FINAL 5-YEAR CAPITAL PLAN

SUBURBAN DIVISION

2024-2028

OCTOBER 2023

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2024-2028

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

Project Type

Project Type	Description
AO	Administrative Order
LCA-MCI	LCA Developed Major Capital Improvement[(1)]
Regular	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

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

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

Project Category

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

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

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

Approval Stage

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

WATER

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION WATER
5-YEAR CAPITAL PLAN
2024–2028

CAPITAL FINANCING JUSTIFICATION

Capital additions to the Water System are justified by using six revenue sources: user charges, assessments or distribution tapping fees, supply tapping fees, contributions-in-aid of construction, reimbursements from the wastewater funds, and grants. This would comprise the amount of cash available from operations for capital projects.

Beyond the operating cash available, remaining sources are project reserves from previous debt issuance and any new borrowing required.

The table below summarizes the capital project sourcing by year and each major financial sourcing category:

CAPITAL FINANCING SOURCES						
	2024	**2025**	**2026**	**2027**	**2028**	**TOTAL**
Project Costs	$6,617,000	$5,483,500	$8,816,500	$6,975,500	$5,795,500	$33,688,000
Sources of Funding:						
Current Cash Flows	$1,154,184	$2,833,500	$3,016,500	$3,075,500	$3,495,500	$13,575,184
Cash Reserves	-	-	-	-	-	-
New Borrowing	$5,462,816	$2,650,000	$5,800,000	$3,900,000	$2,300,000	$20,112,816
TOTAL FUNDING	**$6,617,000**	**$5,483,500**	**$8,816,500**	**$6,975,500**	**$5,795,500**	**$33,688,000**

Total spending on capital projects for the five-year period totals $33,688,000. Current cash flows and cash reserves over the period will provide $13,575,184 for capital projects. New borrowing for plan period projects will be in the amount of $19,880,000 over the five years for specific projects being executed each year with a borrowing balance forward of $232,816 from year 2023.

The $19,880,000 borrowing along with the $232,816 balance forward is to fund main replacement projects, water meter replacement projects, North Whitehall improvement projects, and Upper System pump station and water main extension projects. To support the additional debt service an increase in rates will be 4.0% in years 1-3 and 3.5% in years 4-5. Modestly conservative growth of 1% annually is included to reflect expected new customer connections during the plan period.

CONDENSED CASH FLOW - SUBURBAN WATER					
US DOLLARS	**2024**	**2025**	**2026**	**2027**	**2028**
User Charges	16,800,000	17,640,000	18,522,000	19,355,490	20,226,487
Other Operating Revenues	287,500	287,500	287,500	287,500	287,500
Non-Operating Revenues	261,342	261,342	261,342	261,342	261,342
Operating expenses	(11,290,563)	(11,648,094)	(12,017,010)	(12,397,675)	(12,790,466)
Debt Service - Current Debt	(3,137,124)	(3,138,325)	(2,850,924)	(3,081,325)	(3,064,124)
Debt Service - NEW Debt	(284,362)	(428,446)	(743,800)	(955,848)	(1,080,902)
Investments Converting to Cash	-	-	-	-	-
Proceeds From NEW Debt	5,230,000	2,650,000	5,800,000	3,900,000	2,300,000
Capex	(7,065,750)	(5,558,500)	(8,891,500)	(7,038,000)	(5,858,000)
NET FUND FLOWS	**801,043**	**65,477**	**367,608**	**331,484**	**281,837**
Plan Volume Increase %	1.00%	1.00%	1.00%	1.00%	1.00%
User Charge Rate Increase %	4.00%	4.00%	4.00%	3.50%	3.50%
Total User Charge Revenue Increase %	5.00%	5.00%	5.00%	4.50%	4.50%
Unrestricted Cash Balance	9,277,213	9,342,690	9,710,298	10,041,782	10,323,619
Unrestricted Investments	2,945,069	2,945,069	2,945,069	2,945,069	2,945,069
Total Unrestricted Balances	12,222,282	12,287,759	12,655,367	12,986,851	13,268,688
Days on Hand	300	293	295	296	295
DEBT SERVICE COVERAGE RATIO	1.77	1.83	1.96	1.86	1.93

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2024-2028 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	Prj. Category	(1) Prj. Funding	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
SD-W-A	Annual Projects	AM - Varies	LCA	A	$ 2,315,000	$ 2,367,000	$ 2,283,500	$ 2,191,500	$ 1,925,500	$ 1,845,500	$ 10,613,000
SD-W-12	Water Main Replacement Projects	AM - Varies	LCA	V	$ 2,900,000	$ 2,900,000	$ -	$ 3,000,000	$ 3,100,000	$ 3,100,000	$ 12,100,000
SD-W-37	Water Quality Studies & Upgrades	Sys Imp	LCA	p	$ -	$ 100,000	$ 100,000	$ 75,000	$ -	$ -	$ 275,000
SD-W-50	Fixed Base Meter Reading System	Sys Imp	LCA	P	$ 100,000	$ 50,000	$ 250,000	$ 250,000	$	$ -	$ 550,000
SD-W-51	North Whitehall Division Water System Supply Study and Improvements	Sys Imp	LCA	P	$ -	$ 100,000	$ 750,000	$ 1,150,000	$ -	$ -	$ 2,000,000
SD-W-55	Water Systems Master Planning	Sys Imp	LCA	A	$ 100,000	$ 100,000	$ 100,000	$ -	$ -	$ -	$ 200,000
SD-W-56	Upper System Pump Station & Water Main Extension	Sys Imp	LCA	A	$ 75,000	$ 50,000	$ 100,000	$ 800,000	$ 1,100,000	$ -	$ 2,050,000
SD-W-57	Water Meter Replacement Program	AM-Rev Opprt	LCA	P	$ 350,000	$ 800,000	$ 800,000	$ 850,000	$ 850,000	$ 850,000	$ 4,150,000
SD-W-58	Central Lehigh System Supply Improvements	Sys Imp	LCA	P	$ 100,000	$ 150,000	$ 1,000,000	$ 500,000	$ -	$ -	$ 1,650,000
	GRAND TOTAL				**$ 5,940,000**	**$ 6,617,000**	**$ 5,383,500**	**$ 8,816,500**	**$ 6,975,500**	**$ 5,795,500**	**$ 33,588,000**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents. All projects are LCA funded
(2) If blank , cost is not applicable (annual project) or to be determined

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

Project Name	ANNUAL PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-A
Location	All LCA Suburban Divisions, Multiple Municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Efficiency	**Preparer**		CEV

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

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

Varies by system.

Detailed Project Description

This consolidated annual project is a collection of separate recurring small projects. This annual project includes the following: New Water Main Installation, Distribution Mains - Development & Service Connections, Distribution Mains - Upsizing/Contribution, Reservoir Rehabilitation/Maintenance, Water Company Acquisitions, Mobile Equipment, Other Equipment, General Water System Improvements, SCADA System Upgrades, Water Facilities Asset Management Improvements and New and Replacement Water Meters.

Project Drivers and Needs to be Met by the Project

The primary drivers for these projects are asset management, operational efficiency and improved service. Annual items help maintain the operation and satisfactory level of service for existing water supply, distribution, and support facilities in the Suburban Division, and accommodate water distribution needs due to growth.

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

This is an annual project, therefore, work is on-going.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

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

Prior Project Cost		N/A
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	250,000
Land Acquisition	$	-
Construction/Equipment	$	12,448,000
Professional Services	$	200,000
Other		
Contingencies	$	50,000
Total Project Cost	**$**	**12,948,000**

Requested in this Capital Program	**$**	**10,613,000**

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

		Need	**Phase of Work**
2023 Budget		$ 2,315,000	service contract, planning, design & construction
1st Year	2024	$ 2,367,000	service contract, planning, design & construction
2nd Year	2025	$ 2,283,500	service contract, planning, design & construction
3rd Year	2026	$ 2,191,500	service contract, planning, design & construction
4th Year	2027	$ 1,925,500	service contract, planning, design & construction
5th Year	2028	$ 1,845,500	service contract, planning, design & construction

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

Project Name	WATER MAIN REPLACEMENT PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-12
Location	Various LCA Divisions located in multiple municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Efficiency	**Preparer**		JMP

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

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

Varies by system - Main Replacements are located in multiple systems.

Detailed Project Description

This project entails replacement of aging and problematic cast iron (CI) and plastic water mains in LCA Central Lehigh and satellite water systems. Scope of work is prioritized based on break history, geology (sinkholes), pipe condition, pipe age, and probability and consequence of failure. The Capital Plan reflects the replacement of approximately one-mile of water main per year, per annual prioritization efforts. Annual funding is provided in the Capital Plan for replacing mains that exhibit high failure rates.

Project Drivers and Needs to be Met by the Project

Replacing cast iron and plastic mains will reduce the frequency of breaks in the system thereby saving the Authority repair costs, customer outages and reducing the potential for damage which can occur to private property.

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

This is an annual project so work is on-going. No work is planned for 2025 due to budget concerns.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Replacement of aged cast iron mains will reduce the number of main breaks, thereby saving repair costs and reducing the possibility of ground subsidence and property damage. Exact savings to be determined.

Project No.	SD-W-12
Project Name	WATER MAIN REPLACEMENT PROJECTS

Prior Project Cost		0
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	500,000
Land Acquisition	$	-
Construction/Equipment	$	12,200,000
Professional Services	$	1,500,000
Other		
Contingencies	$	800,000
Total Project Cost	**$**	**15,000,000**

Requested in this Capital Program	**$**	**12,100,000**

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

		Need	**Phase of Work**
2023 Budget		$ 2,900,000	design & construction
1st Year	2024	$ 2,900,000	design & construction
2nd Year	2025	$ -	
3rd Year	2026	$ 3,000,000	design & construction
4th Year	2027	$ 3,100,000	design & construction
5th Year	2028	$ 3,100,000	design & construction

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

Project Name	WATER QUALITY STUDIES AND UPGRADES						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-37
Location	Various			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2023
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	Varies	**Anticipated Project completion date**	TBD
Will the Project Require Obtaining Land Rights	Unknown		

Detailed Project Description

This project consists of water quality studies and rehabilitation work to comply with evolving state and federal water quality standards and regulations. The primary project locations are LCA's satellite systems, which are small developer-built systems acquired by LCA and upgraded over the years to maintain level of service and comply with regulations. These systems include the Buss Acres Division (Upper Milford Township), Madison Park North Division (Lynn Township), Heidelberg Heights Division (Heidelberg Township), Pine Lakes Division (Lynn Township), Arcadia West Division (Weisenberg Township), Clearview Farms Division (Northampton County), and Beverly Hills Division (Lower Milford Township).

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. This project also includes compliance with the Lead and Copper Rule, with the initial task consisting of a lead service inventory.

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	$ -
Net	**$ -**

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-37
Project Name	WATER QUALITY STUDIES AND UPGRADES

Prior Project Cost	$ -
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 20,000
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ 245,000
Other	$ -
Contingencies	$ 10,000
Total Project Cost	**$ 275,000**

Requested in this Capital Program	**$ 275,000**

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

		Need	**Phase of Work**
2023		$ -	
1st Year	2024	$ 100,000	Study/Planning
2nd Year	2025	$ 100,000	Study/Planning
3rd Year	2026	$ 75,000	Study/Planning
4th Year	2027	$ -	TBD
5th Year	2028	$ -	TBD

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

Project Name	FIXED BASE METER READING SYSTEM						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-50
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2019
Approx. No. of Customers Benefitted	19,000		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2026
Will the Project Require Obtaining Land Rights	TBD		

Detailed Project Description

Development of a fixed base system for meter reading. A communication study by Sensus to evaluate the number and location of antenna towers for Suburban area coverage was performed in 2019 and updates to the study are performed as site locations are refined. Four antennas are anticipated in order to provide adequate coverage of the Suburban system, to be co-located on existing cellular towers within our service area.

Project Drivers and Needs to be Met by the Project

The new system will allow for more efficient meter reading, consistent billing and faster dispute resolution. As meters are upgraded, the AMI system will allow us to monitor customer usage in real time and proactively address problems.

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

The radio transceiver units were upgraded in 2019/2020 and are now compatible with an AMI system. Colliers Engineering & Design prepared a feasibility study in 2022 to optimize site locations and better refine installation costs. A temporary tower/base station was erected at two locations to demonstrate the capabilities of the system. Following an internal cost/benefit analysis, an engineer will prepare site plans and facilitate Township approvals for the antenna sites.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project to commence in 2020.

Project No.	SD-W-50
Project Name	FIXED BASE METER READING SYSTEM

Prior Project Cost		$ 80,000
Estimated Project Costs:		**2023-2028**
LCA Staff		$ 20,000
Land Acquisition		
Construction/Equipment		$ 480,000
Professional Services		$ 100,000
Other		$ 10,000
Contingencies		$ 40,000
Total Project Cost		**$ 730,000**

Requested in this Capital Program	**$ 550,000**

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

		Need	**Phase of Work**
2023 Budget		$ 100,000	Planning
1st Year	2024	$ 50,000	Design
2nd Year	2025	$ 250,000	Construction
3rd Year	2026	$ 250,000	Construction
4th Year	2027	$	
5th Year	2028	$ -	

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

Project Name	NORTH WHITEHALL DIVISION WATER SYSTEM IMPROVEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-51
Location	NWD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2020
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	TBD
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The first phase of this project consists of an engineering study that commenced in 2021 to identify improvements in system reliability. The assumption is that an improvements plan will be prepared that may include interconnection with surrounding water systems, including a second interconnection with the NBMA water system. The existing system is supplied from the NBMA interconnection, and a critical main serves the southern portion of the system. Looping of dead end lines was also identified as an option, along with identifying sources of high unaccounted-for water. The scope and cost of an improvements project to be implemented as part of this project is not known at this time (will be identified and recommended under SD-W-55 Master Plan).

Project Drivers and Needs to be Met by the Project

Inadequate looping of the distribution system affects system reliability and water quality, and will drive the need for modifications. LCA's objective is to be proactive and identify capital improvements required in order to adequately serve current and future customers. High levels of unaccounted-for water need to be identified and reduced.

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

The Phase 1 assessment study began in 2021 and will be completed in 2023. The improvements project will commence in 2024 and beyond. Since the scope of this effort is undefined at this time, only estimated design costs are included.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-51
Project Name	NORTH WHITEHALL DIVISION WATER SYSTEM IMPROVEMENTS

Prior Project Cost	$ 30,000
Estimated Project Costs:	**2022-2027**
LCA Staff	$ 20,000
Land Acquisition	$ -
Construction/Equipment	$ 1,700,000
Professional Services	$ 180,000
Other	$ -
Contingencies	$ 100,000
Total Project Cost	**$ 2,030,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ -	
1st Year	2024	$ 100,000	Design and permitting
2nd Year	2025	$ 750,000	Construction
3rd Year	2026	$ 1,150,000	Construction
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	WATER SYSTEMS MASTER PLANNING						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-55
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Regulatory	**Preparer**		PMD/ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2022
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project involves the preparation of a preliminary water supply study for two major Suburban Water Systems (Central Lehigh and North Whitehall Division). The study will review supply capacity requirements to meet current and future demands, and evaluate existing water sources, storage, and interconnections to ensure long-term supply needs can be met. From this study, additional engineering work will be initiated to develop and design water supply projects that enhance the region's water system resiliency and redundancy. This water supply study will serve as the backbone for future development of a Master Plan for the entire LCA Suburban Water System.

Project Drivers and Needs to be Met by the Project

The study word aligns with LCA's Strategic Plan to identify and evaluate feasible means to address current and long-term water supply needs in the CLD and NWD. The initial preliminary water study will identify potential additional sources to supplement flow should water demand increase due to development in the Western Lehigh service area or a potential large industrial user. The study will provide information which will allow us to prioritize and budget for the addition of wells as sources of supply &/or interconnections with neighboring water systems.

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

An engineering consultant has been retained to complete the first phase of the study in 2022 and 2023. Additional master planning related studies and capital project selection will occur in 2023 and 2024.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-55
Project Name	WATER SYSTEMS MASTER PLANNING

Prior Project Cost		$ -
Estimated Project Costs:		**2023-2028**
LCA Staff		$ 40,000
Land Acquisition		$ -
Construction/Equipment		$ -
Professional Services		$ 220,000
Other		$ -
Contingencies		$ 40,000
Total Project Cost		**$ 300,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 100,000	Study
1st Year	2024	$ 100,000	Study
2nd Year	2025	$ 100,000	Design
3rd Year	2026		
4th Year	2027		
5th Year	2028		

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

Project Name	UPPER SYSTEM PUMP STATION AND WATER MAIN EXTENSION						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-56
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2020
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	TBD
Will the Project Require Obtaining Land Rights	Yes		

Detailed Project Description

The project consists of improvements to LCA's Western Lehigh water distribution system ("CLD Upper System") that is located north of I-78 and west of the village of Fogelsville. The first phase of the project consisted of water modeling and an engineering study that was completed in 2020 to evaluate future water demand scenarios and alternatives for system improvements to provide adequate water supply and pressure to future industrial customers. The study recommended an interconnection with the CLD Lower System. This consists of a water main extension under I-78 (via steel casing pipe acquired from Upper Macungie Township) and a new pump station on the north side of I-78 to convey water from LCA's Central Lehigh Division "lower system" to provide adequate supply conditions for future customers.

Project Drivers and Needs to be Met by the Project

The project will meet the supply needs of potential large industrial water users in the CLD Upper System, located in western Lehigh County north of I-78. The final design and construction of improvements to convey water to a large user, including a booster pumping station and transmission main, will depend upon execution of a DWSA with the potential large user. We anticipate that these improvement costs will be the responsibility of the large user. LCA's objective is to be proactive and identify capital improvements required in order to provide adequate water service to meet future demands. The complete scope of the capital improvements is not known at this time and is dependent upon approved development(s) in the Upper System.

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

The engineering study to evaluate supply capacity and distribution piping needs in the CLD Upper System was completed in 2020. Installation of a capped 20" water main through a 30" steel casing pipe across I-78 was completed in early 2023 (steel casing pipe was acquired from Upper Macungie Township). The commencement of design phase of a pump station began in 2021 due to a proposed dairy processing plant to be constructed in 2023. However, in early 2022 the developer formally terminated the project. Substantial completion of the pump station design occured 2023, and the easement acquisition process commenced for the station, with final design and DEP permitting paused pending future development plans. The schedule for future pump station construction and related distribution improvements is dependent upon development timing and demand.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-56
Project Name	UPPER SYSTEM PUMP STATION AND WATER MAIN EXTENSION

Prior Project Cost		350,000
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	30,000
Land Acquisition	$	10,000
Construction/Equipment	$	1,600,000
Professional Services	$	175,000
Other		
Contingencies	$	100,000
Total Project Cost	**$**	**2,265,000**

Requested in this Capital Program	**$**	**2,050,000**

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

		Need	**Phase of Work**
2023 Budget		$ 75,000	design
1st Year	2024	$ 50,000	Permitting and final pump station design
2nd Year	2025	$ 100,000	bidding & construction
3rd Year	2026	$ 800,000	construction
4th Year	2027	$ 1,100,000	construction
5th Year	2028	$ -	

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

Project Name	WATER METER REPLACEMENT PROGRAM						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-57
Location	All Suburban Divisions, located in various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Med	**Secondary**	Rev Opprt	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2022
Approx. No. of Customers Benefitted	1,250		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2026
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The program consists of annual projects to replace aging and inoperable water meters. Meters are to be replaced annually with higher priority assigned to meters that are non-functioning and/or have reached the end of their useful lives. All new meters will have radio-read (RR) capability.

Project Drivers and Needs to be Met by the Project

The probability of inaccuracies in meter readings increases with age and usage of the meters. The improved accuracy of the new meters creates the potential to increase water system revenues. Radio Read technology will increase meter reading accuracy, leakage tracking and efficiency that will improve customer service and streamline operations.

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

Aging meters are periodically replaced as part of an on-going program. The construction of the 2018 Water Meter Replacement project included the installation of approximately 3,000 new meters. A 2022 commercial meter project replaces approximately 140 1-1/2" and 2" meters. In 2023 the replacement of 620 water meters in the North Whitehall Division was completed.

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

Revenue Impact	
Gain/(Loss) in Annual Revenue	$ 100,000
Assessment, Contribution in Aid-of-Construction	N/A
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

An increase in revenue is anticipated as older meters are replaced. This is due to wear on internal parts that generally causes lower measurements. A 5% increase was assumed in the revenue gain reported above.

Project No.	SD-W-57
Project Name	WATER METER REPLACEMENT PROGRAM

Prior Project Cost	
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 75,000
Land Acquisition	$ -
Construction/Equipment	$ 4,100,000
Professional Services	
Other	$ 10,000
Contingencies	$ 315,000
Total Project Cost	**$ 4,500,000**

Requested in this Capital Program	**$ 4,150,000**

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

		Need	**Phase of Work**
2023 Budget		$ 350,000	Construction
1st Year	2024	$ 800,000	Design/Construction
2nd Year	2025	$ 800,000	Design/Construction
3rd Year	2026	$ 850,000	Design/Construction
4th Year	2027	$ 850,000	Design/Construction
5th Year	2028	$ 850,000	Design/Construction

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

Project Name	CENTRAL LEHIGH SYSTEM SUPPLY IMPROVEMENTS						
Budget Area	Water	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-W-58
Location	CLD Upper System, Upper Macungie Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		ALK

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

Additional Information	
Expected Useful Life (Years)	50
Approx. No. of Customers Benefitted	N/A
Is this System part of a Common User Rate?	yes
Will the Project Require Obtaining Land Rights	TBD

Comments	
Project inception date	2023
Anticipated Project completion date	2026

Detailed Project Description

Water system master planning in the Central Lehigh Division is being done under project SD-W-55 in the Capital Plan. Improvement recommendations from the study are yet to be determined but may include additional interconnections with other water systems, increased water storage or the development of additional well sources. Improvements will address long term system capacity needs, improve system resilience, and provide for system redundancy for maintenance.

Purpose and Needs to be Met by the Project

Although existing sources in the Central Lehigh System are adequate for current needs, they are insufficient to support current demand if our largest source was not available for various reasons, or future needs from anticipated growth or the addition of a large industrial user.

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

A Water Supply Study is being performed in 2022 and 2023 as part of the Water Systems Master Planning effort which will focus on future needs. The Study is addressing potential additional sources to supplement flow should water demand increase due to development in the Western Lehigh service area or a potential large industrial user.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-58
Project Name	CENTRAL LEHIGH SYSTEM SUPPLY IMPROVEMENTS

Prior Project Cost	$ -
Estimated Project Costs :	**2023-2028**
LCA Staff	$ 40,000
Land Acquisition	$ -
Construction/Equipment	$ 1,480,000
Professional Services	$ 130,000
Other	$ -
Contingencies	$ 100,000
Total Project Cost	**$ 1,750,000**

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

Requested in this Capital Program	**$ 1,650,000**

		Need	**Phase of Work**
2023 Budget		$ 100,000	Planning, preliminary design
1st Year	2024	$ 150,000	Design
2nd Year	2025	$ 1,000,000	Construction
3rd Year	2026	$ 500,000	Construction
4th Year	2027		
5th Year	2028		

WASTEWATER

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
WASTEWATER
5-YEAR CAPITAL PLAN
2024–2028

CAPITAL FINANCING JUSTIFICATION

Capital additions to the Wastewater System are justified by calculating the operating cash available based upon projections of revenues over the five-year period. Beyond the operating cash available, remaining sources are project reserves from previous debt issuance and any new borrowing required.

The table below summarizes the capital project sourcing by year and each major financial sourcing category:

CAPITAL FINANCING SOURCES						
	2024	**2025**	**2026**	**2027**	**2028**	**TOTAL**
Project Costs	$11,067,500	$13,182,500	$5,487,500	$1,832,500	$2,047,500	$33,617,500
Sources of Funding:						
Current Cash Flows	$3,892,500	$5,432,500	$5,487,500	$1,832,500	$2,047,500	$18,692,500
Cash Reserves	-	-	-	-	-	-
New Borrowing	$7,175,000	$7,750,000	-	-	-	$14,925,000
TOTAL FUNDING	**$11,067,500**	**$13,182,500**	**$5,487,500**	**$1,832,500**	**$2,047,500**	**$33,617,500**

Total spending on capital projects for the five-year period totals $33,617,500. Current cash flows and cash reserves over the period will provide $18,692,500 for capital projects. New borrowing will provide $14,925,000 of project funding. This approach is recommended to allow for continued growth of reserves, which will be needed in the future as additional projects are incorporated into the plan as a result of the regional Act 537 Plan that is currently under development. 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.

Revenue requirements will also be impacted by inflation for both the WLI group along with other users of the system. Signatory Revenue increases by year to support the capital plan are as follows:

Year 2022 4.3%

Year 2023 9.7%

Year 2024 0.5%

Year 2025 1.9%

Year 2026 1.9%

CONDENSED CASH FLOW - SUBURBAN WASTEWATER					
Dollars	**2024**	**2025**	**2026**	**2027**	**2028**
User Charges	19,695,941	21,596,738	21,702,286	22,117,000	22,541,156
Other Operating Revenues	251,596	251,596	251,596	251,596	251,596
Non-Operating Revenues	1,755,296	1,755,296	1,755,296	1,755,296	1,755,296
Operating expenses	(14,346,603)	(14,777,002)	(15,220,313)	(15,676,923)	(16,147,230)
Debt Service - Current Debt	(727,928)	(727,928)	(727,928)	(727,928)	(727,928)
Debt Service - NEW Debt	(466,744)	(970,893)	(970,893)	(970,893)	(970,893)
Investments Converting to Cash	-	-	-	-	-
Proceeds From NEW Debt	7,175,000	7,750,000	-	-	-
Capex	(11,516,250)	(13,257,500)	(5,562,500)	(1,895,000)	(2,110,000)
NET FUND FLOWS	**1,820,308**	**1,620,307**	**1,227,544**	**4,853,148**	**4,591,997**
User Charge Revenue Increase %	4.3%	9.7%	0.5%	1.9%	1.9%
Unrestricted Cash Balance	11,838,735	13,459,042	14,686,585	19,539,734	24,131,731
Unrestricted Investments	7,084,095	7,084,095	7,084,095	7,084,095	7,084,095
Total Unrestricted Balances	18,922,830	20,543,137	21,770,680	26,623,829	31,215,826
Unrestricted Cash - Days on Hand	301	332	352	455	545
DEBT SERVICE COVERAGE RATIO	6.16	5.20	5.00	4.97	4.95

Sourcing of Projects and Debt Service related to various systems is as follows:

BY SYSTEM	PROJECTS	TOTAL	CURRENT CASH FLOWS	RESERVES	NEW DEBT
Annual Projects	SA	$3,472,500	$3,472,500	-	-
Western Lehigh Interceptor	S3, S7, S9, S12, S13, S24, S28	$19,805,000	$5,880,000	-	$13,925,000
LCA Wastewater Treatment Plant	S22	$6,000,000	$5,000,000	-	$1,000,000
Common Rate Collector Systems	S6, S10, S17, S18, S19	$1,040,000	$1,040,000	-	-
Arcadia West	S8	$350,000	$350,000	-	-
Lynn Township	S25, S26	$850,000	$850,000	-	-
Little Lehigh Relief Interceptor System	S15	$2,100,000	$2,100,000	-	-
	TOTAL	**$33,617,500**	**$18,692,500**	**-**	**$14,925,000**

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2024-2028 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	Prj. Category	(1) Prj. 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										
	Annual										
SD-S-A	Annual Projects	AM - Varies	LCA	A	$ 332,500	$ 912,500	$ 747,500	$ 732,500	$ 482,500	$ 597,500	$ 3,472,500
	Subtotal				**$ 332,500**	**$ 912,500**	**$ 747,500**	**$ 732,500**	**$ 482,500**	**$ 597,500**	**$ 3,472,500**
	Pretreatment Plant										
SD-S-22	Pretreatment Plant Capital Improvements	AM - Varies	LCA	A	$ 750,000	$ 1,000,000	$ 1,100,000	$ 1,200,000	$ 1,300,000	$ 1,400,000	$ 6,000,000
	Subtotal				**$ 750,000**	**$ 1,000,000**	**$ 1,100,000**	**$ 1,200,000**	**$ 1,300,000**	**$ 1,400,000**	**$ 6,000,000**
	Western Lehigh Interceptor										
SD-S-3	Central Lehigh County WW Capacity Planning & Expansion	New Cust	LCA	V	$ 325,000	$ 350,000	$ 250,000	$ 50,000	$ -	$ -	$ 650,000
SD-S-7	WLI Major Rehabilitation and Repairs	Regulatory	LCA	P	$ 200,000	$ 250,000	$ 3,750,000	$ 3,000,000	$ -	$ -	$ 7,000,000
SD-S-9	Spring Creek Force Main Condition Assessment	AM-High	LCA	S	$ 100,000	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
SD-S-12	Spring Creek Pump Station Upgrades	AM-High	LCA	D	$ 100,000	$ 1,000,000	$ 430,000	$ -	$ -	$ -	$ 1,430,000
SD-S-13	Spring Creek Force Main Relocation	Regulatory	LCA	D	$ 50,000	$ 100,000	$ 1,100,000	$ -	$ -	$ -	$ 1,200,000
SD-S-24	Signatory I & I Investigation & Remediation Program	Regulatory	LCA	V	$ 1,700,000	$ 1,000,000	$ 500,000	$ -	$ -	$ -	$ 1,500,000
SD-S-28	Upper Western Lehigh Interceptor Pump Station & Force Main	Regulatory	LCA	A	$ 250,000	$ 3,500,000	$ 4,000,000	$ 250,000	$ -	$ -	$ 7,750,000
	Subtotal				**$ 2,725,000**	**$ 6,350,000**	**$ 10,030,000**	**$ 3,300,000**	**$ -**	**$ -**	**$ 19,680,000**
	Satellite Systems										
SD-S-6	Wynnewood I & I Investigation & Remediation Program	AM - Varies	LCA	V	$ 25,000	$ 125,000	$ 25,000	$ -	$ -	$ -	$ 150,000
SD-S-8	Arcadia West WWTP Mechanical Screen	Efficiency	LCA	P	$ 100,000	$ 75,000	$ 275,000	$ -	$ -	$ -	$ 350,000
SD-S-10	North Whitehall Township Act 537 Sewage Facilities Planning	Regulatory	LCA	V	$ -	$ 70,000	$ 80,000	$ 30,000	$ -	$ -	$ 180,000
SD-S-17	Heidelberg Heights I & I Investigation & Remediation Program	AM - Varies	LCA	V	$ 350,000	$ 100,000	$ 100,000	$ 50,000	$ 25,000	$ 25,000	$ 300,000
SD-S-18	Heidelberg Heights WWTP Rehabilitation	AM - High	LCA	P	$ 250,000	$ 160,000	$ -	$ -	$ -	$ -	$ 160,000
SD-S-19	Sand Spring WWTP improvements	Regulatory	LCA	P	$ -	$ 100,000	$ 100,000	$ 50,000	$ -	$ -	$ 250,000
SD-S-25	Lynn Township WWTP Improvements	AM - High	LCA	P	$ 10,000	$ 500,000	$ 100,000	$ 100,000	$ -	$ -	$ 700,000
SD-S-26	Lynn Township I & I Investigation & Remediation Program	AM - High	LCA	V	$ 50,000	$ 50,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 150,000
	Subtotal				**$ 785,000**	**$ 1,180,000**	**$ 705,000**	**$ 255,000**	**$ 50,000**	**$ 50,000**	**$ 2,240,000**
	Little Lehigh Relief Interceptor System										
SD-S-15	Park Pump Station Upgrade - Phase 2	AM - High	LCA	C	$ 1,500,000	$ 1,800,000	$ 300,000	$ -	$ -	$ -	$ 2,100,000
	Subtotal				**$ 1,500,000**	**$ 1,800,000**	**$ 300,000**	**$ -**	**$ -**	**$ -**	**$ 2,100,000**
	GRAND TOTAL WASTEWATER PROJECTS				**$ 6,092,500**	**$ 11,242,500**	**$ 12,882,500**	**$ 5,487,500**	**$ 1,832,500**	**$ 2,047,500**	**$ 33,492,500**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents. All projects are LCA funded.
(2) If blank , cost is not applicable (annual project) or to be determined

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

Project Name	ANNUAL PROJECTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-A
Location	LCA WLI facilities located in various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Efficiency	**Preparer**		CEV

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

Additional Information				
Expected Useful Life (Years)	N/A		**Project inception date**	N/A
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	No			

Detailed Project Description

This is a consolidated annual project that has been previously listed as separate smaller annual projects. The consolidated project includes the following: Mobile Equipment, Sewer Company Acquisitions, Other Equipment, SCADA System Upgrades, Wastewater Facility Asset Management Upgrades, General Sewer System Improvements, and development related service connections and extensions.

Project Drivers and Needs to be Met by the Project

Asset management, efficiency, and improved service are the primary project drivers. Annual improvements help maintain the operation and satisfactory level of service of various wastewater facilities in the Suburban Division.

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

This is an annual project.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

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

Prior Project Cost	
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 500,000
Land Acquisition	$ -
Construction/Equipment	$ 2,865,000
Professional Services	$ 330,000
Other	$ 10,000
Contingencies	$ 100,000
Total Project Cost	**$ 3,805,000**

Requested in this Capital Program	**$ 3,472,500**

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

		Need	**Phase of Work**
2023 Budget		$ 332,500	procurement, planning, design & construction
1st Year	2024	$ 912,500	procurement, planning, design & construction
2nd Year	2025	$ 747,500	procurement, planning, design & construction
3rd Year	2026	$ 732,500	procurement, planning, design & construction
4th Year	2027	$ 482,500	procurement, planning, design & construction
5th Year	2028	$ 597,500	procurement, planning, design & construction

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

Project Name	CENTRAL LEHIGH COUNTY WASTEWATER CAPACITY PLANNING & EXPANSION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-3
Location	Western Lehigh LCA Service Area tributary to the AD WWTP			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Rev Opprt	**Preparer**		PMD

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

Additional Information			
Expected Useful Life (Years)	30	**Project inception date**	2009
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project has evolved over the past 15 years, starting with the EPA Administrative Orders being issued in 2007 and 2009. In 2010, DEP enacted a Connection Management Plan on the Western Lehigh Interceptor (WLI) - known as the "SCARP" (Sewer Capacity Assurance and Rehabilitation Program). LCA initiated its own version of Act 537 during 2013-2016, with DEP ultimately saying "do not submit". With a commitment to a flow characterization study and a Regional Flow Management Strategy (RFMS), the EPA lifted both AOs in 2019. During this time period, the Region experienced an abnormal rainfall pattern that lasted from August 2018 through July 2019. This caused a Chapter 94 violation at the Kline's Island WWTP, which forced DEP to place the entire system under Act 537 Planning. This Plan is due to DEP by March 2025.

Project Drivers and Needs to be Met by the Project

This project includes the LCA Suburban portion of the engineering analysis required for the Regional Act 537 Plan development.

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

Various forms of engineering analysis on the Western Lehigh Interceptor and the LCA Pretreatment Plant (PTP) has occurred since 2007. Most recently with the DEP Act 537 Plan mandate, long term solutions for the WLI and the PTP need to be addressed for inclusion into the Regional Plan. All engineering analyses related to the Act 537 mandate are nearing completion.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-S-3
Project Name	CENTRAL LEHIGH COUNTY WASTEWATER CAPACITY PLANNING & EXPANSION

Prior Project Cost		$ 600,000
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	150,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	700,000
Other	$	-
Contingencies	$	125,000
Total Project Cost	**$**	**1,575,000**

Requested in this Capital Program	**$ 650,000**

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

		Need	**Phase of Work**
2023 Budget		$ 325,000	537 Planning
1st Year	2024	$ 350,000	537 Planning
2nd Year	2025	$ 250,000	537 Planning
3rd Year	2026	$ 50,000	537 Planning
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	WYNNEWOOD INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-6
Location	WWD, North Whitehall Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Regulatory	**Preparer**		JP

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2019
Approx. No. of Customers Benefitted	219		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

In 2020, LCA completed updated CCTV inspection condition assessment of the sanitary sewer collection system. This data was used in identifying problem areas, which typically consist of cracked pipes, offset joints, protruding lateral taps, root intrusion, etc. LCA will begin implementing repair/remediation measures to eliminate excess wet weather flow into the Wynnewood Terrace sanitary sewer system, located in North Whitehall Township. A construction project to rehabilitate identified problem areas in the sewage collection system will commence in 2024 and conclude in 2025.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are: asset management, maintain the level of service, avoid regulatory violations due to peak wet weather flows, and reduce system operation cost. During wet-weather events, excess flows create capacity problems at the wastewater treatment plant and drive operating costs higher. Removal of wet weather I/I will reduce treatment costs, avoid hydraulic overloads, and reclaim capacity for utilization by potential new customers.

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

A "Test & Seal" project was completed in the Wynnewood Terrace sanitary sewer system in 2016, however, wet weather flows have remained a problem. An updated system-wide CCTV inspection condition assessment was completed in 2020 that was used to identify problem locations and scope out necessary repairs. Capital plan cost is to perform system spot repairs. Periodic CCTV inspection updates are required as a follow up in later years to track system condition and identify problems.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Reducing inflow and infiltration should result in electrical savings by reducing volume of wastewater to pump. However, it is difficult to quantify the amount of flow reduction and therefore electrical savings. Exact costs to be determined.

Project No.	SD-S-6
Project Name	WYNNEWOOD INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM

Prior Project Cost		$20,000
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	10,000
Land Acquisition	$	-
Construction/Equipment	$	125,000
Professional Services	$	20,000
Other		
Contingencies	$	20,000
Total Project Cost	**$**	**195,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 25,000	planning
1st Year	2024	$ 125,000	construction
2nd Year	2025	$ 25,000	construction
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	WESTERN LEHIGH INTERCEPTOR REHABILIATION AND REPAIRS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-7
Location	Western Lehigh LCA Service Area tributary to the AD WWTP			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	AM - High	**Preparer**		CV/JP

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2022
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	No		

Detailed Project Description

This project is a result of continued planning and investigatory work in the Western Lehigh Interceptor (WLI) service area. The project scope includes inflow and infiltration investigation and remediation of sanitary sewer manholes and interceptor main line, in order to extend service life and seal the system from wet weather I/I, with the ultimate objective of demonstrating additional conveyance capacity for the WLI area. The work includes testing and sealing pipe joints, internal lining of damaged sewer main line, flood-proofing manholes, replacing manhole frames and covers, structural manhole repairs, and sealing of manhole interiors. In 2025, the focus shifts to performing a test and seal project downstream of Spring Creek Pump Station (all the way to Park Pump Station).

Project Drivers and Needs to be Met by the Project

The primary project driver is regulatory. The in-progress regional Act 537 planning required by DEP has mandated implementation of I/I source removal work to mitigate Trexlertown area capacity problems. Repairing and sealing leaky sewerage system components will not only service to comply with the I/I reduction mandate, but also align with LCA's strategic plan for implementing a comprehensive asset management program.

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

A "Test & Seal" project was performed in the WLI service area in 2016 and 2017 to investigate and mitigate leaking interceptor pipe joints. Follow-up CCTV inspection was conducted in 2018 to identify problems following peak weather events. Repair of leaking end seals was completed in 2018 for interceptor sections that were previously lined in sections that experienced liner separation at manholes. In 2020, 2021, 2022, and 2023 annual manhole flood proofing and related external repairs were performed. Future rehabilitation work will be prioritized based on continued inspection and investigation efforts.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Reducing inflow and infiltration in the WLI sewer area is a regulatory requirement to eliminate dry and wet weather overflows

Project No.	SD-S-7
Project Name	WESTERN LEHIGH INTERCEPTOR REHABILIATION AND REPAIRS

Prior Project Cost	
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 100,000
Land Acquisition	$ -
Construction/Equipment	$ 6,000,000
Professional Services	$ 600,000
Other	
Contingencies	$ 500,000
Total Project Cost	**$ 7,200,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 200,000	Planning and design
1st Year	2024	$ 250,000	Design and construction
2nd Year	2025	$ 3,750,000	Design and construction
3rd Year	2026	$ 3,000,000	Design and construction
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	ARCADIA WEST WWTP MECHANICAL SCREEN						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-8
Location	AWD, Weisenberg Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	22		
Is this System part of a Common User Rate?	No	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

Serves Arcadia West Industrial Park, West Hills Business Center, NW Lehigh SD Elementary School.

Detailed Project Description

The project involves the installation of an automatic mechanical screen and associated components at the influent end (headworks) of the Arcadia West Industrial Park Wastewater Treatment Plant, located in Weisenberg Township. A mechanical screen operates in an automatic mode to remove bulky debris from the influent wastewater at plant. The debris is dewatered and conveyed to a trash container or small dumpster.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are: increased operational efficiency, system improvement and reduce operation costs. There is currently no means to automatically remove the inorganic debris (rags, wipes, plastics, etc.) from the facility's influent waste stream. This bulky material clogs pumps and periodically accumulates on and fouls downstream process equipment (such as pump floats, piping, and air diffusers). Removal of this material requires manual effort (often in difficult and dangerous access locations) and sometimes complete tank draining (which increases operational costs). A mechanical screen will improve facility operation by removing the rags and other inorganic debris from the influent plant flow and should reduce operational costs.

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

An internal investigation was performed to determine if the comminutor performance can be optimized to decrease the debris accumulation, which proved to be unscuccessful. Rags and wipes have been plaguing the plant for years (likely from one or more of the connected industries) and should be removed from the waste stream. The preferred alternative to removing the rags and resolving the problem is a mechanical screen. The screen project will be designed in 2023 and constructed in 2024 - 2025.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

The mechanical screen will increase operational costs marginally mainly due to electrical power and debris disposal. However, the increase in operational costs will be offset by a decrease in staff costs associated with not having to periodically remove rags and inorganic debris that currently are not screened from the waste stream and clog downstream pumps and accumulate on mechanical and instrumentation equipment. Exact costs to be determined.

Project No.	SD-S-8
Project Name	ARCADIA WEST WWTP MECHANICAL SCREEN

Prior Project Cost		0
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	300,000
Professional Services	$	100,000
Other	$	-
Contingencies	$	30,000
Total Project Cost	**$**	**450,000**

Requested in this Capital Program	**$**	**350,000**

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

		Need	**Phase of Work**
2023 Budget		$ 100,000	design
1st Year	2024	$ 75,000	final design, permitting & bidding
2nd Year	2025	$ 275,000	construction
3rd Year	2026		
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	SPRING CREEK FORCE MAIN CONDITION ASSESSMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-9
Location	WLI, various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM High	**Secondary**	Sys Imp	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	TBD	**Project inception date**	2019
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	No		

**= The Spring Creek Force Main provides service to 7 WL signatories.

Detailed Project Description

The Spring Creek Force Main was installed in two phases. The first section was installed in 1995 and an extension to Little Lehigh Parkway was installed in 2004. A broadband electromagnetic (BEM) test will be conducted in 2023 at locations where gas pockets are found to determine remaining wall thickness and assess the remaining useful life of the force main before scoping a repair, rehabilitation, or replacement project. Pipeline rehabilitation work may follow but the scope and cost of that work is not known at this time.

Project Drivers and Needs to be Met by the Project

Asset management is the primary driver for this project. The Spring Creek Pump Station and Force Main is an integral part of the Western Lehigh service area. It is essential to perform necessary rehabilitation of the force main to extend the service life of the infrastructure, restore level of service, and mitigate the risk of a catastrophic failure.

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

Access points for investigation of key sections of the force main were identified in early 2023. Pipe investigation will commence in late 2023.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-9
Project Name	SPRING CREEK FORCE MAIN CONDITION ASSESSMENT

Prior Project Cost		0
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	10,000
Land Acquisition	$	-
Construction/Equipment	$	20,000
Professional Services	$	170,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**250,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 100,000	investigation and study
1st Year	2024	$ 150,000	investigation and study
2nd Year	2025	$ -	
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	NORTH WHITEHALL TOWNSHIP ACT 537 SEWAGE FACILITIES PLANNING						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-10
Location	Weisenberg, Lowhill, and Upper Milford Townships			**Prj. Type**	Regular	**Prj. Funding**	LCA/NWT
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**Preparer**		PD

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

Additional Information			
Expected Useful Life (Years)	30	**Project inception date**	2022
Approx. No. of Customers Benefitted	TBD		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2028
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project involves the development of an Act 537 Sewage Facilities Plan for North Whitehall Township, and is a coordinated effort between the township and LCA. The project will incorporate regional sewer facilities planning concepts to evaluate the feasibility of consolidation of small wastewater treatment plants that currently serve separate small sewer districts/developments.

Project Drivers and Needs to be Met by the Project

The primary driver for this project is regulatory. The Township lacks an up to date Act 537 Sewage Facilities Plan, which provides a roadmap for addressing sewage needs and accommodating growth. Numerous small sewer systems with small wastewater plants exist in the township, and updated Act 537 planning is needed to address future sewage treatment capacity needs.

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

A cost sharing agreement was executed between LCA and North Whitehall Township in 2023. The township intends to solicit for and retain a planning consultant in 2023.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-10
Project Name	NORTH WHITEHALL TOWNSHIP ACT 537 SEWAGE FACILITIES PLANNING

Prior Project Cost		0
Estimated Project Costs:		**2023-2028**
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	150,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**180,000**

Requested in this Capital Program	**$**	**180,000**

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

		Need	**Phase of Work**
2023 Budget		$ -	
1st Year	2024	$ 70,000	planning
2nd Year	2025	$ 80,000	planning
3rd Year	2026	$ 30,000	planning
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	SPRING CREEK PUMP STATION UPGRADES						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-12
Location	WLI, various municipalities			**Prj. Type**	regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		ALK

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2023
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	No		

Detailed Project Description

The Spring Creek Pump Station and force main were constructed in the mid-1990s to provide wet weather relief to the Western Lehigh Interceptor (WLI). As dry and weather flows have increased over the years due to community growth and inflow and inflitration (I&I), the station operates daily and is a critical component of the WLI system. The upgrade project consists of replacing the VFDs, mini power system, and the upstream weir gate, installing a new gate in the interceptor channel, and improvements to the access hatches and dry well ventilation system.

Project Drivers and Needs to be Met by the Project

The primary drivers are asset management, efficiency and maintain level of service.

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

In 2019 an upgrade project was completed at the station which consisted of installation of a comminutor (grinder), downstream weir gate, gate actuators, ultrasonic level detectors, and new PLCs with SCADA upgrades. An electrical assessment was completed in 2023. Equipment that was determined to be in poor condition were incorporated into this project. The design engineer was selected in mid-2023, and design phase is to be substantially completed by the end of 2023.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-12
Project Name	SPRING CREEK PUMP STATION UPGRADES

Prior Project Cost		15,000
Estimated Project Costs:		**2023-2028**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,300,000
Professional Services	$	120,000
Other		
Contingencies	$	60,000
Total Project Cost	**$**	**1,545,000**

Requested in this Capital Program	**$**	**1,430,000**

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

		Need	**Phase of Work**
2023 Budget		$ 100,000	design
1st Year	2024	$ 1,000,000	construction
2nd Year	2025	$ 430,000	construction
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

PROJECT DETAIL SHEET

Project Name	SPRING CREEK FORCE MAIN RELOCATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-13
Location	WLI, various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	N/A	**Secondary**	Sys Imp	**Preparer**		ALK

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

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	Yes		

Detailed Project Description

The Lower Macungie Road bridge that spans the PA Turnpike is being relocated as part of the Turnpike widening project. The Spring Creek Force Main is located adjacent to Lower Macungie Road and crosses the Turnpike in direct conflict with the new bridge. Approximately 2,200 LF of force main will need to be relocated. Design and construction will be incorporated into PennDOT's road realignment and bridge construction project. A 50/50 cost sharing agreement will be entered in to with the PA Turnpike commission, and LCA's share will be due following project completion in 2025.

Project Drivers and Needs to be Met by the Project

The Highway project requires the adjustment and relocation of the Spring Creek Force Main.

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

The project is being designed by Gannett Fleming, engineer for the Lower Macungie Road realignment. The project will is anticipated to be adverised for bid in May 2024.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-13
Project Name	SPRING CREEK FORCE MAIN RELOCATION

Prior Project Cost	20,000
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 30,000
Land Acquisition	$ -
Construction/Equipment	$ 1,000,000
Professional Services	$ 150,000
Other	
Contingencies	$ 70,000
Total Project Cost	**$ 1,270,000**

Requested in this Capital Program	**$ 1,200,000**

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

		Need	**Phase of Work**
2023 Budget		$ 50,000	Design
1st Year	2024	$ 100,000	Design and Construction
2nd Year	2025	$ 1,100,000	Construction
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	PARK PUMP STATION UPGRADE - PHASE 2						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-15
Location	LLRI-1, City of Allentown			**Prj. Type**	AO	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Regulatory	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2016
Approx. No. of Customers Benefitted	**		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2024
Will the Project Require Obtaining Land Rights	No		

**= The Park Pump Station provides service to 7 WLI signatories and 3 of City signatories.

Detailed Project Description

Phase 1 improvements to the pump station included replacement of the existing pumps, suction and discharge side valves, pump speed controllers, motor control center (MCC) panel, SCADA system, wet well level instrumentation, building roof and force main drain valve. Also included are miscellaneous structural, HVAC and other improvements as outlined in Option 3 of the March 21, 2016 Park Pump Station Evaluation Technical Memorandum prepared by Arcadis. Construction of Phase 1 was completed in early 2020. Phase 2 of the station upgrade consists of replacement of the original backup diesel generator, which is nearing the end of its service life and slightly undersized for the upgraded station. The replacement unit with be natural gas powered, which will eliminate the need for diesel fuel storage in the environmentally sensitive area.

Project Drivers and Needs to be Met by the Project

Asset management is the primary driver for this project. Park Pump Station is a critical component of the sewerage infrastructure network in the region, serving ten municipalities. Its operation is critical to conveying wet weather flows and normal day flows, and significantly impacts the operation of Allentown's wastewater treatment plant at Kline's Island. The improvements are needed to restore the station to its design capacity, maintain level of service and extend service life into the foreseeable future.

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

An Evaluation Technical Memorandum was prepared by Arcadis which assessed various options for continued operation of the pump station. The recommendations outlined in Option 3 of the Memorandum were selected to improve the reliability and capacity of the pump station through 2025. The Phase 1 upgrade design was completed in late 2017, the project was bid in early 2018, construction phase commenced in mid-2018 and the project was completed in early 2020. Design and bidding of the replacement generator was completed in mid-2022. A long lead time for the generator pushed construction to mid-2024. Since no bids were received for the General/Site Work portion of the project, that contract will be rebid closer to the expected delivery of the generator.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

A new generator will insure station operation reliability and enhance resiliency in event of a catastrophic event that results in an extended period of electrical power outage. The long term cost of ownership of a natural gas versus a diesel generator is comparable and a triple bottom line analysis revealed that natural gas is preferable.

Project No.	SD-S-15
Project Name	PARK PUMP STATION UPGRADE - PHASE 2

Prior Project Cost	$ 4,000,000
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 50,000
Land Acquisition	$ -
Construction/Equipment	$ 3,100,000
Professional Services	$ 200,000
Other	$ 50,000
Contingencies	$ 200,000
Total Project Cost	**$ 7,600,000**

Requested in this Capital Program	**$ 2,100,000**

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

		Need	**Phase of Work**
2023 Budget		$ 1,500,000	construction
1st Year	2024	$ 1,800,000	construction
2nd Year	2025	$ 300,000	
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	HEIDELBERG HEIGHTS INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-17
Location	HHD, Heidelberg Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	AM-high	**Preparer**		JP

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2016
Approx. No. of Customers Benefitted	145		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2027
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project includes investigative and rehabilitative work to address wet weather inflow and infiltration (I/I), and is part of the Corrective Action Plan implementation within the DEP Consent Order and Agreement. Rehabilitative work includes replacement of all original vitrified clay pipe (VCP) sewer main, VCP sewer lateral replacement, manhole replacement, manhole sealing, cleanout installation on laterals, and private side investigation and remediation. It is assumed that the annual construction projects will be designed, managed and bid in-house.

Project Drivers and Needs to be Met by the Project

The primary driver for this project is regulatory. In 2020 LCA executed a Consent Order and Agreement with DEP that memorializes an implementation schedule to perform annual investigation and rehabilitation work on the sanitary sewer system in order to eliminate DEP violations from wet weather overflows, bypasses, and treatment plant effluent limit exceedance events. Historical flows into the wastewater treatment plant have been 3 to 4 times the plant capacity during peak weather events. Mitigation of the compliance issues requires elimination of excess inflow and infiltration into the sewage collection system.

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

Updated CCTV system inspection was performed in 2017 to document I/I problem areas. In 2018 the replacement of 54 laterals and 1,070 linear-feet of sewer main was completed on Glen Court. In 2019 the replacement of 25 laterals and 1,100 linear feet of sewer main was completed along Heidelberg Heights Road. In 2020 the replacement of 18 laterals and 850 linear feet of sewer main was completed along Lake View Street. In 2021 the replacement of 18 laterals and 700 linear feet of sewer main was completed along Thompson St. The remaining sections of original VCP sewer mains and laterals were replaced in 2022 and 2023. Rehabilitation work beyond 2023 will focus private side sewer system inspection and rehabilitation and follow-up flow monitoring work.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Reducing excess inflow/infiltration will reduce occurrence of overflows/bypasses at the wastewater treatment plant, facilitate continued compliance with PaDEP, and save staff time and money. It is difficult to quantify potential savings with varying intensity storms and fluctuating groundwater levels.

Project No.	SD-S-17
Project Name	HEIDELBERG HEIGHTS INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM

Prior Project Cost		1,000,000
Estimated Project Costs:		**2023-2028**
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	400,000
Professional Services	$	150,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**1,650,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 350,000	construction
1st Year	2024	$ 100,000	private side investigation, administration & construction
2nd Year	2025	$ 100,000	private side investigation, administration & construction
3rd Year	2026	$ 50,000	private side investigation, administration & construction
4th Year	2027	$ 25,000	private side investigation, administration & construction
5th Year	2028	$ 25,000	private side investigation, administration & construction

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

Project Name	HEIDELBERG HEIGHTS WWTP REHABILITATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-18
Location	HHD, Heidelberg Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	145		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This is a multi-year project to provide needed upgrades at the Heidelberg Heights wastewater treatment plant. The current project is the installation of a mechanical screen at the headworks of the plant (2023 - 2024 installation) to remove rags and other inorganic material. Future projects include installation of an expanded catwalk grating system above the elevated SBR tanks in order to improve maintenance access, canopy roof constructed over the SBR tanks, and miscellaneous equipment upgrade/replacement.

Project Drivers and Needs to be Met by the Project

The primary project drivers are efficiency, asset management and safety. An expanded catwalk grating system above the SBR tanks will improve maintenance access and operator safety. A mechanical screen will remove bulky inorganics and rags from the influent waste stream and thereby extend downstream pump life and reduce maintenance problems caused by accumulation of rags and debris. A canopy roof over the SBR tanks will eliminate the problem of fallen debris accumulation in the open tanks (leaves, nuts, branches).

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

The steel SBR tanks were cleaned and painted in 2016. Rehabilitation of the 40+ year old steel EQ/sludge holding tank was completed early 2019. Design of the mechanical screen project was completed in 2022 with construction to be substantially completed by early 2024.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-18
Project Name	HEIDELBERG HEIGHTS WWTP REHABILITATION

Prior Project Cost		$ 40,000
Estimated Project Costs:		**2023-2028**
LCA Staff		$ 10,000
Land Acquisition		$ -
Construction/Equipment		$ 350,000
Professional Services		$ 40,000
Other		
Contingencies		$ 10,000
Total Project Cost		**$ 450,000**

Requested in this Capital Program	**$ 160,000**

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

		Need	
2023 Budget		$ 250,000	construction
1st Year	2024	$ 160,000	construction
2nd Year	2025	$ -	
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	SAND SPRING WWTP IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-19
Location	North Whitehall Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2017
Approx. No. of Customers Benefitted	258		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2026
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The original Sand Spring WWTP was built in the early 1970s to serve an apartment complex and adjacent commercial uses in North Whitehall Township. LCA acquired the Sand Spring WWTP in 2005 from the developer. The old steel tank plant was replaced in entirety by LCA and new plant put on line in 2021. A new warehouse development was connected to the Sand Spring sanitary sewer system around the same time as the startup of the new plant, and operational problems ensued due to changed hydraulic and organic loading conditions. This resulted in DEP permit violations and a potential future Consent Order and Agreement to be executed between LCA and DEP. This project includes structural and non-structural initiatives to restore the plant to NPDES permit compliance.

Project Drivers and Needs to be Met by the Project

The primary project driver is regulatory compliance.

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

LCA retained a third party engineering consultant in 2022 to perform a detailed Process Performance Evaluation of the plant. The Evaluation recommended short term and long term process improvement and rehabilitation options. Implementation of some of those options will commence in 2023.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-19
Project Name	SAND SPRING WWTP IMPROVEMENTS

Prior Project Cost	$ 3,800,000
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 25,000
Land Acquisition	$ -
Construction/Equipment	$ 60,000
Professional Services	$ 120,000
Other	
Contingencies	$ 25,000
Total Project Cost	**$ 4,030,000**

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

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

		Need	
2023 Budget		$ -	
1st Year	2024	$ 100,000	planning and process modifications
2nd Year	2025	$ 100,000	planning and process modifications
3rd Year	2026	$ 50,000	planning and process modifications
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	PRETREATMENT PLANT CAPITAL IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-22
Location	LCA Pretreatment Plant *(Industrial Blvd & Rt 100)*			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Sys Imp	**Preparer**		CEV

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

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

Provides pretreatment for industrial customers such as Boston Beer, Coca-Cola, Nestle Waters, Niagara, Ocean Spray, Bimbo and others.

Detailed Project Description

This capital project is a comprehensive on-going program to address the continued reliability and functionality of the LCA Wastewater Pre-treatment Plant. Planned projects include influent metering, belt filter press rebuilds, air deck mixer replacements (multi-year), solids processing buildings HVAC systems upgrade, primary clarifiers mechanical refurbish (multi-year), final clarifiers mechanical rehabilitation (multi-year), annual pavement rehabilitation, cryogenic plant control center modernization, and miscellaneous mechanical and electrical upgrades/replacements.

Project Drivers and Needs to be Met by the Project

The primary project drivers are asset management and system improvements. This facility is critical to the local economy and growth in the Western Lehigh sewer service area. Capital improvements are needed annually to maintain the level of service for the pretreatment facility, which has been in continuous operation since 1990, with significant equipment exposed to corrosive &/or severe duty conditions. The increased industrial loading rates experienced since the plant was placed into service drives the need for repairs, replacements and process modifications/optimization. The Capital Plan intends to maintain the reliability, performance, and structural integrity of the physical plant while maintaining economic viability.

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

A semi-annual program to rebuild the belt filter presses was started in 2015. Annual pavement reconstruction projects are performed on the main access routes used by the waste hauler trucks within the plant site to replace failed and deteriorated asphalt pavement with concrete pavement. The SCADA system and grease station projects were completed in 2019. Replacement of the cryogenic plant "B-Mac" compressor was completed in 2019, along with other capital improvements to the cryogenic plant. In 2020 and 2021 a project to modify the waste hauler station piping in order to pre-thicken the waste (prior to conveyance to the digesters) was completed, along with mechanical upgrades of the 3 digesters, pavement rehabilitation, and influent pump station upgrade. In 2022 and 2023 the mechanical screens in the plant headworks area were replaced. Also in 2023 air deck mixers were re-built, pavement reconstruction was performed in one of the waste hauler off-load areas, and VFDs were replaced for the influent pump station.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-22
Project Name	PRETREATMENT PLANT CAPITAL IMPROVEMENTS

Prior Project Cost	
Estimated Project Costs:	**2023-2028**
LCA Staff	$ 100,000
Land Acquisition	$ -
Construction/Equipment	$ 6,100,000
Professional Services	$ 350,000
Other	$ -
Contingencies	$ 200,000
Total Project Cost	**$ 6,750,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 750,000	planning, design & construction
1st Year	2024	$ 1,000,000	planning, design & construction
2nd Year	2025	$ 1,100,000	planning, design & construction
3rd Year	2026	$ 1,200,000	planning, design & construction
4th Year	2027	$ 1,300,000	planning, design & construction
5th Year	2028	$ 1,400,000	planning, design & construction

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

Project Name	SIGNATORY INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-24
Location	LCA WLI Sewer Service Area			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**Preparer**		PMD

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

Additional Information			
Expected Useful Life (Years)	NA	**Project inception date**	2009
Approx. No. of Customers Benefitted	WLI		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2026
Will the Project Require Obtaining Land Rights	No		

Provides service to 7 WLI signatories, the Borough of Emmaus & others.

Detailed Project Description

LCA provides the leadership, technical expertise and administration for coordinating the projects located within the Signatory sewer systems. The project included two major components: (1) Investigatory/planning work such as flow monitoring, the SCARP development, SSES, Level of Service Determination, Alternatives Analysis, etc., that are necessary to develop the best course of action to reduce I&I within the system(s). Much of this work has been completed. Part (2) - Design, permitting and the construction for rehabilitation of infrastructure that will be necessary to comply with recent PA DEP 537 directives. Annual engineering assistance for the Western Lehigh Sewer group is also included within this project.

Project Drivers and Needs to be Met by the Project

Throughout the 2010s, SSES work, flow monitoring and preliminary modeling work was completed to define the characteristics of the sewer basins and identify the leakiest basins with the Western Lehigh Sewer group. Now that DEP has re-engaged the Region, Act 537 Planning has restarted and efforts have been realigned to meet the March 2025 deadline.

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

From 2013-2016, investigation and preliminary alternatives analysis work was completed under the guidelines of Act 537. Flow monitoring and analysis also occurred in 2017, 2019 and 2020. The WLI model recalibration was completed in 2020 and an annual program to rehab WLI manholes was started in 2020. In 2023, a joint project with Upper and Lower Macungie was implemented to address some leaky lateral tap connections. A second round of lateral tap connections will be addressed in 2024.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-24
Project Name	SIGNATORY INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM

Prior Project Cost	**$**	**300,000**
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,400,000
Professional Services	$	600,000
Other	$	-
Contingencies	$	100,000
Total Project Cost	**$**	**3,500,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 1,700,000	Planning/Construction
1st Year	2024	$ 1,000,000	Planning/Construction
2nd Year	2025	$ 500,000	Planning/Construction
3rd Year	2026	$ -	
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	LYNN TOWNSHIP WWTP IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-25
Location	Lynn Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		CEV

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

Additional Information			
Expected Useful Life (Years)	40	**Project inception date**	2022
Approx. No. of Customers Benefitted	381		
Is this System part of a Common User Rate?	No	**Anticipated Project completion date**	2024
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The inception of this facility expansion project pre-dates LCA's acquisition of the Lynn Township sewer system and was originally planned by the Lynn Township Sewer Authority (LTSA) in accordance with the Lynn Township Act 537 Sewage Facilities Plan. The project involved the expansion of the WWTP capacity from 80,000 GPD to 160,000 GPD, in order to accommodate significant anticipated growth. Since that time the significant growth pressure has subsided, and Lynn Township was directed by DEP in 2019 to perform and update to their Act 537 Sewage Facilities Plan with updated growth projections. The updated growth projections in the upcoming township Act 537 Plan will be used to assess the urgency and magnitude of a future facility expansion project. This capital plan does not include a plant expansion; it reflects the addition of another final clarifier to supplement the single original final clarifier, followed by rehabilitation of the aeration system.

Project Drivers and Needs to be Met by the Project

Asset management, redundancy, and regulatory compliance are the primary project drivers for the addition of a second final clarifier. The existing 20' diameter tank has been in service 24/7 since the plant was put on line and is in need of rehabilitation. It is also undersized for current flows. A second final clarifier is critical to facilitate maintenance and asset management work on the original unit, and to supplement the original clarifier. Rehabilitation of the aeration system is critical for maintaining treatment efficiency and regulatory compliance. Timing of the WWTP expansion construction will be dependent upon long term capacity needs.

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

Final clarifier design work and construction bidding will be performed in 2023, with construction to be completed in 2024. Regarding a future plant expansion, the timing of that project is a function of updated township sewer planning and development pressure, and also contingent upon developer capacity charges to fund an expansion. Therefore, conceptual design and construction phase costs for a plant expansion are not reflected in this Capital Plan.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-25
Project Name	LYNN TOWNSHIP WWTP IMPROVEMENTS

Prior Project Cost		$ -
Estimated Project Costs:		**2023-2028**
LCA Staff		$ 20,000
Land Acquisition		$ -
Construction/Equipment		$ 570,000
Professional Services		$ 80,000
Other		
Contingencies		$ 40,000
Total Project Cost		**$ 710,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 10,000	design
1st Year	2024	$ 500,000	construction
2nd Year	2025	$ 100,000	procurement and construction
3rd Year	2026	$ 100,000	construction
4th Year	2027	$ -	
5th Year	2028	$ -	

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

Project Name	LYNN TOWNSHIP INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM						
Budget Area	Wastewater	**Department**		**Date**	7/1/2023	**Project No.**	SD-S-26
Location	LTD, Lynn Township Division			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	AM-high	**Preparer**		JMP

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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	381		
Is this System part of a Common User Rate?	No	**Anticipated Project completion date**	2028
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project is part of a DEP mandated Corrective Action Plan, and is intended to mitigate inflow and infiltration into the collection system during and after peak weather events and eliminate system overflows and treatment plant bypasses. Internal CCTV inspection of the majority of the sewage collection system and the inspection of manholes were performed in 2019, and the data was used to identify and target and repair locations in the Lynn Township sewage collection system. Capital rehabilitation projects were performed in 2019 - 2021 which included easement clearing, comprehensive manhole rehabilitation, and collection system repairs. Investigation and enforcement of illegal connections on the private side of the sewer system will be performed in moving forward.

Project Drivers and Needs to be Met by the Project

The primary project driver is regulatory, as the work is part of the DEP-mandated Corrective Action Plan to reduce occurrence and magnitude of wet weather peak flows at the WWTP that cause hydraulic overloads and bypasses. The purpose of the project is to mitigate extraneous flow into the system, maintain DEP compliance, and obtain additional sewer allocations for growth within Township sewer service area.

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

In 2017 a flow meter study was conducted throughout the system providing data on the areas contributing to excess wet weather flows. In 2018 a manhole inspection program was implemented, along with smoke testing at the Northwestern Lehigh School District campus. In 2019 repairs to the on-site sanitary sewer system were performed by the school district, and LCA performed numerous collection system spot repairs to abate significant system leaks. In 2019 an updated internal CCTV inspection of the entire sewage collection system was performed, along with easement clearing and stabilization. In 2020 - 2021 a manhole rehabilitation project repaired approx. 180 structures in the system. Public and private lateral inspections, illegal connection investigations, repairs, and enforcement will commence in 2024 to further address inflow and infiltration flows.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Reducing I/I flow should result in a reduction of treatment plant operating costs by reducing volume of wastewater that must be conveyed through the plant processes. It is difficult to quantify amount of extraneous flow to be removed, and therefore quantifying cost savings is difficult. Exact costs to be determined.

Project No.	SD-S-26
Project Name	LYNN TOWNSHIP INFLOW & INFILTRATION INVESTIGATION & REMEDIATION PROGRAM

Prior Project Cost		200,000
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	90,000
Professional Services	$	50,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**400,000**

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

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

		Need	**Phase of Work**
2023 Budget		$ 50,000	planning & investigation
1st Year	2024	$ 50,000	planning & investigation
2nd Year	2025	$ 25,000	planning & investigation
3rd Year	2026	$ 25,000	planning & investigation
4th Year	2027	$ 25,000	planning & investigation
5th Year	2028	$ 25,000	planning & investigation

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

Project Name	UPPER WESTERN LEHIGH INTERCEPTOR PUMP STATION & FORCE MAIN						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	7/1/2023	**Project No.**	SD-S-28
Location	WLI, Upper and Lower Macungie Townships			**Prj. Type**	AO	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**Preparer**		AK

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

Additional Information			
Expected Useful Life (Years)	100	**Project inception date**	2021
Approx. No. of Customers Benefitted	**		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2026
Will the Project Require Obtaining Land Rights	Yes		

**=The WLI system provides service to 7 WLI signatories.

Detailed Project Description

As identified in the Interim Act 537 plan approved by DEP in June 2021, conveyance capacity in the Trexlertown area of the Western Lehigh Interceptor was assigned a high priority due to sanitary surcharging and overflows in the vicinity. In late 2019, a study commenced to look at the possible solutions in this area: parallel interceptors, underground storage pipe, and an above ground storage tank. These alternatives indicated downstream impacts and long construction times. A third alternative was recommended by Upper Macungie Township to bypass pump 2.5 mgd of effluent from the Industrial Pretreatment plant flow to a downstream location in the Upper Macungie Township sewer interceptor which has capacity to handle the additional flows. The alternatives are documented in a Special Act 537 Study prepared at the request of DEP.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are regulatory and system improvement. Per the DEP approved Interim 537 Plan, action is required to alleviate the current sanitary sewer interceptor system bottleneck in the Trexlertown area. This project is intended to address dry-day surcharging and overflows, and allow for future growth.

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

A Special Interim Act 537 Study was prepared in 2022 as part of the Trexlertown Area Capacity Solution Alternatives project. This project is the recommended alternative identified in that study. Design phase commenced in 2022 and final design and permit procurement was substantially completed by mid-2023, with bid phase to follow in late 2023.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-28
Project Name	UPPER WESTERN LEHIGH INTERCEPTOR PUMP STATION & FORCE MAIN

Prior Project Cost		$100,000
Estimated Project Costs:	**2023-2028**	
LCA Staff	$	50,000
Land Acquisition	$	25,000
Construction/Equipment	$	7,400,000
Professional Services	$	250,000
Other		
Contingencies	$	175,000
Total Project Cost	**$**	**8,000,000**

Requested in this Capital Program	**$**	**7,750,000**

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

		Need	**Phase of Work**
2023 Budget		$ 250,000	Design and Permitting
1st Year	2024	$ 3,500,000	Construction
2nd Year	2025	$ 4,000,000	Construction
3rd Year	2026	$ 250,000	Construction
4th Year	2027		
5th Year	2028	$ -	