLACEMENT PROGRAM						
Budget Area	Water	**Department**	Capital Works	**Date**	2/19/2021	**Project**	AD-W-16
Location	Allentown			**Prj. Type**	Regular	**Prj.**	CCRC
Prj. Category	**Primary**	AM-varies	**Secondary**	rev oport	**Preparer**		ALK

Purpose of Expenditure *(check all that apply)*			
	New Facility		Correct Known or Potential Safety Issue
	Existing Facility - Rehabilitation/Upgrade	**X**	Equipment Obsolete
X	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		
Approx. No. of Customers Benefitted	N/A	**Project inception date**	2021
Is this System part of a Common User Rate?	N/A		
Will the Project Require Obtaining Land Rights	N/A	**Anticipated Project completion date**	2026

Detailed Project Description

There are approximately 4,300 badger water meters ranging in size from 5/8" to 2" that are currently being used to monitor water consumption in the city. These sites were not a part of the original City of Allentown AMR project in 2012/2013. The sites also have existing but outdated Encoder Receiver Transmitters (ERTs) which are now approaching the end of their useful lives. Should LCA decide to implement Project AD-W-21 (Fixed Base AMR), the outdated 40W/50W/60W ERTs will not be readable on the new system. Radio read capability is included on all meter exchanges, allowing for mobile read application.

Project Drivers and Needs to be Met by the Project

The Badger meters have an outdated style radio that is incorporated into the meter and cannot be replaced separately. The old style radio does not include data logging or tamper alarms. Replacement of meters that may not be registering all water usage or have faulty radios 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

No work to date.

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	5.50%
Term (Years)	30

Explanation if Necessary

Annual cost impact to be determined as needed.

Project No.	AD-W-16
Project Name	METER REPLACEMENT PROGRAM

Prior Project Cost	0
Estimated Project Costs:	**2022-2026**
LCA Staff	$40,000
Land Acquisition	$ -
Construction/Equipment	$2,170,000
Professional Services	$10,000
Other Contingencies	$50,000
Total Project Cost	**$2,270,000**

Requested in this Capital Program	**$ 2,270,000**

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ -	
3rd Year	2024	$ -	
4th Year	2025	$ 1,500,000	procurement & construction
5th Year	2026	$ 770,000	construction

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**	1/27/2021	**Project No.**	AD-W-21
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		BB/ALK

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**	2026
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 2021.

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

No work has been done to date. Implementation is anticipated to begin in 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-21
Project Name	FIXED-BASE METER READING SYSTEM

Prior Project Cost		0
Estimated Project Costs:		**2022-2026**
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**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ -	
3rd Year	2024	$ -	
4th Year	2025	$ 850,000	procurement & construction
5th Year	2026	$ 850,000	procurement & construction

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

Project Name	FILTER UPGRADES						
Budget Area	Water	**Department**	Operations	**Date**	1/27/2021	**Project No.**	AD-W-22
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**Secondary**	Sys Imp	**Preparer**		CEV

	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

The intitial evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan, and a follow-up detailed filter condition assessment and study was completed in 2020. The Capital Plan budget is based on performing short term rehabilitation work recommended by the filter study in 2022 and 2023, which includes backwash valve replacement, verfication of surface sweeps pressure, removal of top layer of filter meda fines, and repair of filter troughs. Design of the long term filter rehabilitation project will commmence in 2024, to be following by a multi-year construction project. This project cost assumes two filters will be rehabilitated in 2025 and two in 2026 (the project duration will extend beyond the planning period).

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:		**2022-2026**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	5,450,000
Professional Services	$	300,000
Other	$	50,000
Contingencies	$	200,000
Total Project Cost	**$**	**6,100,000**

Requested in this Capital Program	**$**	**6,100,000**

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ 50,000	study
2nd Year	2023	$ 50,000	preliminary engineering
3rd Year	2024	$ 300,000	design & permitting
4th Year	2025	$ 2,850,000	construction
5th Year	2026	$ 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**	1/27/2021	**Project No.**	AD-W-23
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**Secondary**	Sys Imp	**Preparer**		CEV

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

This project as described in the Master Plan includes multiple upgrade phases: **1) R**eplace the existing travelling screen in the 1953 Little Lehigh screening building ***(this phase is within the 5-year Capital Plan)*** ; **2)** Upgrade the Big Lehigh intake facility, which is limited to 3 MGD due to taste and odor complaints, and requires manual cleaning of the existing bar screens. This phase of the project will include the installation of traveling screens and a new screenings handling facility at the Big Lehigh intake; **3)** Construct 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 will be included in this phase.

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, which is within this 5-year Capital Plan, 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), which is not included within this 5-year capital plan.

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:		**2022-2026**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	1,650,000
Professional Services	$	-
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**
2021 Budget		$ -	
1st Year	2022	$ 200,000	design & permitting
2nd Year	2023	$ 1,200,000	construction
3rd Year	2024	$ 500,000	construction
4th Year	2025	$	
5th Year	2026	$ -	

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

Project Name	HIGH LIFT VFD/PUMP REPLACEMENTS						
Budget Area	Water	**Department**	Operations	**Date**	1/27/2021	**Project No.**	AD-W-24
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Master Plan	**Secondary**	Sys Imp	**Preparer**		CEV

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 perform a condition 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 2020 and a PennVEST loan application was submitted in late 2020. 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). The project will be bid in early 2021 and construction will be completed in 2022.

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	$175,000
Estimated Project Costs:	**2022-2026**
LCA Staff	$ 50,000
Land Acquisition	$ -
Construction/Equipment	$ 1,600,000
Professional Services	$ 100,000
Other	
Contingencies	$ 150,000
Total Project Cost	**$ 2,075,000**

Requested in this Capital Program	**$ 1,100,000**

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

		Need	**Phase of Work**
2021 Budget		$ 800,000	bidding & construction
1st Year	2022	$ 1,100,000	construction
2nd Year	2023	$ -	
3rd Year	2024	$ -	
4th Year	2025	$ -	
5th Year	2026	$ -	

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

Project Name	ITRON/AMR METER PROJECT						
Budget Area	Water	**Department**	Capital Works	**Date**	1/27/2021	**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 2021) which will analyze water usage data gathered from the meters in the Allentown division, which will be important for tracking and identifying 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 2020, all five of the commercial meters have been replaced with this project. Project is anticipated to be completed in 2021 and will be removed from future capital plans.

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:		**2022-2026**
LCA Staff	$	5,000
Land Acquisition	$	-
Construction/Equipment	$	50,000
Professional Services	$	10,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**85,000**

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

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

			Need	**Phase of Work**
2021 Budget		$	85,000	procurement & construction
1st Year	2022	$	-	
2nd Year	2023	$	-	
3rd Year	2024	$	-	
4th Year	2025	$	-	
5th Year	2026	$	-	

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

WASTEWATER

LEHIGH COUNTY AUTHORITY
ALLENTOWN DIVISION
2022-2026 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	Prj. Category	Approval Stage (1)	Plan		This Capital Program							Prior Project Cost (4)	Future Project Cost (4)	Total Project Cost
				Total Cost	Prior Years' (2)	2021 *Budget Approved*	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5	2022-2026 Total			
	Operating/Capital Reserve Funds														
	ANNUAL PROJECTS														
AD-S-A	Annual Projects	AM - Varies	A	$ 11,898,100	$ -	$ 1,960,000	$ 2,133,500	$ 1,938,800	$ 1,590,800	$ 1,870,000	$ 2,405,000	$ 9,938,100			$11,898,100
	TOTAL ANNUAL PROJECTS			**$ 11,898,100**	**$ -**	**$ 1,960,000**	**$ 2,133,500**	**$ 1,938,800**	**$ 1,590,800**	**$ 1,870,000**	**$ 2,405,000**	**$ 9,938,100**	**$0**	**$0**	**$ 11,898,100**
	OPERATING RESERVES														
AD-S-I	Indenture Report Improvements (3)	AM - Varies	C	$ 1,700,000	$ -	$ -	$ 700,000	$ 400,000	$ 200,000	$ 200,000	$ 200,000	$ 1,700,000	$0		$1,700,000
AD-S-5	WWTP Electrical Substation Replacement Phase 2	AM - High	D	$ 3,250,000	$ -	$ -	$ 200,000	$ 1,250,000	$ 1,800,000	$ -	$ -	$ 3,250,000	$2,450,000	$0	$5,700,000
AD-S-9	Various Wastewater System Related Studies (Master Plan)	CA/OS	S	$ 150,000	$ -	$ -	$ -	$ 150,000	$ -	$ -	$ -	$ 150,000	$150,000		$300,000
AD-S-19	WWTP Main Pump Station Improvements	AM - Varies	P	$ 2,600,000	$ -	$ -	$ -	$ 200,000	$ 800,000	$ 1,600,000	$ -	$ 2,600,000	$0	$0	$2,600,000
AD-S-20	WWTP Boiler Replacement & Solids Process Upgrade Project (5)	AM - Varies	D	$ 2,400,000	$ -	$ 200,000	$ 1,200,000	$ 1,000,000	$ -	$ -	$ -	$ 2,200,000	$40,000	$0	$2,440,000
AD-S-21	WWTP 480V MCC Replacement	AM - Varies	P	$ 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	P	$ 950,000	$ -	$ -	$ -	$ -	$ -	$ 100,000	$ 850,000	$ 950,000	$0	$0	$950,000
	TOTAL OPERATING RESERVES PROJECTS			**$ 14,300,000**	**$ -**	**$ 200,000**	**$ 2,100,000**	**$ 3,000,000**	**$ 3,000,000**	**$ 3,425,000**	**$ 2,575,000**	**$ 14,100,000**	**$ 2,640,000**	**$ -**	**$ 16,940,000**
	CITY FUNDED PROJECTS														
AD-S-11	Regional Flow Management Strategy (2)	Regulatory	S	$ 2,415,000	$ -	$ 775,000	$ 465,000	$ 340,000	$ 835,000	$ -	$ -	$ 1,640,000	$665,960		$3,080,960
AD-S-12	Flow Characterization Study (2)	Regulatory	S	$ 1,250,000	$ 1,500,000	$ 1,250,000	$ 500,000	$ 150,000	$ 100,000	$ 100,000	$ -	$ 850,000	$0	$0	$1,250,000
	TOTAL CITY FUNDED PROJECTS			**$ 3,665,000**	**$ 1,500,000**	**$ 2,025,000**	**$ 965,000**	**$ 490,000**	**$ 935,000**	**$ 100,000**	**$ -**	**$ 2,490,000**	**$665,960**	**$0**	**$ 4,330,960**
	GRAND TOTAL			**$ 29,863,100**	**$ 1,500,000**	**$ 4,185,000**	**$ 5,198,500**	**$ 5,428,800**	**$ 5,525,800**	**$ 5,395,000**	**$ 4,980,000**	**$ 26,528,100**	**$ 3,305,960**	**$ -**	**$ 33,169,060**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents
(2) "Administrative Order" projects as per the Agreement are to be funded by the City and executed by LCA
(3) Includes Projects from WWTP Master Plan
(4) If blank project cost is not applicable (annual/repeating cost) or to be determined
(5) Project to be reviewed by City in 2021 for Major Capital Improvement/CCRC approval

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

Project Name	ANNUAL PROJECTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-A
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CV/MW

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, PennDOT relocations, Indenture Report, 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:	**2022-2026**
LCA Staff	$ 460,000
Land Acquisition	$ -
Construction/Equipment	$ 8,528,100
Professional Services	$ 650,000
Other	$ 100,000
Contingencies	$ 200,000
Total Project Cost	**$ 11,898,100**

Requested in this Capital Program	**$ 9,938,100**

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

		Need	**Phase of Work**
2021 Budget		$ 1,960,000	procurement & construction
1st Year	2022	$ 2,133,500	procurement & construction
2nd Year	2023	$ 1,938,800	procurement & construction
3rd Year	2024	$ 1,590,800	procurement & construction
4th Year	2025	$ 1,870,000	procurement & construction
5th Year	2026	$ 2,405,000	procurement & construction

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

Project Name	INDENTURE REPORT IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-I
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		MW

	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, which indentifies strutural, coatings, security, electrical and other routine upgrades that are needed to maintain the assets.

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). The first large project to address indenture report improvements is scheduled for construction in 2021, which was budgeted under the 2021 annual wastewater 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-S-I
Project Name	INDENTURE REPORT IMPROVEMENTS

Prior Project Cost		0
Estimated Project Costs:		**2022-2026**
LCA Staff	$	75,000
Land Acquisition	$	-
Construction/Equipment	$	1,300,000
Professional Services	$	200,000
Other		
Contingencies	$	125,000
Total Project Cost	**$**	**1,700,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	construction
1st Year	2022	$ 700,000	construction
2nd Year	2023	$ 400,000	construction
3rd Year	2024	$ 200,000	construction
4th Year	2025	$ 200,000	construction
5th Year	2026	$ 200,000	construction

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

Project Name	WWTP ELECTRICAL SUBSTATION REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-5
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		CEV

	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**	2024
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 includes 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) construction is scheduled for 2023 and 2024.

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 in 2023 and 2024 (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:	**2022-2026**	
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,800,000
Professional Services	$	250,000
Other		
Contingencies	$	100,000
Total Project Cost	**$**	**5,700,000**

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

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

		Need	**Phase of Work**
2021 Budget			
1st Year	2022	$ 200,000	design, permitting, bidding
2nd Year	2023	$ 1,250,000	construction
3rd Year	2024	$ 1,800,000	construction
4th Year	2025	$ -	
5th Year	2026	$ -	

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**	1/12/2021	**Project No.**	AD-S-9
Location	Allentown			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	CA/OS	**Secondary**	Planning	**Preparer**		CEV

	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	X	Other (explain): Lease requirement

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 installment 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		$150,000
Estimated Project Costs:	**2022-2026**	
LCA Staff	$	10,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	130,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**300,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ 150,000	planning
3rd Year	2024		
4th Year	2025	$ -	
5th Year	2026	$ -	

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**	1/12/2021	**Project No.**	AD-S-19
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	**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

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. Design phase is scheduled to commence in 2023.

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:		**2022-2026**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,200,000
Professional Services	$	200,000
Other		
Contingencies	$	100,000
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**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ 200,000	design & permitting
3rd Year	2024	$ 800,000	construction
4th Year	2025	$ 1,600,000	construction
5th Year	2026	$ -	

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

Project Name	WWTP BOILER REPLACEMENT AND SOLIDS PROCESS HVAC UPGRADE PROJECT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-20
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	CCRC
Prj. Category	**Primary**	Sys Imp	**Secondary**	AM - Varies	**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**	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, 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 building, and the 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 building, boiler room, and dewatering room; 6) SCADA system integration; 7) sprinkler system extension into new building; 8) new boiler water treatment system; 9) 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 operation of the plant anaerobic digestion system. In addition, this project will reduce 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 3). A concptual engineering report (basis of design) was submitted to the CIty in early 2021 per Lease requirements for major capital improvement (MCI) project protocol. Design phase will be completed in 2021 and construction phase is anticipated for 2022 into 2023.

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 BOILER REPLACEMENT AND SOLIDS PROCESS HVAC UPGRADE PROJECT

Prior Project Cost		$40,000
Estimated Project Costs:		**2022-2026**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,850,000
Professional Services	$	300,000
Other		
Contingencies	$	200,000
Total Project Cost	**$**	**2,440,000**

Requested in this Capital Program	**$**	**2,200,000**

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

		Need	**Phase of Work**
2021 Budget		$ 200,000	design & permitting
1st Year	2022	$ 1,200,000	construction
2nd Year	2023	$ 1,000,000	construction
3rd Year	2024	$ -	
4th Year	2025	$ -	
5th Year	2026	$ -	

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

Project Name	WWTP 480V MCC REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-21
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CEV

	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**	2026
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 critical processes' 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: Intermediate Pump Station (IPS) 6 and 7, Primary Sludge Pump Station (PSPS) 8 and 9, Auxiliary Pump Station (APS) 12 and 13, Primary Settling Tank Pump Station (PST) 14 and 15, Odor Control Unit (OCU) 1 and 3, and Effluent Pump Station (EPS) 4. Additional work may include Final Pump Station (FPS) 2, 3, and 4. Also new VFDs for Primary Effluent (PE) Pumps 7, 9, 11 and Plastic Media Trickling Filters (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). The project may be split into to separate phases according to plant process area moving forward.

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:		**2022-2026**
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,750,000
Professional Services	$	200,000
Other	$	-
Contingencies	$	200,000
Total Project Cost	**$**	**3,250,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ -	
3rd Year	2024	$ 200,000	design & permitting
4th Year	2025	$ 1,525,000	construction
5th Year	2026	$ 1,525,000	construction

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**	1/12/2021	**Project No.**	AD-S-22
Location	Allentown			**Prj. Type**	LCA-MCI	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CEV

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**	2027
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 and associated mechanical equipmnet. The work anticipated to begin construction in 2026 and finish in 2027.

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:		**2022-2026**
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	800,000
Professional Services	$	70,000
Other		
Contingencies	$	50,000
Total Project Cost	**$**	**950,000**

Requested in this Capital Program	**$**	**950,000**

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

		Need	**Phase of Work**
2021 Budget		$ -	
1st Year	2022	$ -	
2nd Year	2023	$ -	
3rd Year	2024	$ -	
4th Year	2025	$ 100,000	procurement & construction
5th Year	2026	$ 850,000	procurement & construction

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

Project Name	REGIONAL FLOW MANAGEMENT STRATEGY						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**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) all consist 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. The RFMS was initially required by EPA as part of compliance with the Adminstrative Order.

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. Year 1 was completed in 2020 and Year 2 construction will commence in Q2 2021.

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. The project is funded by the City.

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

Prior Project Cost		$ 665,960
Estimated Project Costs:		**2022-2026**
LCA Staff		$ 40,000
Land Acquisition		$ -
Construction/Equipment		$ 2,140,000
Professional Services		$ 225,000
Other		$ -
Contingencies		$ 10,000
Total Project Cost		**$ 3,080,960**

Requested in this Capital Program	**$ 1,640,000**

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

		Need	**Phase of Work**
2021 Budget		$ 775,000	Construction
1st Year	2022	$ 465,000	Construction
2nd Year	2023	$ 340,000	Construction
3rd Year	2024	$ 835,000	Construction
4th Year	2025	$ -	
5th Year	2026	$ -	

(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	FLOW CHARACTERIZATION STUDY						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/12/2021	**Project No.**	AD-S-12
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**	2020
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

The Flow Characterization Study (FCS) include the following: Year 1 (2021) consists of 65 temporary meters, 24 permanent sewer billing meters, and 11 permanent/non sewer billings. Year 1 also consists of QA/QC of the meter data and initial development of the Regional KISS sewer model; Year 2 (2022) consists of finalizng the development of the Regional KISS sewer model and beginning scenario planning and alternative analyses; Year 3 (2023) consists of additional 537 scenario planning and alternative analyses as needed.

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 (August 2018) Regional Flow Management Strategy (RFMS) in accordance with DEP, which is focused on reducing inflow and infiltration into the wastewater collection system. This project is also a component of the Interim Act 537 Plan submitted to DEP in September 2020.

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

The Interim Act 537 Plan was submitted to DEP on 9/4/20. As part of the Interim Plan, the KISS Region committed to performing a flow characterization study (FCS) in 2021. The FCS is underway as of early January 2021 and will conclude by late 2021. The remainder of the work includes model development in late 2021 through 2022. After the model is calibrated in 2022, specific models run will be needed to determine a 537 solution that meets the needs of the Region.

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. The project is funded by the City.

Project No.	AD-S-12
Project Name	FLOW CHARACTERIZATION STUDY

Prior Project Cost	$ -
Estimated Project Costs:	**2022-2026**
LCA Staff	$ 100,000
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ 1,990,000
Other	$ -
Contingencies	$ 10,000
Total Project Cost	**$ 2,100,000**

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

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

		Need	**Phase of Work**
2021 Budget		$ 1,250,000	Temporary meters and QA/QC of data; begin model development
1st Year	2022	$ 500,000	Finish model development and start of 537 alternative analyses
2nd Year	2023	$ 150,000	Finish 537 alternative analyses; start 537 solution selection
3rd Year	2024	$ 100,000	Finish 537 solution selection; begin writing 537 Plan
4th Year	2025	$ 100,000	Submit 537 Plan
5th Year	2026	$ -	

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