



# Lehigh County Authority

FINAL 5-YEAR CAPITAL PLAN

ALLENTOWN DIVISION

2024-2028

OCTOBER 2023

**LEHIGH COUNTY AUTHORITY**  
**5-YEAR CAPITAL PLAN**  
**2024-2028**

**TABLE OF CONTENTS**

	Page
<b>Glossary of Acronyms &amp; Terms</b>	1-2
<b>Capital Plan Summary &amp; Financial Justification</b>	3-5
<b>Water</b>	
Department Summary	6
Project Details	7-34
<b>Wastewater</b>	
Department Summary	35
Project Details	36-65

## 2024-2028 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
<i>AD</i>	Allentown Division	X	X
<i>AWD</i>	Arcadia West Division	X	X
<i>BHD</i>	Beverly Hills Division	X	
<i>CLD</i>	Central Lehigh Division	X	
<i>CFD</i>	Clear View Farms Division	X	
<i>ECD</i>	Emmaus Consecutive Division	X	
<i>HHD</i>	Heidelberg Heights Division	X	X
<i>LLRI-1</i>	Little Lehigh Relief Interceptor, Phase 1		X
<i>LLRI-2</i>	Little Lehigh Relief Interceptor, Phase 2		X
<i>LTD</i>	Lynn Township Division		X
<i>MCD</i>	Mill Creek Division	X	
<i>MND</i>	Madison Park Division	X	
<i>NWD</i>	North Whitehall Division	X	
<i>PLD</i>	Pine Lakes Division	X	
<i>SSD</i>	Sand Spring Division		X
<i>UMD</i>	Upper Milford Division		X
<i>UMCD</i>	Upper Central Milford Division (Buss Acres)	X	
<i>WLI</i>	Western Lehigh Interceptor		X
<i>WTD</i>	Washington Township Division	X	X
<i>WWD</i>	Wynnewood Division		X

#### Project Type

Project Type	Description
<i>AO</i>	Administrative Order
<i>LCA-MCI</i>	LCA Developed Major Capital Improvement <sup>(1)</sup>
<i>Regular</i>	A project that does not fit in any of the aforementioned special categories

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

## **Project Funding**

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

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

## **Project Category**

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

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

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

## **Approval Stage**

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

**LEHIGH COUNTY AUTHORITY  
ALLENTOWN DIVISION  
CAPITAL PLAN  
2024–2028**

**SUMMARY**

The Allentown Division Capital Plan (Plan) is a five-year plan that covers the years 2024 through 2028. The Plan includes water and wastewater projects to ensure facility / infrastructure reliability and to comply with the Allentown Water & Sewer Lease (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 annually for review and approval.

The projects identified in the Plan fall into two primary categories, those funded by LCA and those funded by the City in the form of grants or reimbursements. For this Plan, reimbursements from the City are restricted to those expenses related to developing the regional Act 537 Plan for the Kline’s Island Sewer System, which is a requirement of the Pa. Department of Environmental Protection stemming from a prior Chapter 94 violation. Grants from the City are expected contributions provided from the City’s allocation of American Rescue Plan Act funding, which the City has agreed to use a portion to offset ratepayer impacts of water system capital costs.

<b>CAPITAL FUNDING 2024-2028</b>					
<b>Budget Area</b>	<b>LCA</b>	<b>CITY</b>			<b>TOTALS</b>
		<b>Grants</b>	<b>Reimburse</b>	<b>Sub-Total</b>	
Water	\$111,472,000	\$6,200,000	\$0	\$6,200,000	\$117,672,000
Wastewater	\$72,629,500	\$0	\$600,000	\$600,000	\$73,229,500
<b>Totals</b>	<b>\$184,101,500</b>	<b>\$6,200,000</b>	<b>\$600,000</b>	<b>\$6,800,000</b>	<b>\$190,901,500</b>

*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. Lease requirements include the annual replacement of 1 mile of water mains through 2024, followed by a study and/or increase to 2 miles of water main replacement per year thereafter.

*Wastewater Projects:* 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 included in the Plan for the rehabilitation of defective sewer mains and a City-wide manhole rehabilitation program to remove sources of inflow and infiltration.

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 recover certain capital expenses through Capital Recovery Fees (Tapping Fees) applied to new customers and Capital Cost Recovery Charges applied to ratepayers. 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. Additional charges may be applied to recover costs for project driven by regulatory changes or other changes in law. The designation of certain projects for cost recovery through these mechanisms is noted in the Plan's individual Project Detail Sheets and on the summary sheets for each section of the Plan.

### **FINANCIAL JUSTIFICATION**

LCA draft 2024-2028 Capital Plan is expected to be funded through a mix of operating revenues, project reserves, grants, and new borrowing, as outlined below. A more detailed cash-flow evaluation showing the impact of this funding approach is shown on the next page.

<b>2024-2028 Capital Plan Allentown Division Funding Sources</b>						
	<b>LCA SOURCES</b>			<b>CITY SOURCES</b>		
<b>Budget Area</b>	<b>Grants</b>	<b>Operating/Capital Reserves</b>	<b>New Borrowing</b>	<b>Grants</b>	<b>Reimb</b>	<b>Total Sources</b>
Water	\$33,383,892	\$40,412,600	\$38,355,508	\$6,200,000	\$0	\$118,352,000
Wastewater	\$0	\$54,149,500	\$17,800,000	\$0	\$600,000	\$72,549,500
<b>Totals</b>	<b>\$33,383,892</b>	<b>\$94,562,100</b>	<b>\$56,155,508</b>	<b>\$6,200,000</b>	<b>\$600,000</b>	<b>\$190,901,500</b>

### **SPECIAL NOTES**

1. As noted above, the City and LCA are collaborating on the development of a regional Act 537 Plan, which will provide details for sewage facility plans and significant capital improvements in the Allentown Division to address sanitary sewer overflows and overall capacity challenges of the system. The Act 537 Plan is expected to be drafted in 2024 and completed in 2025, with projects commencing in 2025. However, due to the size and scope of this work, which will require separate detailed financial analysis, and the draft status of this Act 537 Plan, future project costs are not shown in this Capital Plan. The Act 537 Plan will be presented separately during 2024 and will be incorporated into future Capital Plan documents.
2. LCA has applied for (or will apply for) grants to support this Plan in the following areas:
  - I&I Source Reduction Plan – Grant application for \$10,395,080 submitted in December 2022, awaiting decision.

- Lead Service Line Replacement Program – Grant of \$3,383,892 awarded in July 2023. Additional grant applications of approximately \$55,000,000 expected.
- PFAS Compliance Planning & Treatment Upgrades – Grant funding will be sought for the \$10,250,000 in estimated costs included in this plan.

To present a realistic financial outlook, assuming a 100% grant award will not occur, LCA has captured approximately 42% of this potential grant funding source in this analysis. Project costs that are not covered via grants will be incorporated into the new project financing or eliminated.

CONDENSED CASH FLOW - CITY DIVISION					
US DOLLARS	2024	2025	2026	2027	2028
User Charges	52,849,383	56,649,247	61,774,801	65,884,080	69,457,041
Other Operating Revenues	355,139	355,139	355,139	355,139	355,139
Non-Operating Revenues	2,725,365	2,125,365	2,125,365	2,125,365	2,125,365
Operating expenses	(22,052,042)	(22,713,604)	(23,395,012)	(24,096,862)	(24,819,767)
Annual Lease & Other Payments	(1,308,224)	(1,002,224)	(1,024,273)	(1,046,807)	(1,069,837)
Debt Service - Current Debt	(15,664,816)	(16,217,696)	(16,786,111)	(17,374,611)	(17,985,361)
Debt Service - NEW Debt	(595,581)	(2,169,826)	(3,613,968)	(3,692,029)	(3,692,029)
Investments Converting to Cash	-	-	-	-	-
Grants	8,733,892	10,850,000	10,000,000	10,000,000	-
Proceeds From NEW Debt	8,555,508	24,200,000	22,200,000	1,200,000	-
Capex	(32,628,500)	(51,978,500)	(51,461,000)	(33,263,000)	(23,018,000)
<b>NET FUND FLOWS</b>	<b>970,123</b>	<b>97,901</b>	<b>174,942</b>	<b>91,275</b>	<b>1,352,550</b>
Plan Volume Increase	0.00%	0.00%	0.00%	0.00%	0.00%
User Charge Revenue Increase %	4.70%	4.70%	4.70%	4.70%	4.70%
Total User Charge Revenue Increase	4.70%	4.70%	4.70%	4.70%	4.70%
Unrestricted Cash Balance	15,375,341	15,142,461	14,976,699	14,717,049	15,708,146
Unrestricted Investments	-	-	-	-	-
Total Unrestricted Balances	15,375,341	15,142,461	14,976,699	14,717,049	15,708,146
Days Cash on Hand	254	243	234	223	231
DEBT SERVICE COVERAGE RATIO	1.93	1.89	1.92	2.02	2.10

**WATER**



LEHIGH COUNTY AUTHORITY  
ALLENTOWN DIVISION  
2024-2028 CAPITAL PROGRAM  
WATER

Project #	Name or Title of Proposal	Prj. Category	Funding (1)	Approval Stage (1)		This Capital Program					
					2023 Budget Approved	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2024-2028 Total
	OPERATING/CAPITAL RESERVE FUNDS										
	ANNUAL PROJECTS										
AD-W-A	Annual Projects	AM - Varies	LCA	A	1,295,000	2,465,000	1,811,000	1,544,000	1,672,000	1,740,000	9,232,000
	Sub-total Annual				\$ 1,295,000	\$ 2,465,000	\$ 1,811,000	\$ 1,544,000	\$ 1,672,000	\$ 1,740,000	\$ 9,232,000
	NON-CCRC PROJECTS										
AD-W-1	Indenture Report Improvements	AM-High	LCA	C	\$ 200,000	\$ 200,000	\$ 200,000	\$ 150,000	\$ 150,000	\$ 100,000	\$ 800,000
AD-W-9	Master Plan Studies	CA/OS	LCA	S	\$ 10,000	\$ -	\$ -	\$ -	\$ 170,000	\$ -	\$ 170,000
AD-W-24	WFP Redundant Power Supply	Regulatory	LCA	S	\$ -	\$ 80,000	\$ 250,000	\$ 400,000	\$ -	\$ -	\$ 730,000
AD-W-25	Tank and Reservoir Rehabilitation	AM-High	LCA	V	\$ 300,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 1,000,000
AD-W-26	Large Diameter Valve Replacement Project	AM-High	LCA	V	\$ 250,000	\$ 350,000	\$ 500,000	\$ 500,000	\$ 300,000	\$ 300,000	\$ 1,950,000
	TOTAL NON-CCRC PROJECTS				\$ 760,000	\$ 830,000	\$ 1,150,000	\$ 1,250,000	\$ 820,000	\$ 600,000	\$ 4,650,000
	Large Projects and CCRC Projects (3)										
AD-W-7	Annual Water Main Replacements	CA/OS	CCRC	C	\$ 3,200,000	\$ 4,800,000	\$ 4,800,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 24,600,000
AD-W-12	PFAS Compliance Planning and Upgrades	Regulatory	Change of Law	S	\$ -	\$ 250,000	\$ 1,000,000	\$ 8,500,000	\$ 500,000	\$ -	\$ 10,250,000
AD-W-15	WFP Influent Channel Modifications	Master Plan	CCRC (2)	P	\$ -	\$ -	\$ -	\$ 100,000	\$ 1,000,000	\$ 2,000,000	\$ 3,100,000
AD-W-16	Meter Replacement Program	AM-High	CCRC (2)	C	\$ 525,000	\$ 800,000	\$ 1,500,000	\$ 100,000	\$ -	\$ -	\$ 2,400,000
AD-W-21	Fixed-Base Meter Reading System	Efficiency	CCRC (2)	S	\$ -	\$ -	\$ -	\$ -	\$ 850,000	\$ 850,000	\$ 1,700,000
AD-W-22	WFP Filter Upgrades	Master Plan	CCRC/City ARPA	D	\$ 500,000	\$ 2,350,000	\$ 3,150,000	\$ -	\$ -	\$ -	\$ 5,500,000
AD-W-23	Big Lehigh Intake & Transmission Upgrades	Master Plan	CCRC (2)	S	\$ -	\$ 200,000	\$ 400,000	\$ 400,000	\$ 120,000	\$ -	\$ 1,120,000
AD-W-27	Lead Service Line Replacement Program	AM-High	Change of Law	S	\$ -	\$ 5,000,000	\$ 15,000,000	\$ 15,000,000	\$ 15,000,000	\$ 5,000,000	\$ 55,000,000
	TOTAL CCRC PROJECTS				\$ 4,225,000	\$ 13,400,000	\$ 25,850,000	\$ 29,100,000	\$ 22,470,000	\$ 12,850,000	\$103,670,000
	GRAND TOTAL				\$ 6,280,000	\$ 16,695,000	\$ 28,811,000	\$ 31,894,000	\$ 24,962,000	\$ 15,190,000	\$117,552,000

(1) Reference Glossary of Acronyms and Terms found after Table of Contents  
(2) Project to be reviewed by the City for Major Capital Improvement/CCRC approval  
(3) Includes projects that have not been reviewed by the City for MCI/CCRC approval

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

<b>Project Name</b>	ANNUAL PROJECTS						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-A
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2014
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	N/A
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description
This is an annual project that was previously identified as separate smaller projects. 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. Major mobile equipment purchases within the capital plan include new fleet pickup trucks, new loader, new fork lifts, new dump truck, and new utility trucks.

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	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-W-A
<b>Project Name</b>	ANNUAL PROJECTS

<b>Prior Project Cost</b>	N/A
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 500,000
Land Acquisition	
Construction/Equipment	\$ 9,017,000
Professional Services	\$ 500,000
Other	\$ 10,000
Contingencies	\$ 500,000
<b>Total Project Cost</b>	<b>\$ 10,527,000</b>

Project Estimate Level	
	Conceptual Estimate
<b>X</b>	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 9,232,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 1,295,000	procurement, planning, design & construction
1st Year	2024	\$ 2,465,000	procurement, planning, design & construction
2nd Year	2025	\$ 1,811,000	procurement, planning, design & construction
3rd Year	2026	\$ 1,544,000	procurement, planning, design & construction
4th Year	2027	\$ 1,672,000	procurement, planning, design & construction
5th Year	2028	\$ 1,740,000	procurement, planning, design & construction

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

<b>Project Name</b>	INDENTURE REPORT IMPROVEMENTS						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-I
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	<b>2016</b>
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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: <b>1)</b> General repairs on concrete, reinforcing steel and exposed wood; <b>2)</b> Pipe protection upgrades including preparation, painting and dehumidification particularly sub-grade sites; <b>3)</b> Structural upgrades including roofs; <b>4)</b> Water tank and reservoir upgrades; <b>5)</b> Security upgrades including fencing, lighting and vegetation control; <b>6)</b> 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 were replaced prior to 2019 that were documented in annual Indenture reports. In addition, minor routine maintenance was performed in 2019 as it relates to Indenture projects. A larger Indenture upgrade project was completed in 2022 that focused on concrete repairs at the WFP. 2024 Indenture upgrade work will again include concrete repairs at the WFP and also concrete work at the South Mountain Reservoir.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-W-I
<b>Project Name</b>	INDENTURE REPORT IMPROVEMENTS

<b>Prior Project Cost</b>	\$300,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 800,000
Professional Services	\$ 100,000
Other	
Contingencies	\$ 50,000
<b>Total Project Cost</b>	<b>\$ 1,300,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 800,000</b>
--	-------------------

		Need	Phase of Work
2023 budget		\$ 200,000	design & construction
1st Year	2024	\$ 200,000	design & construction
2nd Year	2025	\$ 200,000	design & construction
3rd Year	2026	\$ 150,000	design & construction
4th Year	2027	\$ 150,000	design & construction
5th Year	2028	\$ 100,000	design & construction

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

<b>Project Name</b>	WATER MAIN REPLACEMENTS						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-7
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC/ARPA
<b>Prj. Category</b>	Primary	CA/OS	Secondary	AM - High	<b>Preparer</b>		JMP

Purpose of Expenditure (check all that apply)		
<input checked="" type="checkbox"/>	New Facility (replacement)	Correct Known or Potential Safety Issue
<input type="checkbox"/>	Existing Facility - Rehabilitation/Upgrade	Equipment Obsolete
<input type="checkbox"/>	Scheduled Replacement	Comply with Regulatory Requirements
<input checked="" type="checkbox"/>	Improved Service	<input checked="" type="checkbox"/> Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/>	Study	<input checked="" type="checkbox"/> 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		

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

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 2022, the replacement of 10.75 miles of water main was completed. In 2023 the design of the next two cycles of water main replacements (Cycles 7&8) was started, although no main was replaced that year. Cycles 7 & 8 main replacements will be completed in 2024.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
City ARPA grant funding money will be applied to the 2024 cycle 7/8 project.

<b>Project No.</b>	AD-W-7
<b>Project Name</b>	WATER MAIN REPLACEMENTS

<b>Prior Project Cost</b>	\$18,000,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 500,000
Land Acquisition	\$ -
Construction/Equipment	\$ 24,900,000
Professional Services	\$ 2,000,000
Other	\$ -
Contingencies	\$ 400,000
<b>Total Project Cost</b>	<b>\$ 45,800,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 24,600,000</b>
--	----------------------

		Need	Phase of Work
2023 Budget		\$ 3,200,000	design & construction
1st Year	2024	\$ 4,800,000	design & construction
2nd Year	2025	\$ 4,800,000	design & construction
3rd Year	2026	\$ 5,000,000	design & construction
4th Year	2027	\$ 5,000,000	design & construction
5th Year	2028	\$ 5,000,000	design & construction

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

<b>Project Name</b>	MASTER PLAN STUDIES						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-9
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	CA/OS	Secondary	Planning	<b>Preparer</b>		CEV

Purpose of Expenditure (check all that apply)	
<input type="checkbox"/> New Facility	Correct Known or Potential Safety Issue
<input type="checkbox"/> Existing Facility - Rehabilitation/Upgrade	Equipment Obsolete
<input type="checkbox"/> Scheduled Replacement	Comply with Regulatory Requirements
<input type="checkbox"/> Improved Service	Equipment/Infrastructure at End of Useful Life
<input checked="" type="checkbox"/> 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		

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

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. This project generally consists of water facilities master planning. The Lease requires an update of the Master Plan every 5 years. This is a requirement of the Lease as some original components of the Allentown WFP are over 60 years. The next Master Plan is due for updating in 2027.

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.

Project Status - Describe what work, if any has been completed or underway for this project
The first Master Plan was completed in 2017 and the second installment was completed in 2022.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.



<b>Project No.</b>	AD-W-9
<b>Project Name</b>	MASTER PLAN STUDIES

<b>Prior Project Cost</b>	350,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 10,000
Land Acquisition	\$ -
Construction/Equipment	\$ -
Professional Services	\$ 160,000
Other	\$ -
Contingencies	\$ 10,000
<b>Total Project Cost</b>	<b>\$ 530,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 170,000</b>
--	-------------------

		Need	Phase of Work
2023 Budget		\$ 10,000	Master Plan
1st Year	2024	\$ -	
2nd Year	2025	\$ -	
3rd Year	2026	\$ -	
4th Year	2027	\$ 170,000	Master Plan
5th Year	2028	\$ -	

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

<b>Project Name</b>	PFAS COMPLIANCE PLANNING AND UPGRADES						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-12
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	<b>Primary</b>	Change of Law	<b>Secondary</b>	Regulatory	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	30	<b>Project inception date</b>	2023
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	2027
Will the Project Require Obtaining Land Rights	No		

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

Detailed Project Description
This project consists of water quality studies and facilities upgrade work to comply with evolving state and federal water quality standards and regulations regarding PFAS chemicals removal from drinking water. Project costs reflect a treatment system and related plant modifications for Crystal Spring.

Project Drivers and Needs to be Met by the Project
The primary project driver is regulatory and public health protection. EPA and DEP have proposed limits for Per- and Polyfluoroalkyl substances, referred to as PFAS compounds. PFAS are a category of manufactured chemicals that have been used in industry and consumer products since the 1940s. PFAS tend to break down extremely slowly in the environment, and have been determined to cause health concerns. In March 2023, EPA announced proposed National Primary Drinking Water Regulation for six PFAS compounds. The rule is anticipated to be finalized by the end of 2023.

Project Status - Describe what work, if any has been completed or underway for this project
LCA is closely monitoring emerging water quality regulations has begun sampling various systems for the presence of PFAS.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
--------------------------

Initial project funding was contributed from the City's Event Driven Capital Improvement Fund. Annual cost impact to be determined as needed.

<b>Project No.</b>	AD-W-12
<b>Project Name</b>	PFAS COMPLIANCE PLANNING AND UPGRADES

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs: 2023-2028</b>	
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 9,300,000
Professional Services	\$ 400,000
Other	\$ -
Contingencies	\$ 500,000
<b>Total Project Cost</b>	<b>\$ 10,250,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 10,250,000</b>
--	----------------------

		Need	Phase of Work
	2023 Budget	\$ -	
1st Year	2024	\$ 250,000	design & permitting
2nd Year	2025	\$ 1,000,000	final design, bid & start construction
3rd Year	2026	\$ 8,500,000	construction
4th Year	2027	\$ 500,000	construction
5th Year	2028	\$ -	

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

<b>Project Name</b>	INFLUENT CHANNEL MODIFICATIONS						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-15
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	Master Plan	Secondary	Sys Imp	<b>Preparer</b>		CEV

Purpose of Expenditure (check all that apply)	
New Facility	Correct Known or Potential Safety Issue
Existing Facility - Rehabilitation/Upgrade	<input checked="" type="checkbox"/> 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)	40	<b>Project inception date</b>	2022
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	2028
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 existing influent channel to the primary clarifiers too wide, resulting in sub-optimal velocity which causes solids settling prior to the clarifiers. Influent channel modifications in order to maintain adequate velocity through each channel will reduce solids accumulating and maintenance requirements for channel cleaning.

Project Drivers and Needs to be Met by the Project
This project appears as a short term (0-5 year window) need in the Master Plan. Project benefits include enhanced process reliability, improved operation and maintenance, improved safety by eliminating confined space entry channel cleaning operations.

Project Status - Describe what work, if any has been completed or underway for this project
No work has been done to date.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-W-15
<b>Project Name</b>	INFLUENT CHANNEL MODIFICATIONS

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 20,000
Land Acquisition	\$ -
Construction/Equipment	\$ 2,800,000
Professional Services	\$ 200,000
Other	\$ -
Contingencies	\$ 80,000
<b>Total Project Cost</b>	<b>\$ 3,100,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 3,100,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ -	
2nd Year	2025	\$ -	
3rd Year	2026	\$ 100,000	design & permitting
4th Year	2027	\$ 1,000,000	construction
5th Year	2028	\$ 2,000,000	construction

--

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

<b>Project Name</b>	METER REPLACEMENT PROGRAM						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-16
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>PrjFunding</b>	CCRC
<b>Prj. Category</b>	Primary	AM-varies	Secondary	rev oport	<b>Preparer</b>		ALK

Purpose of Expenditure <i>(check all that apply)</i>	
<input type="checkbox"/> New Facility	<input type="checkbox"/> Correct Known or Potential Safety Issue
<input type="checkbox"/> Existing Facility - Rehabilitation/Upgrade	<input checked="" type="checkbox"/> Equipment Obsolete
<input checked="" type="checkbox"/> Scheduled Replacement	<input type="checkbox"/> Comply with Regulatory Requirements
<input type="checkbox"/> Improved Service	<input type="checkbox"/> Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/> Study	<input type="checkbox"/> Other (explain):

Additional Information			
Expected Useful Life (Years)	20	Project inception date	2021
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
<p>The 2023 project consisted of replacing large commercial meter chambers (3" and greater) that were installed prior to 2014. The batteries in these meters were at the end of their expected life span and have either failed or are showing signs of failure. There are 152 meters ranging in size from 3 to 8 inch. Replacements will carry over into 2024. 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 meter replacement 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. The badger meter replacement will begin in 2024.</p>

Project Drivers and Needs to be Met by the Project
<p>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.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>Meter replacement work is on-going.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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

Borrowing Information	
Interest Rate	5.50%
Term (Years)	30

Explanation if Necessary
<p>Annual cost impact to be determined as needed.</p>

<b>Project No.</b>	AD-W-16
<b>Project Name</b>	METER REPLACEMENT PROGRAM

<b>Prior Project Cost</b>	
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 40,000
Land Acquisition	\$ -
Construction/Equipment	\$ 2,775,000
Professional Services	\$ 50,000
Other Contingencies	\$ 60,000
<b>Total Project Cost</b>	<b>\$ 2,925,000</b>

<b>Requested in this Capital Program</b>	<b>\$ 2,400,000</b>
--	---------------------

<b>Project Estimate Level</b>	
	Conceptual Estimate
<b>x</b>	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

		<b>Need</b>	<b>Phase of Work</b>
2023 Budget		\$ 525,000	procurement & construction
1st Year	2024	\$ 800,000	procurement & construction
2nd Year	2025	\$ 1,500,000	procurement & construction
3rd Year	2026	\$ 100,000	construction
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	FIXED-BASE METER READING SYSTEM						
<b>Budget Area</b>	Water	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-21
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	Efficiency	Secondary	Sys Imp	<b>Preparer</b>		BB/ALK

Purpose of Expenditure (check all that apply)		
<input checked="" type="checkbox"/>	New Facility	Correct Known or Potential Safety Issue
<input checked="" type="checkbox"/>	Existing Facility - Rehabilitation/Upgrade	Equipment Obsolete
<input type="checkbox"/>	Scheduled Replacement	Comply with Regulatory Requirements
<input checked="" type="checkbox"/>	Improved Service	Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/>	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 was purchased 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 2027.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.



<b>Project No.</b>	AD-W-21
<b>Project Name</b>	FIXED-BASE METER READING SYSTEM

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 80,000
Land Acquisition	\$ -
Construction/Equipment	\$ 1,200,000
Professional Services	\$ 120,000
Other	\$ 100,000
Contingencies	\$ 200,000
<b>Total Project Cost</b>	<b>\$ 1,700,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,700,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ -	
2nd Year	2025	\$ -	
3rd Year	2026		
4th Year	2027	\$ 850,000	procurement & construction
5th Year	2028	\$ 850,000	procurement & construction

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

<b>Project Name</b>	FILTER UPGRADES						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-22
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	100% Reimb
<b>Prj. Category</b>	Primary	Master Plan	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	Varies	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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 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 allows for the addition of air scour backwash system 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 initial filter 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 a comprehensive rehabilitation of the filters recommended by the filter study. Upgrade work is to include replacement of the clay filter underdrains, replacement of filter media, installation of an air scour system, new control system with SCADA integration, and associated work. Design of the filter upgrade project commenced in late 2021 and was completed in 2023. Construction is anticipated to occur late 2023 - 2025.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary
Project to be funded through 2021 City ARPA grant.

<b>Project No.</b>	AD-W-22
<b>Project Name</b>	FILTER UPGRADES

<b>Prior Project Cost</b>	100,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 100,000
Land Acquisition	\$ -
Construction/Equipment	\$ 5,300,000
Professional Services	\$ 300,000
Other	\$ -
Contingencies	\$ 300,000
<b>Total Project Cost</b>	<b>\$ 6,100,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 5,500,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 500,000	final design, permitting, & commence construction
1st Year	2024	\$ 2,350,000	construction
2nd Year	2025	\$ 3,150,000	construction
3rd Year	2026		
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	BIG LEHIGH INTAKE AND TRANSMISSION UPGRADES						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-23
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	Master Plan	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	Varies	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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
<p>This project as described in the Master Plan includes multiple initiatives related to utilization of the Lehigh River source water: 1) Upgrade the Big Lehigh intake facility, which requires pump and VFD replacement for pump #2; 2) address taste and odor issues via chemical addition; 3) condition assessment and rehabilitation of the Big Lehigh raw water transmission main. These improvements are required prior to the Master Plan (6-10 year window) project to construct a new 30 MGD Little Lehigh intake structure.</p>

Project Drivers and Needs to be Met by the Project
<p>Asset management, regulatory compliance, enhanced redundancy, improved process reliability, improved operations and maintenance and improved water quality are the project drivers.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>The intake evaluation was completed in 2017 as part of the Water Filtration Plant Master Plan project. Bench testing of taste and odor control chemicals for feasibility evaluation will commence in 2023.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>CCRC funding funding classification status TBD based on scope of improvements project.</p>

<b>Project No.</b>	AD-W-23
<b>Project Name</b>	BIG LEHIGH INTAKE AND TRANSMISSION UPGRADES

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 20,000
Land Acquisition	\$ -
Construction/Equipment	\$ 900,000
Professional Services	\$ 150,000
Other	\$ -
Contingencies	\$ 50,000
<b>Total Project Cost</b>	<b>\$ 1,120,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,120,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ 200,000	design & permitting; force main condition assessment
2nd Year	2025	\$ 400,000	construction
3rd Year	2026	\$ 400,000	construction
4th Year	2027	\$ 120,000	construction
5th Year	2028	\$ -	

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

<b>Project Name</b>	WFP REDUNDANT POWER SUPPLY						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-24
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA/Allentown
<b>Prj. Category</b>	Primary	Master Plan	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	Varies	<b>Project inception date</b>	2022
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	2026
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 2022 Master Plan identified an Auxiliary Electrical Feed as a near term project need for the Water Filtration Plant (WFP). In 2022 LCA performed an assessment of alternatives to comply with DEP Chapter 109 "System Service and Auxiliary Power Requirements", and the study identified a new electrical feed from a separate substation as the recommended alternative to comply with the regulations. The new electrical feed would be an addition to the current dual feed system at the WFP (both existing feeds from the same PPL substation).

Project Drivers and Needs to be Met by the Project
Facility resilience and compliance with regulatory requirements are the primary drivers for this project.

Project Status - Describe what work, if any has been completed or underway for this project
An initial evaluation was completed in 2022 as part of the Water Filtration Plant Master Plan project. The project is anticipated to be constructed in 2025 - 2026.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-W-24
<b>Project Name</b>	WFP REDUNDANT POWER SUPPLY

<b>Prior Project Cost</b>	<b>\$0</b>
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 10,000
Land Acquisition	\$ -
Construction/Equipment	\$ 600,000
Professional Services	\$ 70,000
Other	
Contingencies	\$ 50,000
<b>Total Project Cost</b>	<b>\$ 730,000</b>

<b>Project Estimate Level</b>	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 730,000</b>
--	-------------------

		<b>Need</b>	<b>Phase of Work</b>
2023 Budget		\$ -	
1st Year	2024	\$ 80,000	planning and design
2nd Year	2025	\$ 250,000	construction
3rd Year	2026	\$ 400,000	construction
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	TANK AND RESERVOIR REHABILITATION						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-25
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	Master Plan	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	Varies	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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 building 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, within the adjacent process piping systems, and on the building structures. This work will include replacement of process valves, actuators, painting, HVAC, building rehabilitation, electrical components, and mixing systems. It will 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 as a near term project in the 2017 and 2022 Water System Master Plan. 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	\$ -
<b>Net</b>	<b>\$ -</b>

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.



<b>Project No.</b>	AD-W-25
<b>Project Name</b>	TANK AND RESERVOIR REHABILITATION

<b>Prior Project Cost</b>	
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 950,000
Professional Services	\$ 200,000
Other	
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 1,300,000</b>

<b>Project Estimate Level</b>	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,000,000</b>
--	---------------------

		<b>Need</b>	<b>Phase of Work</b>
2023 Budget		\$ 300,000	construction
1st Year	2024	\$ 200,000	construction
2nd Year	2025	\$ 200,000	construction
3rd Year	2026	\$ 200,000	construction
4th Year	2027	\$ 200,000	construction
5th Year	2028	\$ 200,000	construction

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

<b>Project Name</b>	LARGE DIAMETER VALVE REPLACEMENT PROJECT						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-26
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - High	Secondary	Sys Imp	<b>Preparer</b>		JMP

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

Additional Information			
Expected Useful Life (Years)	40	project inception date	2022
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	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
<p>This is a multi-year project to identify critical large diameter inoperable valves and replace them. 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 likely require replacement as well.</p>

Purpose and Needs to be Met by the Project
<p>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. The inoperable or otherwise poor condition of the valves discovered on the South Mountain transmission main and adjacent connecting mains justify the need to create a new project to investigate and replace critical transmission and distribution system valves.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>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. Planning phase of this project commenced in 2022 to prioritize inoperable critical transmission and distribution system valves. Design phase for the cycle 1 project will be completed in 2023.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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

<b>Project No.</b>	AD-W-26
<b>Project Name</b>	LARGE DIAMETER VALVE REPLACEMENT PROJECT

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	
Construction/Equipment	\$ 1,800,000
Professional Services	\$ 250,000
Other	
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 2,200,000</b>

<b>Project Estimate Level</b>
Conceptual Estimate
Preliminary Estimate
Budget Estimate
Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,950,000</b>
--	---------------------

Source of Funds			
		Need	Phase of Work
2023 Budget		\$ 250,000	planning and design
1st Year	2024	\$ 350,000	construction
2nd Year	2025	\$ 500,000	construction
3rd Year	2026	\$ 500,000	construction
4th Year	2027	\$ 300,000	construction
5th Year	2028	\$ 300,000	construction

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

<b>Project Name</b>	LEAD SERVICE LINE REPLACEMENT PROGRAM						
<b>Budget Area</b>	Water	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-W-27
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	Change of Law
<b>Prj. Category</b>	<b>Primary</b>	Change of Law	<b>Secondary</b>	Regulatory	<b>Preparer</b>		CEV

Purpose of Expenditure <i>(check all that apply)</i>			
<input type="checkbox"/>	New Facility	<input checked="" type="checkbox"/>	Correct Known or Potential Safety Issue
<input type="checkbox"/>	Existing Facility - Rehabilitation/Upgrade	<input type="checkbox"/>	Equipment Obsolete
<input type="checkbox"/>	Scheduled Replacement	<input checked="" type="checkbox"/>	Comply with Regulatory Requirements
<input checked="" type="checkbox"/>	Improved Service	<input type="checkbox"/>	Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/>	Study	<input type="checkbox"/>	Other (explain):

Additional Information			
Expected Useful Life (Years)	40	project inception date	2023
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	project completion date	TBD
Will the Project Require Obtaining Land Rights	N/A		

\* customers within the City of Allentown water distribution system; number TBD

Detailed Project Description
<p>This is a multi-year project to replace public and private lead service lines in the City. The program starts with a comprehensive inventory of service line components, and then replacement areas are prioritized according to number/concentration of lead services in a given neighborhood and other ranking factors. PennVEST grant money is being pursued to fund this program.</p>

Purpose and Needs to be Met by the Project
<p>The replacement of water services containing lead components is a regulatory requirement, driven by EPA's Lead and Copper Rule Revisions, which requires an initial inventory of public and private water service lines to be performed by October 16, 2024. The service line inventory will facilitate and prioritize the multi-year replacement program for lead service lines.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>The planning phase of this program began in early 2023 with the assistance of a consulting engineer, Gannett Fleming.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Project is regulatory driven as a result of the Lead and Copper Rule and is classified as Change of Law.</p>

<b>Project No.</b>	AD-W-27
<b>Project Name</b>	LEAD SERVICE LINE REPLACEMENT PROGRAM

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs: 2023-2028</b>	
LCA Staff	\$ 800,000
Land Acquisition	
Construction/Equipment	\$ 50,000,000
Professional Services	\$ 1,700,000
Other	
Contingencies	\$ 2,500,000
<b>Total Project Cost</b>	<b>\$ 55,000,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 55,000,000</b>
--	----------------------

Source of Funds			
		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ 5,000,000	planning, design & construction
2nd Year	2025	\$ 15,000,000	planning, design & construction
3rd Year	2026	\$ 15,000,000	planning, design & construction
4th Year	2027	\$ 15,000,000	planning, design & construction
5th Year	2028	\$ 5,000,000	planning, design & construction

## **WASTEWATER**

LEHIGH COUNTY AUTHORITY  
ALLENTOWN DIVISION  
2024-2028 CAPITAL PROGRAM  
WASTEWATER

Project #	Name or Title of Proposal	Prj. Category	(1) Funding	Approval Stage (1)	2023 Budget Approved	This Capital Program					
						2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2024-2028 Total
	Operating/Capital Reserve Funds										
	<u>ANNUAL PROJECTS</u>										
AD-S-A	Annual Projects	AM - Varies	LCA	A	\$ 1,729,000	\$ 2,706,000	\$ 2,147,500	\$ 2,067,000	\$ 1,726,000	\$ 1,553,000	\$ 10,199,500
	Sub-total Annual				\$ 1,729,000	\$ 2,706,000	\$ 2,147,500	\$ 2,067,000	\$ 1,726,000	\$ 1,553,000	\$ 10,199,500
	<u>Non-CCRC Projects</u>										
AD-S-I	Indenture Report Improvements	AM - Varies	LCA	C	\$ 300,000	\$ 300,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 1,100,000
AD-S-9	KIWWTP Master Plan	CA/OS	LCA	S	\$ -	\$ 160,000	\$ -	\$ -	\$ -	\$ -	\$ 160,000
AD-S-11	Manhole Inspection and Sealing Program	Regulatory	LCA	S	\$ 300,000	\$ 2,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 6,000,000
AD-S-27	KIWWTP Redundant Power Supply	Efficiency	LCA	S	\$ -	\$ -	\$ 120,000	\$ 500,000	\$ 150,000	\$ -	\$ 770,000
	Sub-total Allentown Division Wastewater Capital Funded by LCA				\$ 600,000	\$ 2,460,000	\$ 1,320,000	\$ 1,700,000	\$ 1,350,000	\$ 1,200,000	\$ 8,030,000
	<u>Large Projects and CCRC Projects</u>										
AD-S-5	WWTP Electrical Substation No. 1 Replacement	AM - High	CCRC	D	\$ 200,000	\$ 2,200,000	\$ 4,000,000	\$ 600,000	\$ -	\$ -	\$ 6,800,000
AD-S-19	WWTP Wet Weather Capacity Enhancement - Main & Auxiliary Pump Station Improvements	AM - Varies; Master Plan	CCRC (3)	D	\$ 100,000	\$ 400,000	\$ 6,000,000	\$ 6,000,000	\$ 200,000	\$ -	\$ 12,600,000
AD-S-20	WWTP Boiler Replacement & Solids Process HVAC Upgrade Project	AM - Varies; Master Plan	CCRC	C	\$ 2,800,000	\$ 1,400,000	\$ -	\$ -	\$ -	\$ -	\$ 1,400,000
AD-S-21	WWTP Wet Weather Capacity Enhancement - IPS Pump Station Upgrade & 480v MCC Replacement	AM - Varies; Master Plan	CCRC (3)	D	\$ 100,000	\$ 200,000	\$ 1,700,000	\$ 4,000,000	\$ -	\$ -	\$ 5,900,000
AD-S-22	WWTP Final Clarifier 1-4 Rehabilitation	AM - Varies	LCA	C	\$ -	\$ 900,000	\$ 900,000	\$ -	\$ -	\$ -	\$ 1,800,000
AD-S-23	WWTP Primary Sludge Digester Feed Line Replacement	AM - Varies	CCRC (3)	S	\$ -	\$ 600,000	\$ 700,000	\$ -	\$ -	\$ -	\$ 1,300,000
AD-S-26	Source Reduction Plan - I/I Elimination Program	Regulatory	CCRC (2)	V	\$ 800,000	\$ 3,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 23,000,000
AD-S-28	WWTP Wet Weather Capacity Enhancement Project - Tertiary Bypass	AM - Varies	CCRC (3)	D	\$ -	\$ 100,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ 1,100,000
	Sub-total Allentown Division Wastewater Large & CCRC Projects				\$ 4,000,000	\$ 8,800,000	\$ 19,300,000	\$ 15,600,000	\$ 5,200,000	\$ 5,000,000	\$ 53,900,000
	<u>Act 537 Plan Development Projects</u>										
AD-S-12	Act 537 Alternative Analyses	Regulatory	Allentown	S	\$ 700,000	\$ 600,000	\$ 100,000	\$ -	\$ -	\$ -	\$ 700,000
AD-S-29	Miscellaneous Act 537 Planning, Financial and Legal Reviews	Regulatory	LCA	V	\$ 1,250,000	\$ 200,000	\$ 100,000	\$ -	\$ -	\$ -	\$ 300,000
	Sub-total Allentown Division Wastewater Capital Funded by the City				\$ 1,950,000	\$ 800,000	\$ 200,000	\$ -	\$ -	\$ -	\$ 1,000,000
	GRAND TOTAL				\$ 8,279,000	\$ 14,766,000	\$ 22,967,500	\$ 19,367,000	\$ 8,276,000	\$ 7,753,000	\$ 73,129,500

(1) Reference Glossary of Acronyms and Terms found after the Table of Contents  
(2) Per 2020 Lease Amendment related to sewer collection rehabilitation projects  
(3) Project to be reviewed by the City for Major Capital Improvement/CCRC approval

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

<b>Project Name</b>	ANNUAL PROJECTS						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-A
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CV/BG

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2014
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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
<p>This is an annual project that has been previously listed as separate smaller projects. This annual project includes the following: Collection System - Development and Service Connections, Other Equipment, WWTP General Improvements, Sanitary Sewer Main Replacements &amp; Rehabilitation, Penn DOT relocations, Indenture Report, Mobile Equipment, and SCADA upgrades. Major mobile equipment purchases in this capital plan include utility truck replacements, new hydro excavator, new vac/jet truck, and new jetter truck.</p>

Project Drivers and Needs to be Met by the Project
<p>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.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>This is an annual project.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Annual cost impact to be determined as needed.</p>



<b>Project No.</b>	AD-S-A
<b>Project Name</b>	ANNUAL PROJECTS

<b>Prior Project Cost</b>	N/A
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 500,000
Land Acquisition	\$ -
Construction/Equipment	\$ 8,659,500
Professional Services	\$ 500,000
Other	\$ 40,000
Contingencies	\$ 500,000
<b>Total Project Cost</b>	<b>\$ 11,928,500</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 10,199,500</b>
--	----------------------

		Need	Phase of Work
2023 Budget		\$ 1,729,000	procurement, design, & construction
1st Year	2024	\$ 2,706,000	procurement, design, & construction
2nd Year	2025	\$ 2,147,500	procurement, design, & construction
3rd Year	2026	\$ 2,067,000	procurement, design, & construction
4th Year	2027	\$ 1,726,000	procurement, design, & construction
5th Year	2028	\$ 1,553,000	procurement, design, & construction

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

<b>Project Name</b>	INDENTURE REPORT IMPROVEMENTS						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-I
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2016
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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: <b>1)</b> General repairs on concrete, reinforcing steel and other exposed surfaces; <b>2)</b> Pipe protection upgrades including painting and dehumidification (particularly in sub-grade sites); <b>3)</b> Structural upgrades including roofs; <b>4)</b> Concrete tank upgrades; <b>5)</b> Security upgrades including fencing, lighting and vegetation control; <b>6)</b> Electrical upgrades.

Project Drivers and Needs to be Met by the Project
This project addresses the deficiencies identified in the annual Indenture Report, which identifies structural, 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
The first large project to address indenture report improvements was completed in 2021, with annual projects to follow at KIWWTP.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-S-I
<b>Project Name</b>	INDENTURE REPORT IMPROVEMENTS

<b>Prior Project Cost</b>	500,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 1,000,000
Professional Services	\$ 250,000
Other	
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 1,900,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,100,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 300,000	construction
1st Year	2024	\$ 300,000	construction
2nd Year	2025	\$ 200,000	construction
3rd Year	2026	\$ 200,000	construction
4th Year	2027	\$ 200,000	construction
5th Year	2028	\$ 200,000	construction

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

<b>Project Name</b>	WWTP ELECTRICAL SUBSTATION NO. 1 REPLACEMENT						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-5
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	AM - High	Secondary	Efficiency	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2016
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	2026
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
<p>This project includes the replacement of existing electrical substation #1 and the 12.4 kV primary switchgear with a new electrical facilities at the Kline's Island Wastewater Treatment Plant. Substation #2 (Phase 1 project) was replaced in 2019. Final design of the Substation #1 and switchgear replacement was completed in 2023. The switchgear and Substation #1 (Phase 2 project) construction is scheduled to commence in 2024 and finish in 2025. The replacement equipment will have adequate capacity to serve additional plant loads related to future plant process upgrades.</p>

Project Drivers and Needs to be Met by the Project
<p>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 electrical 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&amp;L for the next 40 years at the WWTP.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>An engineering study for Substation Nos. 1 and 2 was completed in 2016, followed up by the completion of design for both substations replacement in 2018. The project was phased due to budget concerns, and Substation #2 replacement construction was completed in 2019 and Substation #1 and the primary switchgear replacement will be constructed in 2024 and 2025 (Phase 2).</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Annual cost impact to be determined as needed.</p>

<b>Project No.</b>	AD-S-5
<b>Project Name</b>	WWTP ELECTRICAL SUBSTATION NO. 1 REPLACEMENT

<b>Prior Project Cost</b>	100,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 6,200,000
Professional Services	\$ 250,000
Other	\$ -
Contingencies	\$ 300,000
<b>Total Project Cost</b>	<b>\$ 6,900,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 6,800,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 200,000	permitting, bidding, commence construction phase
1st Year	2024	\$ 2,200,000	construction
2nd Year	2025	\$ 4,000,000	construction
3rd Year	2026	\$ 600,000	construction
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	KIWWTP MASTER PLAN						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-9
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	CA/OS	Secondary	Planning	<b>Preparer</b>		CEV

Purpose of Expenditure (check all that apply)	
<input type="checkbox"/> New Facility	<input type="checkbox"/> Correct Known or Potential Safety Issue
<input type="checkbox"/> Existing Facility - Rehabilitation/Upgrade	<input type="checkbox"/> Equipment Obsolete
<input type="checkbox"/> Scheduled Replacement	<input type="checkbox"/> Comply with Regulatory Requirements
<input type="checkbox"/> Improved Service	<input type="checkbox"/> Equipment/Infrastructure at End of Useful Life
<input checked="" type="checkbox"/> Study	<input checked="" type="checkbox"/> 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 required in 2024 - WWTP Master Plan. As some original components of the Allentown WWTP are about 90 years old, regular updates of the Master Plan are essential 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 was delayed one year by the City and will be completed in 2024.

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	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-S-9
<b>Project Name</b>	KIWWTP MASTER PLAN

<b>Prior Project Cost</b>	\$160,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 5,000
Land Acquisition	\$ -
Construction/Equipment	\$ -
Professional Services	\$ 150,000
Other	\$ -
Contingencies	\$ 5,000
<b>Total Project Cost</b>	<b>\$ 320,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 160,000</b>
--	-------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ 160,000	master planning
2nd Year	2025	\$ -	
3rd Year	2026	\$ -	
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	MANHOLE INSPECTION AND SEALING PROGRAM						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-11
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	Regulatory	Secondary	CA/OS	<b>Preparer</b>		PMD

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

Additional Information			
Expected Useful Life (Years)	20	Project inception date	2023
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	Anticipated Project completion date	2033
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
<p>This project is a part of Act 537 driven I&amp;I reduction efforts in the City to inspect and seal every manhole in the City sewer system, or approximately 700 manholes per year over a period of 10 years. Sealing of manholes is one part of the City of Allentown's Source Reduction Plan for the upcoming Act 537 Plan.</p>

Project Drivers and Needs to be Met by the Project
<p>The primary project driver is regulatory. This project is a component of the Source Reduction Plan prepared by the City of Allentown and Lehigh County Authority. The entire KISS system suffers from extensive inflow issues during rain events and inspecting all of the manhole inventory is one step towards reducing this extraneous rainfall from entering.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>The City's original I&amp;I Source Reduction Plan (a five year plan) was submitted to the EPA in 2018. DEP is now in control of overseeing Act 537 plan process and thus the proposed I&amp;I plan. The first batch of manhole inspections were authorized in December of 2022. All ~7,200 public manholes will be inspected in 2023 through 2032. Manholes will be rehabilitated in 2024 through 2033. Every year is following this assumption: ~\$250K for inspections and ~\$750K for rehabilitation. In addition, 2024 includes additional money for interceptor rehabilitation as a result of the 2023 "pop and peak" inspections.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Annual cost impact to be determined as needed. This is funded by the LCA Allentown Division.</p>



<b>Project No.</b>	AD-S-11
<b>Project Name</b>	MANHOLE INSPECTION AND SEALING PROGRAM

<b>Prior Project Cost</b>	\$ -
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 100,000
Land Acquisition	\$ -
Construction/Equipment	\$ 3,600,000
Professional Services	\$ 2,250,000
Other	\$ -
Contingencies	\$ 140,000
<b>Total Project Cost</b>	<b>\$ 6,090,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 6,000,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 300,000	MH Inspection
1st Year	2024	\$ 2,000,000	MH Inspection; MH rehab
2nd Year	2025	\$ 1,000,000	MH Inspection; MH rehab
3rd Year	2026	\$ 1,000,000	MH Inspection; MH rehab
4th Year	2027	\$ 1,000,000	MH Inspection; MH rehab
5th Year	2028	\$ 1,000,000	MH Inspection; MH rehab

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

<b>Project Name</b>	ACT 537 ALTERNATIVE ANALYSES						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-12
<b>Location</b>	Allentown			<b>Prj. Type</b>	AO	<b>Prj. Funding</b>	Allentown
<b>Prj. Category</b>	Primary	Regulatory	Secondary	CA/OS	<b>Preparer</b>		PMD

Purpose of Expenditure (check all that apply)	
<input checked="" type="checkbox"/> New Facility	Correct Known or Potential Safety Issue
<input checked="" type="checkbox"/> Existing Facility - Rehabilitation/Upgrade	Equipment Obsolete
<input type="checkbox"/> Scheduled Replacement	<input checked="" type="checkbox"/> Comply with Regulatory Requirements
<input type="checkbox"/> Improved Service	Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/> 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
<p>This project consisted of the Flow Characterization Study (FCS) in 2021 (consists of ~70 temporary meters, ~25 permanent sewer billing meters, and ~11 permanent/non sewer billings). The FCS also consisted of QA/QC of the meter data and initial development of the Regional KISS sewer model. 2022 consisted of finalizing the development of the Regional KISS sewer model and beginning scenario planning and alternative analyses (i.e. the "Preliminary Screening of Alternatives" (PSOA). The PSOA concluded in Q2 of 2023 and the Final Alternatives Analysis (FAA) is underway. 2024 will entail the "Selection of Solution" phase and finalization of the Act 537 Plan. 2025 will involve the final Plan submission. Also included in this project is the Act 537 "Section 7" financial analysis.</p>

Project Drivers and Needs to be Met by the Project
<p>The primary project driver is regulatory. This project is also a component of the Interim Act 537 Plan submitted to DEP in September 2020. The Final Act 537 Plan is due to DEP by March 2025.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>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 was completed in late 2021. The remainder of the work included model development and calibration which occurred in 2022, followed by specific model runs to determine a 537 solution that meets the needs of the Region. Modeling concluded in June of 2023 and final cost estimating is underway.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Annual cost impact to be determined as needed. The project is funded by the City's AO bonds and cost is recovered through the existing Signatory agreements.</p>

<b>Project No.</b>	AD-S-12
<b>Project Name</b>	ACT 537 ALTERNATIVE ANALYSES

<b>Prior Project Cost</b>	\$ 1,360,000
<b>Estimated Project Costs: 2023-2028</b>	
LCA Staff	\$ 100,000
Land Acquisition	\$ -
Construction/Equipment	\$ -
Professional Services	\$ 1,200,000
Other	\$ -
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 2,760,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 700,000</b>
--	-------------------

		Need	Phase of Work
2023 Budget		\$ 700,000	Preliminary and final screening of 537 alternatives
1st Year	2024	\$ 600,000	FAA completion; selection of solution(s); Section 7; writing 537
2nd Year	2025	\$ 100,000	Submit 537 Plan
3rd Year	2026	\$ -	
4th Year	2027	\$ -	
5th Year	2028	\$ -	

(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**

<b>Project Name</b>	WET WEATHER CAPACITY ENHANCEMENT - WWTP MAIN AND AUXILIARY PUMP STATION IMPROVEMENTS						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-19
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	<b>Primary</b>	AM - Varies	<b>Secondary</b>	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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
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 over 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. The vacuum priming system is also problematic and in need of replacement. The Auxiliary Pump Station is critical to plant performance and the ability to accommodate wet weather flows. The pumps and mechanical equipment are approaching the end of their service life and require replacement to mitigate risk and consequence of failure.

Project Drivers and Needs to be Met by the Project
The project drivers are Master Plan, asset management, and regulatory. The main and auxiliary pump station improvement projects are listed in the Master Plan as project nos. 1 and 2, respectively, under "near term" projects. Pump and valve replacements will provide improved equipment reliability, reduced long-term maintenance costs, extension of service life and enhanced level of service. The upgrade project will also facilitate a wet weather pumping capacity of 100 mgd.

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 Proposal Nos. 1 and 2). These pumps were also previously planned to be replaced as part of the defunct blending project improvements. Preliminary design commenced in 2022 and final design should be completed by early 2024, with construction anticipated to be substantially completed by the end of 2026.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-S-19
<b>Project Name</b>	WET WEATHER CAPACITY ENHANCEMENT - WWTP MAIN AND AUXILIARY PUMP STATION IMPROVEMENTS

<b>Prior Project Cost</b>	80,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 100,000
Land Acquisition	\$ -
Construction/Equipment	\$ 12,000,000
Professional Services	\$ 400,000
Other	
Contingencies	\$ 200,000
<b>Total Project Cost</b>	<b>\$ 12,780,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 12,600,000</b>
--	----------------------

		Need	Phase of Work
2023 Budget		\$ 100,000	preliminary design
1st Year	2024	\$ 400,000	final design, permitting, bidding, commence construction
2nd Year	2025	\$ 6,000,000	construction
3rd Year	2026	\$ 6,000,000	construction
4th Year	2027	\$ 200,000	construction
5th Year	2028	\$ -	

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

<b>Project Name</b>	WWTP BOILER REPLACEMENT AND SOLIDS PROCESS HVAC UPGRADE PROJECT						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-20
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	Sys Imp	Secondary	AM - Varies	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	30	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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 addition 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 No. 3). A conceptual 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 was completed in 2022, bids were awarded late 2022 and construction phase will be completed in 2024.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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.

<b>Project No.</b>	AD-S-20
<b>Project Name</b>	WWTP BOILER REPLACEMENT AND SOLIDS PROCESS HVAC UPGRADE PROJECT

<b>Prior Project Cost</b>	\$200,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 40,000
Land Acquisition	\$ -
Construction/Equipment	\$ 3,800,000
Professional Services	\$ 260,000
Other	
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 4,400,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,400,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 2,800,000	construction
1st Year	2024	\$ 1,400,000	construction
2nd Year	2025		
3rd Year	2026	\$ -	
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	WET WEATHER CAPACITY ENHANCEMENT - WWTP IPS PUMP STATION UPGRADE AND 480V MCC REPLACEMENT						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-21
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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
<p>This project focuses on the Intermediate Pump Station (IPS), which conveys wastewater from the primary clarifiers to the Plastic Media Trickling Filters (PMTFs), and from the PMTFs to the Rock Media Trickling Filters (RMTFs). It includes new VFDs and electrical upgrades for Primary Effluent (PE) Pumps 9, 10, and 11 and PMTF Pumps 12, 14, and 16 with the objective of increasing wet weather capacity and reliability. Also, various 480v electrical motor control centers (MCCs) located at the IPS (and throughout the plant) have exceeded their useful service life and should be replaced, as a loss of power to any key critical processes would likely impact the ability to maintain treatment permit limits and DEP requirements relative to the prior Administrative Order (now RFMS).</p>

Project Drivers and Needs to be Met by the Project
<p>Replacement of VFDs and associated electrical equipment at the IPS will eliminate the problem of overheating electrical system components (including VFDs) at wet weather flows greater than 84 mgd. An increase in wet weather capacity and operational reliability would be realized with new VFDs, motor control centers and breakers. Also, a reduction in maintenance costs would result as older, failure prone equipment is replaced with newer equipment.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>This project is part of a phased approach to a larger project that was identified in the 2018 Master Plan (Project No. 10) as a "near term" project. This project was split into to separate phases according to plant process areas and wet weather treatment capacity needs. Preliminary design was started in 2022 and final design is to be finished in in early 2024. The project is anticipated to be substantially completed in 2026.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

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

Explanation if Necessary
Annual cost impact to be determined as needed.



<b>Project No.</b>	AD-S-21
<b>Project Name</b>	WET WEATHER CAPACITY ENHANCEMENT - WWTP IPS PUMP STATION UPGRADE AND 480V MCC REPLACEMENT

<b>Prior Project Cost</b>	40,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 5,500,000
Professional Services	\$ 300,000
Other	\$ -
Contingencies	\$ 150,000
<b>Total Project Cost</b>	<b>\$ 6,040,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 5,900,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ 100,000	preliminary design
1st Year	2024	\$ 200,000	final design, permitting, bidding
2nd Year	2025	\$ 1,700,000	construction
3rd Year	2026	\$ 4,000,000	construction
4th Year	2027		
5th Year	2028		

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

<b>Project Name</b>	WWTP FINAL CLARIFIER 1-4 REHABILITATION						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-22
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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
This project includes the following, but not limited to: 1) scraper mechanism and drive replacement on all four clarifiers; 2) miscellaneous steel repairs and coatings; 3) 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 No. 14). The concrete tanks are from 1931 and the mechanical equipment is from the late 1960s and the units have operated continuously since that time.

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 No. 14) and in a 2016 concrete report by Corrosion Probe. This project scope consists of the replacement of the four each drive mechanisms, scraper mechanisms, center wells, and associated mechanical equipment. The work anticipated to begin construction in 2024 and finish in 2025.

Annual Cost Impact		Revenue Impact	
Operating - Increase/(Decrease)	N/A	Gain/(Loss) in Annual Revenue	N/A
Debt Service	\$ -	Assessment, Contribution	N/A
<b>Net</b>	<b>\$ -</b>	in Aid-of-Construction	
		Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary
Annual cost impact to be determined as needed.

<b>Project No.</b>	AD-S-22
<b>Project Name</b>	WWTP FINAL CLARIFIER 1-4 REHABILITATION

<b>Prior Project Cost</b>	
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 40,000
Land Acquisition	\$ -
Construction/Equipment	\$ 1,600,000
Professional Services	\$ 80,000
Other	
Contingencies	\$ 80,000
<b>Total Project Cost</b>	<b>\$ 1,800,000</b>

<b>Project Estimate Level</b>	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,800,000</b>
--	---------------------

		<b>Need</b>	<b>Phase of Work</b>
2023 Budget		\$ -	
1st Year	2024	\$ 900,000	
2nd Year	2025	\$ 900,000	
3rd Year	2026		
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	WWTP PRIMARY SLUDGE DIGESTER FEED LINE REPLACEMENT						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Operations	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-23
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCRC
<b>Prj. Category</b>	Primary	AM - Varies	Secondary	Sys Imp	<b>Preparer</b>		CEV

Purpose of Expenditure (check all that apply)	
<input type="checkbox"/> New Facility	<input type="checkbox"/> Correct Known or Potential Safety Issue
<input checked="" type="checkbox"/> Existing Facility - Rehabilitation/Upgrade	<input type="checkbox"/> Equipment Obsolete
<input type="checkbox"/> Scheduled Replacement	<input type="checkbox"/> Comply with Regulatory Requirements
<input type="checkbox"/> Improved Service	<input checked="" type="checkbox"/> Equipment/Infrastructure at End of Useful Life
<input type="checkbox"/> Study	<input checked="" type="checkbox"/> Other (explain): <i>Optimize operations</i>

Additional Information			
Expected Useful Life (Years)	40	<b>Project inception date</b>	2018
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	<b>Anticipated Project completion date</b>	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 involves the replacement of two parallel 6-inch diameter cast iron primary sludge lines, each 1,500 linear feet in length (3,000 LF total) with new 8-inch glass lined ductile iron pipe and cleanout structures. Glass lined pipe is typically utilized for conveyance of sludge, which requires low interior wall surface friction. The original cast iron pipe is in poor condition, experiences frequent blockages and limits the thickness of sludge that can be conveyed through this line.

Project Drivers and Needs to be Met by the Project
The primary project drivers for this project is system improvement and asset management. The existing primary sludge lines have experienced a history of failure due to blockages and continuous build up with grease, increasing line pressure on the primary sludge pumps resulting in the need to pump thinner sludge, which has an adverse impact on digester capacity. Replacement with new glass lined DIP and cleanout structures will reduce line pressure and enable a thicker sludge to be conveyed to the digesters, thereby optimizing digester operation/capacity.

Project Status - Describe what work, if any has been completed or underway for this project
This project was identified in the 2018 Master Plan as a component of Project Proposal No. 3. Preliminary engineering and design are being performed in 2023 with construction anticipated to commence in 2024.

Annual Cost Impact		Revenue Impact	
Operating - Increase/(Decrease)	N/A	Gain/(Loss) in Annual Revenue	N/A
Debt Service	\$ -	Assessment, Contribution	N/A
<b>Net</b>	<b>\$ -</b>	in Aid-of-Construction	
		Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary
Annual cost impact to be determined as needed.

<b>Project No.</b>	AD-S-23
<b>Project Name</b>	WWTP PRIMARY SLUDGE DIGESTER FEED LINE REPLACEMENT

<b>Prior Project Cost</b>	0
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 10,000
Land Acquisition	\$ -
Construction/Equipment	\$ 1,100,000
Professional Services	\$ 120,000
Other	
Contingencies	\$ 70,000
<b>Total Project Cost</b>	<b>\$ 1,300,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,300,000</b>
--	---------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ 600,000	final design, bidding, commence construction
2nd Year	2025	\$ 700,000	construction
3rd Year	2026	\$ -	
4th Year	2027	\$ -	
5th Year	2028	\$ -	

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

<b>Project Name</b>	SOURCE REDUCTION PLAN - I/I ELIMINATION PROGRAM						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-26
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCCR
<b>Prj. Category</b>	<b>Primary</b>	Regulatory	<b>Secondary</b>	CA/OS	<b>Preparer</b>		PMD/JP

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

Additional Information			
Expected Useful Life (Years)	20	Project inception date	2022
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	Anticipated Project completion date	2034
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
As part of the Act 537 planning effort, each Signatory was asked to prepare an inflow and infiltration plan (i.e. a "Source Reduction Plan" or "SRP"). Using the 2021 flow characterization study data, the City prepared a 10 year SRP in the Fall of 2022. The City's prior I&I commitment to the EPA concludes in late 2023, as the design of "Year 1" of the SRP plan commenced in Q2 of 2023. "Year 1" SRP project consists of a combination of internal pipe lining, internal pipe grouting, and potential dig-up repairs and construction will begin in 2024, along with the design of "Year 2". This pattern will continue through 10 years' worth of construction cycles.

Project Drivers and Needs to be Met by the Project
The primary project driver is regulatory (project is a major proposed component of the Act 537 Plan to be submitted to DEP in March 2025). The project also is required by the 2020 Lease Concession Amendment with the City. LCA will contribute \$650,000 per year toward this program. The remainder of the project costs can be recaptured via the CCRC mechanism of the Lease.

Project Status - Describe what work, if any has been completed or underway for this project
The Year 1 design is underway. City approval of the Year 1 design is anticipated on or before October 1, 2023.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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 LCA Allentown Division per requirements of the 2020 Lease Amendment.

<b>Project No.</b>	AD-S-26
<b>Project Name</b>	SOURCE REDUCTION PLAN - I/I ELIMINATION PROGRAM

<b>Prior Project Cost</b>	\$ -
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 200,000
Land Acquisition	\$ -
Construction/Equipment	\$ 21,000,000
Professional Services	\$ 2,000,000
Other	\$ -
Contingencies	\$ 600,000
<b>Total Project Cost</b>	<b>\$ 23,800,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 23,000,000</b>
--	----------------------

		Need	Phase of Work
2023 Budget		\$ 800,000	design
1st Year	2024	\$ 3,000,000	design and construction
2nd Year	2025	\$ 5,000,000	design and construction
3rd Year	2026	\$ 5,000,000	design and construction
4th Year	2027	\$ 5,000,000	design and construction
5th Year	2028	\$ 5,000,000	design and construction

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

<b>Project Name</b>	KIWWTP REDUNDANT POWER SUPPLY						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-27
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	Primary	Sys Imp	Secondary	Regulatory	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	N/A	Project inception date	2023
Approx. No. of Customers Benefitted	*		
Is this System part of a Common User Rate?	N/A	Anticipated Project completion date	2028
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 Kline's Island Wastewater Treatment Plant is provided electrical service from two 12.4KV power transmission line feeds from one PPL substation, located about one half mile north of the plant. For improved system resilience and to avoid plant overflows and compliance violations due to extended power outages, a third electrical feed from a separate PPL substation is needed.

Project Drivers and Needs to be Met by the Project
Facility resilience and compliance with regulatory requirements are the primary drivers for this project.

Project Status - Describe what work, if any has been completed or underway for this project
No work has been done to date.

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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 funding is LCA.



<b>Project No.</b>	AD-S-27
<b>Project Name</b>	KIWWTP REDUNDANT POWER SUPPLY

<b>Prior Project Cost</b>	\$ -
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 20,000
Land Acquisition	\$ -
Construction/Equipment	\$ 600,000
Professional Services	\$ 100,000
Other	\$ -
Contingencies	\$ 50,000
<b>Total Project Cost</b>	<b>\$ 770,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 770,000</b>
--	-------------------

		Need	Phase of Work
2023 Budget		\$ -	
1st Year	2024	\$ -	
2nd Year	2025	\$ 120,000	Preliminary planning and design
3rd Year	2026	\$ 500,000	Construction
4th Year	2027	\$ 150,000	Construction
5th Year	2028		

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

<b>Project Name</b>	WWTP WET WEATHER CAPACITY ENHANCEMENT - TERTIARY BYPASS						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-28
<b>Location</b>	Allentown			<b>Prj. Type</b>	LCA-MCI	<b>Prj. Funding</b>	CCCR
<b>Prj. Category</b>	<b>Primary</b>	Sys Imp	<b>Secondary</b>	Efficiency	<b>Preparer</b>		CEV

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

Additional Information			
Expected Useful Life (Years)	50	Project inception date	2022
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
<p>The purpose of this project (Phase 1) is to facilitate an increase in wet weather capacity of the plastic media trickling filter (PMTF) effluent pump station by resolving a hydraulic bottleneck between the Intermediate Settling Tanks (ISTs) and the Rock Media Trickling Filters (RMTFs). In a hydraulic capacity study performed by Kleinfelder Engineering, the capacity of the PMTF effluent pump station is limited to 70 mgd due to the gravity flow limitation of 70 mgd between the ISTs and the RMTFs. Removing this bottleneck will allow the PMTF effluent pump station to convey 100 mgd of flow. Phase 1 project consists of construction of a diversion pipe to be operated during peak weather events to route a portion of PMTF effluent flow directly to the final clarifiers (instead of the ISTs) for final settling prior to disinfection.</p>

Project Drivers and Needs to be Met by the Project
<p>The project drivers are Regulatory and Efficiency. The Phase 1 improvements will facilitate a wet weather treatment capacity increase to 100 MGD. Future Phase 2 project will involve a treatment capacity expansion to 120 MGD. The design of the 120 MGD expansion must be completed by 2028.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>Preliminary design commenced in 2022 and final design will be completed in 2023. Construction is anticipated to be completed in 2025, in parallel with the Main and Auxiliary Pump Station Improvements.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

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

Explanation if Necessary
<p>Annual cost impact to be determined as needed.</p>

<b>Project No.</b>	AD-S-28
<b>Project Name</b>	WWTP WET WEATHER CAPACITY ENHANCEMENT - TERTIARY BYPASS

<b>Prior Project Cost</b>	40,000
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 50,000
Land Acquisition	\$ -
Construction/Equipment	\$ 1,100,000
Professional Services	\$ 200,000
Other	
Contingencies	\$ 150,000
<b>Total Project Cost</b>	<b>\$ 1,540,000</b>

<b>Project Estimate Level</b>	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 1,100,000</b>
--	---------------------

		<b>Need</b>	<b>Phase of Work</b>
2023 Budget		\$ -	
1st Year	2024	\$ 100,000	Final design, permitting, bidding
2nd Year	2025	\$ 1,000,000	construction
3rd Year	2026		
4th Year	2027		
5th Year	2028		

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

<b>Project Name</b>	MISCELLANEOUS ACT 537 PLANNING, FINANCIAL AND LEGAL REVIEWS						
<b>Budget Area</b>	Wastewater	<b>Department</b>	Capital Works	<b>Date</b>	7/1/2023	<b>Project No.</b>	AD-S-29
<b>Location</b>	Allentown			<b>Prj. Type</b>	Regular	<b>Prj. Funding</b>	LCA
<b>Prj. Category</b>	<b>Primary</b>	Regulatory	<b>Secondary</b>	CA/OS	<b>Preparer</b>		PMD

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

Additional Information			
Expected Useful Life (Years)	40	Project inception date	2022
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
<p>This project is related to miscellaneous Act 537 planning items funded by the LCA Allentown Division. The exact nature of legal reviews related to the Act 537 Plan are currently unknown but will be captured under this project detail sheet. Miscellaneous engineering items not paid by the City's AO fund will be captured here.</p>

Project Drivers and Needs to be Met by the Project
<p>The primary project driver is regulatory. This project is also a component of the Interim Act 537 Plan submitted to DEP in September 2020. The Final Act 537 Plan is due to DEP by March 2025.</p>

Project Status - Describe what work, if any has been completed or underway for this project
<p>The 2023 budget included the following projects funded by the LCA Allentown Division: (1) wet weather pilot study at KIWWTP; (2) City of Allentown interceptor inspections; (3) miscellaneous engineering services. 2024 and 2025 will include miscellaneous engineering services related to the completion of the Act 537 Plan.</p>

Annual Cost Impact	
Operating - Increase/(Decrease)	N/A
Debt Service	\$ -
<b>Net</b>	<b>\$ -</b>

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
<p>Annual cost impact to be determined as needed. The project is funded by the LCA Allentown Division.</p>

<b>Project No.</b>	AD-S-29
<b>Project Name</b>	MISCELLANEOUS ACT 537 PLANNING, FINANCIAL AND LEGAL REVIEWS

<b>Prior Project Cost</b>	\$ -
<b>Estimated Project Costs:</b>	<b>2023-2028</b>
LCA Staff	\$ 200,000
Land Acquisition	\$ -
Construction/Equipment	\$ -
Professional Services	\$ 1,250,000
Other	\$ -
Contingencies	\$ 100,000
<b>Total Project Cost</b>	<b>\$ 1,550,000</b>

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
<b>x</b>	Budget Estimate
	Definitive Estimate

<b>Requested in this Capital Program</b>	<b>\$ 300,000</b>
--	-------------------

		Need	Phase of Work
2023 Budget		\$ 1,250,000	Miscellaneous Act 537 planning items
1st Year	2024	\$ 200,000	Miscellaneous Act 537 planning items
2nd Year	2025	\$ 100,000	Miscellaneous Act 537 planning items
3rd Year	2026	\$ -	
4th Year	2027	\$ -	
5th Year	2028	\$ -	