LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

FINAL 5-YEAR CAPITAL PLAN

SUBURBAN DIVISION

2021-2025

APPROVED APRIL 13, 2020

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2021-2025

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2021-2025 Capital Plan

Glossary of Acronyms & Terms

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

LCA Water and/or Wastewater Divisions/Systems

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

Project Type

Project Type	Description
AO	Prior Administrative Order/Current Regional Flow Management Strategy
UW	Uncompleted Work [(1)]
S-7-MCI	Schedule-7 *(Lease Required)* Major Capital Improvement[(2)]
LCA-MCI	LCA Developed Major Capital Improvement[(2)]
COL	Change of Law[(3)]
Regular	A project that does not fit in any of the aforementioned special categories

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

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

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

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
Master Plan	Master Plan
AM - Low	Asset Management - Low Risk
AM - Med	Asset Management - Medium Risk
AM - High	Asset Management - High Risk
AM - Varies	Asset Management - Varies[(1)]
Efficiency	Efficiency
Sys Imp	System Improvement
Rev 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
2021–2025

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						
	2021	**2022**	**2023**	**2024**	**2025**	**TOTAL**
Project Costs	$3,535,000	$4,772,000	$4,215,000	$3,868,000	$5,910,000	$22,300,000
Sources of Funding:						
Operating Reserves	$390,019	$987,116	$1,440,803	$1,943,753	$2,511,176	$7,272,867
Capital Reserves	$1,204,981	$2,904,884	$2,604,197	$1,924,247	$1,356,824	$9,995,133
New Borrowing	$1,940,000	$880,000	$170,000	$0	$2,042,000	$5,032,000
TOTAL FUNDING	**$3,535,000**	**$4,772,000**	**$4,215,000**	**$3,868,000**	**$5,910,000**	**$22,300,000**

Total spending on capital projects for the five-year period totals $22,300,000. Operating and capital reserves over the period will provide $17,268,000 for capital projects. New borrowing in the amount of $5,032,000 will provide the remaining funding required.

The $5,032,000 borrowing is to fund non-annual projects. To support the additional debt service worth 273,053 annually on the $5,032,000 borrowing and annual inflation on operating expenses, a revenue increase of 6.50% each year will be required.

CONDENSED CASH FLOW - SUBURBAN WATER					
Dollars	**2021**	**2022**	**2023**	**2024**	**2025**
User Charges	11,044,237	11,762,112	12,526,649	13,340,881	14,208,038
Other Operating Revenues	211,834	211,834	211,834	211,834	211,834
Non-Operating Revenues	771,367	936,500	936,500	936,500	936,500
Operating expenses	(7,628,117)	(7,933,241)	(8,250,571)	(8,580,594)	(8,923,818)
Debt Service - Current Debt	(3,341,564)	(3,341,564)	(3,341,564)	(3,341,564)	(3,341,564)
Debt Service - NEW Debt	(273,053)	(273,053)	(273,053)	(273,053)	(273,053)
Investments Converting to Cash	3,211,321	-	-	-	-
Proceeds From NEW Debt	5,032,000	-	-	-	-
Capex - Admin Paygo	(250,000)	(225,000)	(212,500)	(187,500)	(137,500)
Capex - Paygo	(1,595,000)	(3,892,000)	(4,045,000)	(3,868,000)	(3,868,000)
Capex - NEW Borrowing	(1,940,000)	(880,000)	(170,000)	-	(2,042,000)
NET FUND FLOWS	**5,243,025**	**(3,634,412)**	**(2,617,705)**	**(1,761,496)**	**(3,229,563)**
User Charge Revenue Increase %	6.50%	6.50%	6.50%	6.50%	6.50%
Operating Cash Balance	3,761,811	3,912,283	4,068,775	4,231,526	4,400,787
Days on Hand	180	180	180	180	180
Project Reserve Balance	12,184,968	8,400,084	5,625,887	3,701,640	302,816
DEBT SERVICE COVERAGE RATIO	1.22	1.38	1.50	1.63	1.78

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2021-2025 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	Prj. Category	(1) Prj. Funding	Approval Stage (1)	Plan Total Cost*	This Capital Program							Prior Project Cost (2)	Future Project Cost (2)	Total Project Cost
						2020 *Budget Approved*	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2021-2025 Total			
	Operating/Capital Reserve Funds														
SD-W-A	Annual Projects	AM - Varies	LCA	A	$ 9,340,500	$ 1,672,500	$ 1,595,000	$ 1,492,000	$ 1,645,000	$ 1,468,000	$ 1,468,000	$ 7,668,000	$ -	$ -	$9,340,500
SD-W-12	Water Main Replacement Projects	AM - Varies	LCA	P	$ 9,600,000	$ -	$ -	$ 2,400,000	$ 2,400,000	$ 2,400,000	$ 2,400,000	$ 9,600,000	$ -	$ -	$9,600,000
	Subtotal				**$ 18,940,500**	**$ 1,672,500**	**$ 1,595,000**	**$ 3,892,000**	**$ 4,045,000**	**$ 3,868,000**	**$ 3,868,000**	**$ 17,268,000**	**$ -**	**$ -**	**$ 18,940,500**
	New Borrowing Funds														
SD-W-4	Upper Milford Central Division Improvements - Buss Acres	AM - High	LCA	C	$ 2,300,000	$ 2,300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 210,600	$ -	$2,510,600
SD-W-37	Additional *(Redundant)* Water Supply - Small Satellite Divisions	Sys Imp	LCA	V	$ 870,000	$ 300,000	$ 570,000	$ -	$ -	$ -	$ -	$ 570,000	$ 91,100	$ -	$961,100
SD-W-49	CLD Auxiliary Pumping Station & Main Extension -	Sys Imp		C	$ 200,000	$ 200,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,446,800	$ -	$1,646,800
	Lower to Upper System	Sys Imp	LCA												$0
SD-W-50	Fixed Base Meter Reading System	Sys Imp		P	$ 920,000	$ 50,000	$ 400,000	$ 300,000	$ 170,000	$ -	$ -	$ 870,000	$ 20,000	$ -	$940,000
SD-W-51	North Whitehall Division Study	Sys Imp		P	$ 60,000	$ 50,000	$ 10,000	$ -	$ -	$ -	$ -	$ 10,000	$ -	$ -	$60,000
SD-W-52	Arcadia Water Tank Replacement	AM - High		P	$ 1,150,000	$ 100,000	$ 900,000	$ 150,000	$ -	$ -	$ -	$ 1,050,000	$ 12,000	$ -	$1,162,000
SD-W-53	Water Meter Reading Equipment Upgrade	AM - Med	LCA	C	$ 1,500,000	$ 1,500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,372,000	$ -	$3,872,000
SD-W-54	Central Lehigh to Upper Milford Division Interconnection	New Cust	Fees & LCA	C	$ 2,055,642	$ 2,055,642	$ -	$ -	$ -	$ -	$ -	$ -	$ 230,000	$ -	$2,285,642
SD-W-55	CLD Well Improvements Study	Sys Imp	LCA	S	$ 120,000	$ 60,000	$ 50,000	$ 10,000	$ -	$ -	$ -	$ 60,000	$ 10,500	$ -	$130,500
SD-W-56	CLD Distribution System Improvements Study	Sys Imp		S	$ 70,000	$ 60,000	$ 10,000	$ -	$ -	$ -	$ -	$ 10,000	$ 53,900	$ -	$123,900
SD-W-57	Water Meter Replacement Program	AM - Med	LCA	P	$ 2,462,000	$ -	$ -	$ 420,000	$ -	$ -	$ 2,042,000	$ 2,462,000	$ -	$ -	$2,462,000
	Subtotal				**$ 11,707,642**	**$ 6,675,642**	**$ 1,940,000**	**$ 880,000**	**$ 170,000**	**$ -**	**$ 2,042,000**	**$ 5,032,000**	**$ 4,446,900**	**$ -**	**$ 16,154,542**
	GRAND TOTAL				**$ 30,648,142**	**$ 8,348,142**	**$ 3,535,000**	**$ 4,772,000**	**$ 4,215,000**	**$ 3,868,000**	**$ 5,910,000**	**$ 22,300,000**	**$ 4,446,900**	**$ -**	**$ 35,095,042**

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents. All projects are LCA funded (except W-54, where a developer is sharing in the costs)

(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**	12/27/2019	**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**		PMD

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

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

Varies by system.

Detailed Project Description

This is an annual project that in prior years appeared as separate recurring 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, Main Office/Operations Center Improvements, Mobile Equipment, Other Equipment, General Water System Improvements, Water Facilities Asset Management Improvements and new and replacment water meters.

Project Drivers and Needs to be Met by the Project

The primary drivers for these projects are asset management, operational efficiency and revenue generation. Annual items help maintain the operation and adequate level of service of existing water supply, distribution, and support facilities in the Suburban Division, and accomodate water distribution needs of 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:	**2021-2025**	
LCA Staff	$	1,000,000
Land Acquisition	$	-
Construction/Equipment	$	6,500,000
Professional Services	$	900,000
Other	$	440,500
Contingencies	$	500,000
Total Project Cost	**$**	**9,340,500**

Requested in this Capital Program	**$**	**7,668,000**

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

		Need	**Phase of Work**
2020 Budget		$ 1,672,500	planning, design and construction
1st Year	2021	$ 1,595,000	planning, design and construction
2nd Year	2022	$ 1,492,000	planning, design and construction
3rd Year	2023	$ 1,645,000	planning, design and construction
4th Year	2024	$ 1,468,000	planning, design and construction
5th Year	2025	$ 1,468,000	planning, design and 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**	12/27/2019	**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)	20	**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

Replacement of cast iron (CI) mains in water systems that are prioritized based on break history, geology (sinkholes), pipe condition, pipe age, and probability and consequence of failure. Year 2 of the Capital Plan (CP) (2021) will replace an approximate one-mile of main that, to date, has experienced a high rate of failure. Annual funding is provided on a prioritized as-needed basis for subsequent years in the CP - in the event that additional mains start to exhibit high failure rates, thereby justifying replacement.

Project Drivers and Needs to be Met by the Project

Replacing CI 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, 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

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		N/A
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	300,000
Land Acquisition	$	-
Construction/Equipment	$	8,000,000
Professional Services	$	800,000
Other	$	100,000
Contingencies	$	400,000
Total Project Cost	**$**	**9,600,000**

Requested in this Capital Program	**$**	**9,600,000**

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

		Need	**Phase of Work**
2020 Budget			
1st Year	2021	$ -	
2nd Year	2022	$ 2,400,000	design & construction
3rd Year	2023	$ 2,400,000	design & construction
4th Year	2024	$ 2,400,000	design & construction
5th Year	2025	$ 2,400,000	design & construction

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

Project Name	UPPER MILFORD CENTRAL DIVISION (UMCD) IMPROVEMENTS - BUSS ACRES						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-4
Location	Upper Milford Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Regulatory	**Preparer**		ALK

Purpose of Expenditure *(check all that apply)*			
X	New Facility	**X**	Correct Known or Potential Safety Issue
	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**	2017
Approx. No. of Customers Benefitted	100		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2020
Will the Project Require Obtaining Land Rights	TBD		

Detailed Project Description

The project includes the replacement of two existing aged problematic hydro-pneumatic operated well stations in need of mechanical, structural, HVAC and electrical repairs. The pressurized 6,000 gallon water storage tanks at both facilities have exceeded their useful life and are not in compliance with regulatory requirements for pressure vessels. The project involves the consolidation of both stations on the largest existing well station parcel with a single new well/pump station and a new, larger water storage tank. The new station will be a variable frequency drive-controlled double pumping system with full SCADA telemetry/control. In addition, given the water supply has a high level of radon (currently there is no regulatory limit), design provisions will be incorporated to facilitate the future addition of radon mitigation equipment conditioned on the establishment of a regulatory limit.

Project Drivers and Needs to be Met by the Project

Both the Gary and Laurie hydropneumatic tanks have exceeded their useful life and are not in compliance with regulatory requirements for pressure vessels. In addition, both well house facilities were evaluated as part of the 2016 Asset Evaluation Study and numerous deficiencies were identified. Provisions were incorporated into the design to reduce the radon levels in the water by approximately 70%. Additionally, the design will accommodate the future addition of radon mitigation equipment if a regulatory radon limit is established.

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

Radon Evaluation and Mitigation Study done in April 2013. Asset Evaluation Study done in 2016. Design was completed in 2019 and construction will occur in 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Electrical power costs will increase because of the conversion from the hydro-pneumatic to a double pumping system. If radon mitigation equipment is installed in the future, operating costs will increase again because of added electrical power needs and maintenance. Exact costs to be determined.

Project No.	SD-W-4
Project Name	UPPER MILFORD CENTRAL DIVISION (UMCD) IMPROVEMENTS - BUSS ACRES

Prior Project Cost		$ 210,600
Estimated Project Costs:	**2021-2025**	
LCA Staff		$ 50,000
Land Acquisition		$ -
Construction/Equipment		$ 2,040,000
Professional Services		$ 81,000
Other		$ -
Contingencies		$ 129,000
Total Project Cost		**$ 2,300,000**

Requested in this Capital Program	**$ -**

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

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

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

Project Name	ADDITIONAL *(REDUNDANT)* WATER SUPPLY - MADISON PARK NORTH DIVISION						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-37
Location	MND			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Rev Opp	**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	**X**	Other (explain): Provide redundancy in water supply

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	116		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2021
Will the Project Require Obtaining Land Rights	Yes		

Detailed Project Description

This project addresses the development of an additional well as a secondary water source. DEP regulations for new public water systems now require a backup or redundant source of supply. This was a developer system that was built prior to these regulations and acquired by LCA. The project includes the drilling of a well on private property adjacent to the Madison Park North subdivision, construction of a well house and piping to the existing treatment building.

Project Drivers and Needs to be Met by the Project

The Madison Park North water system is currently operating on one well and does not have a redundant water supply. The consequence of failure for the single well serving this satellite system is significant, as water storage for this system is approximately equal to two days average day demand and fire protection would not be available.

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

The property owner identified for the Madison Park North (MPN) backup well site executed a temporary easement agreement in 2018 to allow the development of an exploratory well on the property. An exploratory well was drilled in late 2018 and, based on the yield and water quality data, a permanent well will be developed on this site. Development of a permanent backup well for MPN is assumed to commence in 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-37
Project Name	ADDITIONAL (REDUNDANT) WATER SUPPLY - MADISON PARK NORTH DIVISION

Prior Project Cost		$	91,100
Estimated Project Costs:	**2021-2025**		
LCA Staff		$	50,000
Land Acquisition		$	50,000
Construction/Equipment		$	600,000
Professional Services		$	80,000
Other		$	40,000
Contingencies		$	50,000
Total Project Cost		**$**	**870,000**

Requested in this Capital Program	**$**	**570,000**

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

		Need	**Phase of Work**
2020 Budget		$ 300,000	Design/Permitting
1st Year	2021	$ 570,000	Design/Construction
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	CLD AUXILIARY PUMPING STATION & MAIN EXTENSION - LOWER TO UPPER SYSTEM						
Budget Area	Water	**Department**	Capital Works	**Date**	7/19/2018	**Project No.**	SD-W-49
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	N/A	**Preparer**		EH

	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)	35	**Project inception date**	**2014**
Approx. No. of Customers Benefitted	2,400		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	**2020**
Will the Project Require Obtaining Land Rights	Yes		

Detailed Project Description

The project consists of a water booster pumping station with (3) 500 GPM pumps, (1) 2,500 GPM high service pump, generator and approximately 1,750 linear-feet of 12-inch diameter main extending from the intersection of Cetronia Road and Werley Road north along Werley Road and connecting to the existing main in Laurel Field in Upper Macungie Township. The pumping station will be located on a small permanent easement yet to be obtained. SCADA will be included in the project.

Project Drivers and Needs to be Met by the Project

The CLD system is divided into two primary gravity service elevations: the Upper System (US) and the Lower System (LS). Currently water can be transferred down from the US to the LS, but there are no facilities that can pump water from the LS to the US. The proposed auxiliary pumping station will provide added reliability and a higher level of service to the US. In addition, it will provide flexibility for utilizing water purchased from the City of Allentown.

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

The public water supply construction permit was issued by DEP. Bids for the general and electrical contracts were opened via the PennBid system on June 29, 2018. Construction was substantially completed in 2019.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	$	8,460
Debt Service	$	-
Net	**$**	**8,460**

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

Estimated 75 hours per year for routine station checks and station maintenance. Estimated $930 per year for outside maintenance of the generator and other equipment. Assumed that annual power costs will be $2,740.

Project No.	SD-W-49
Project Name	CLD AUXILIARY PUMPING STATION & MAIN EXTENSION - LOWER TO UPPER SYSTEM

Prior Project Cost		$1,446,800
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	160,000
Professional Services	$	10,000
Other	$	10,000
Contingencies	$	-
Total Project Cost	**$**	**200,000**

Requested in this Capital Program	**$ -**

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

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

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**	12/27/2019	**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	N/A		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2023
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 revisions to that study will be completed in 2020. Five antennas are anticipated in order to provide adequate coverage of the Suburban system.

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.

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		$	20,000
Estimated Project Costs:	**2021-2025**		
LCA Staff		$	50,000
Land Acquisition		$	100,000
Construction/Equipment		$	600,000
Professional Services		$	100,000
Other		$	10,000
Contingencies		$	60,000
Total Project Cost		**$**	**920,000**

Requested in this Capital Program	**$**	**870,000**

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

		Need	**Phase of Work**
2020 Budget		$ 50,000	Planning/Design
1st Year	2021	$ 400,000	Design/Construction
2nd Year	2022	$ 300,000	Design/Construction
3rd Year	2023	$ 170,000	Design/Construction
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	NORTH WHITEHALL DIVISION WATER SYSTEM STUDY						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-51
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		ELH

	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 to commence in 2020 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. Most of the supply for the existing system is from the NBMA interconnection, and a critical main serves the southern portion of the system. Installation of a storage tank that would float on the system and looping of dead end lines may be identified as a study recommendation, along with identifying sources of high unaccounted-for water. The scope and cost of an improvements project is not known at this time.

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.

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

The Phase 1 assessment study will be performed in 2020. The improvements project will be kicked off in 2021; however, the scope of this effort is undefined at this time.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

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

Prior Project Cost		0
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	30,000
Other		
Contingencies	$	10,000
Total Project Cost	**$**	**60,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 50,000	study & planning
1st Year	2021	$ 10,000	design
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	ARCADIA WATER TANK REPLACEMENT						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-52
Location	Arcadia West			**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	**X**	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)	80	**Project inception date**	2019
Approx. No. of Customers Benefitted	25		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2022
Will the Project Require Obtaining Land Rights	TBD		

Detailed Project Description

The water tank at Arcadia West has developed numerous leaks and the interior and exterior coating systems have reached the end of their useful life. An engineering evaluation was done in 2019 to determine the best course of action for the future of the tank. The recommended option is to construct a new concrete tank adjacent to the existing tank, which would then be demolished. This will allow for continued water service and fire protection during construction.

Project Drivers and Needs to be Met by the Project

The tank is the only water storage facility and provides fire protection to the industrial customers in the Arcadia West system. The consequence of failure would be significant.

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

An engineering evaluation was completed in 2019. Design will begin in 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project to commence in 2020.

Project No.	SD-W-52
Project Name	ARCADIA WATER TANK REPLACEMENT

Prior Project Cost	$ 12,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 40,000
Land Acquisition	$ -
Construction/Equipment	$ 900,000
Professional Services	$ 100,000
Other	$ 10,000
Contingencies	$ 100,000
Total Project Cost	**$ 1,150,000**

Requested in this Capital Program	**$ 1,050,000**

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

		Need	**Phase of Work**
2020 Budget		$ 100,000	Design
1st Year	2021	$ 900,000	Design/Construction
2nd Year	2022	$ 150,000	Construction
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	WATER METER READING EQUIPMENT UPGRADE						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-53
Location	All Suburban Divisions, located in various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Med	**Secondary**	Efficiency	**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	**X**	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	20,000		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2020
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The Project includes the replacement of 20,000 transceiver units. 10,000 units will be replaced in 2019 and the remaining will be replaced in 2020. Approximately 1,000 transceiver units no longer work, and more continue to fail as they reach the end of their useful life. The new units have a longer (20 year) battery life and are compatible with the new meter reading software purchased in 2017. This project will replace approximately 100% of the remaining old style radio units over a two year period. Moving forward, implementation of a fixed base meter reading system is anticipated.

Project Drivers and Needs to be Met by the Project

Non-working transceiver units result in estimated water bills, potentially decreasing revenues. Secondly, the new radio read technology will increase meter reading accuracy and efficiency that will allow operators to focus efforts in more technical areas, and will allow for easier conversion to monthly billing in the future.

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

The construction of the 2018 Water Meter Replacement project included the installation of approximately 3,100 new radio units. This project began in 2019. A change order was approved to continue the radio replacements that were scheduled for 2020. The project is expected to be completed in the first quarter of 2020.

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

Exact revenue impact is to be determined.

Project No.	SD-W-53
Project Name	WATER METER READING EQUIPMENT UPGRADE

Prior Project Cost		$ 2,372,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	1,340,000
Professional Services	$	-
Other	$	-
Contingencies	$	130,000
Total Project Cost	**$**	**1,500,000**

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

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

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

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

Project Name	CENTRAL LEHIGH TO UPPER MILFORD DIVISION INTERCONNECTION						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-54
Location	CLD, Lower Macungie & Upper Milford Townships			**Prj. Type**	Regular	**Prj. Funding**	Fees & LCA
Prj. Category	**Primary**	New Cust	**Secondary**	Rev Opp	**Preparer**		EH

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**	2017
Approx. No. of Customers Benefitted	195		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2020
Will the Project Require Obtaining Land Rights	Yes		

Includes 72 existing customers in Mink Estates and Far View Farms plus 123 new customers in the Kohler Tract.

Detailed Project Description

The project consists of a 3-pump 0.5 MGD water booster pumping station with chlorine feed, generator and high service pump. A 12-inch diameter main will be constructed by the developer to interconnect the pump station and the Kohler Tract. The pumping station will be located on a tract acquired along Chestnut Street. SCADA will be included in the project. LCA contribution to the interconnecting main that will be constructed by the developer of the Kohler Tract will be paid out of Distribution Mains-Upsizing/Contribution.

Project Drivers and Needs to be Met by the Project

The proposed pumping station will provide service to the Kohler Tract, as well as a higher level of service to existing customers in Mink Estates and Far View Farms. An additional 80 customers in the Emmaus Consecutive System that abut the Kohler Tract could be supplied if deemed beneficial.

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

The public water supply construction permit was issued by DEP in 2018. The pump station site and permanent offsite water line easements have been acquired. Pumping station bids were opened on 4/25/19. Board approval for the construction phase of the project was granted at the 5/13/19 meeting. A preconstruction meeting was held on 6/25/19. Construction should be completed by September of 2020.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	$	7,500
Debt Service	$	-
Net	**$**	**7,500**

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact operating costs are to be determined. Developer contributing to this project per prior agreement.

Project No.	SD-W-54
Project Name	CENTRAL LEHIGH TO UPPER MILFORD DIVISION INTERCONNECTION

Prior Project Cost		230,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	110,000
Land Acquisition	$	70,000
Construction/Equipment	$	1,501,992
Professional Services	$	185,410
Other	$	25,000
Contingencies	$	163,240
Total Project Cost	**$**	**2,055,642**

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

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

		Need	**Phase of Work**
2020 Budget		$ 2,055,642	Construction
1st Year	2020	$ -	
2nd Year	2021	$ -	
3rd Year	2022	$ -	
4th Year	2023	$ -	
5th Year	2024	$ -	

(1) Developer's contribution applicable to the 123 homes in the proposed Kohler Tract subdivision (37.879%).

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

Project Name	CLD WELL IMPROVEMENTS STUDY						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-55
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Regulatory	**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
	Improved Service		Equipment/Infrastructure at End of Useful Life
X	Study		Other (explain):

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2019
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2021
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

This project consists of a detailed engineering evaluation of three large producing wells in the CLD system that are currently not being used because of water quality issues. Well 3 has a capacity of 1000 GPM but has high levels of manganese. Well 2 has a capacity of 200 GPM but must maintain a high chlorine residual to meet contact time. Well 12 has a capacity of 700 GPM but has high turbidity levels. An engineering study will be performed to determine upgrade options/costs to restore the wells to full service. The study will determine the value of having the wells as sources. The assumption is that a well station upgrade project(s) will be recommended in the study phase, which will result in conceptual design within the capital planning window of a to-be-determined upgrade.

Project Drivers and Needs to be Met by the Project

The wells, if rehabilitated/upgraded, could be used as 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 the wells as sources of supply.

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

An engineering consultant was selected and work on the study began in 2019.

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 2019.

Project No.	SD-W-55
Project Name	CLD WELL IMPROVEMENTS STUDY

Prior Project Cost		$ 10,500
Estimated Project Costs:		**2021-2025**
LCA Staff		$ 15,000
Land Acquisition		$ -
Construction/Equipment		$ -
Professional Services		$ 85,000
Other		$ 5,000
Contingencies		$ 15,000
Total Project Cost		**$ 120,000**

Requested in this Capital Program	**$ 60,000**

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

		Need	**Phase of Work**
2020 Budget		$ 60,000	Study
1st Year	2021	$ 50,000	Study
2nd Year	2022	$ 10,000	Permitting
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	CLD DISTRIBUTION SYSTEM IMPROVEMENTS STUDY						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**Project No.**	SD-W-56
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		ELH

	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): Provide capacity for future growth

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	N/A		
Is this System part of a Common User Rate?	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 to be completed in 2020 to evaluate future water demand scenarios and engineering alternatives for system improvements in order to provide adequate water supply and pressure to future customers which would include potential large users in the CLD system. This second phase of the project (scope unknown at this time) will implement the selected improvement alternative(s) to address the deficiencies identified in the feasibility evaluation that may include increasing well production and/or upsizing of water mains.

Project Drivers and Needs to be Met by the Project

Accommodation of potential large industrial water users and major residential/commercial developments in the CLD system will drive the need for modifications to the water supply and distribution system. LCA's objective is to be proactive and identify capital improvements required in order to provide adequate water service to meet future demands.

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

The Phase 1 study will be performed in 2020 (Cap Ex $60,000). The improvements project will be kicked off in 2021. However, the scope of this effort is undefined at this time.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-W-56
Project Name	CLD DISTRIBUTION SYSTEM IMPROVEMENTS STUDY

Prior Project Cost		53,900
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	25,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	40,000
Other	$	-
Contingencies	$	5,000
Total Project Cost	**$**	**70,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 60,000	Study
1st Year	2021	$ 10,000	Design
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	WATER METER REPLACEMENT PROJECT						
Budget Area	Water	**Department**	Capital Works	**Date**	12/27/2019	**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**	Efficiency	**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	6,183		
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

The Project includes the replacement of ~139 each 1-1/2" and 2" water meters (2022) and 6,044 each 5/8" and 1" meters (2025) that 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 increase with age and usage of the meters.The accuracy of the new meters should have the potential to increase user revenues. Secondly, RR technology will increase meter reading accuracy and efficiency that will allow operators to focus efforts in other critical technical areas.

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.

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 PROJECT

Prior Project Cost	N/A
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 75,000
Land Acquisition	$ -
Construction/Equipment	$ 2,161,000
Professional Services	
Other	$ 10,000
Contingencies	$ 216,000
Total Project Cost	**$ 2,462,000**

Requested in this Capital Program	**$ 2,462,000**

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

		Need	**Phase of Work**
2020 Budget			
1st Year	2021		
2nd Year	2022	$ 420,000	Design/Construction
3rd Year	2023		
4th Year	2024		
5th Year	2025	$ 2,042,000	Design/Construction

WASTEWATER

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
WASTEWATER
5-YEAR CAPITAL PLAN
2021–2025

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						
	2021	**2022**	**2023**	**2024**	**2025**	**TOTAL**
Project Costs	$4,003,500	$4,675,500	$8,494,500	$10,157,500	$2,007,500	$29,338,500
Sources of Funding:						
Operating Reserves	$1,815,500	$2,064,990	$1,942,897	$1,742,500	$1,392,500	$8,958,387
Capital Reserves	-	$500,510	$761,603	-	-	$1,262,113
New Borrowing	$2,188,000	$2,110,000	$5,790,000	$8,415,000	$615,000	$19,118,000
TOTAL FUNDING	**$4,003,500**	**$4,675,500**	**$8,494,500**	**$10,157,500**	**$2,007,500**	**$29,338,500**

Total spending on capital projects for the five-year period totals $29,338,500. Operating and capital reserves over the period will provide $10,220,500 for capital projects. New borrowing in the amount of $19,118,000 will provide the remaining funding required.

The $19,118,000 of new borrowing will provide funding for Act 537 Sewage Facilities Plan projects in WLI group, along with funding projects for LCA's satellite systems. The annual debt service on that borrowing of $1,404,683 annually will be collected from the signatories in the WLI group.

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

Year 2021 0.0%

Year 2022 2.2%

Year 2023 2.4%

Year 2024 2.5%

Year 2025 2.6%

CONDENSED CASH FLOW - SUBURBAN WASTEWATER					
Dollars	**2021**	**2022**	**2023**	**2024**	**2025**
User Charges	16,452,449	16,818,049	17,213,748	17,642,745	18,108,610
Other Operating Revenues	-	-	-	-	-
Non-Operating Revenues	1,071,640	1,097,759	1,124,662	1,152,371	1,180,912
Operating expenses	(12,849,872)	(13,363,868)	(13,898,423)	(14,454,361)	(15,032,535)
Debt Service - Current Debt	(2,059,485)	(2,059,485)	(2,059,485)	(2,059,485)	(2,059,485)
Debt Service - NEW Debt	(173,988)	(173,988)	(173,988)	(173,988)	(173,988)
Investments Converting to Cash	-	-	-	-	-
Proceeds From NEW Debt	3,200,000	-	-	-	-
Capex - Admin Paygo	-	-	-	-	-
Capex - Paygo	(1,815,500)	(2,565,500)	(2,704,500)	(1,742,500)	(1,392,500
Capex - NEW Borrowing	(2,188,000)	(2,110,000)	(5,790,000)	(8,415,000)	(615,000)
NET FUND FLOWS	**1,637,244**	**(2,357,033)**	**(6,287,986)**	**(8,050,218)**	**16,014**
User Charge Revenue Increase %	0.0%	2.2%	2.4%	2.5%	2.6%
Operating Cash Balance	6,336,923	6,590,400	6,854,017	7,128,178	7,413,305
Days on Hand	180	180	180	180	180
Project Reserve Balance	19,970,084	17,359,574	10,807,971	2,483,592	2,214,479
DEBT SERVICE COVERAGE RATIO	2.09	2.04	1.99	1.94	1.91

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

BY SYSTEM	PROJECTS	TOTAL	OPERATING RESERVES	CAPITAL RESERVES	NEW DEBT
Annual Projects	SA	$2,005,500	$2,005,500	-	-
Western Lehigh Interceptor	S3, S4, S9, S24, S28	$18,405,000	$1,192,887	$1,262,113	$15,950,000
LCA Wastewater Treatment Plant	S22	$3,500,000	$3,500,000	-	-
Common Rate Collector Systems	S6, S7, S8, S10, S13, S17, S18	$2,393,000	-	-	$2,393,000
Arcadia West	S8	$325,000	-	-	$325,000
Lynn Township	S25, S26	$450,000	-	-	$450,000
Little Lehigh Relief Interceptor System	S12, S15, S16	$2,260,000	$2,260,000	-	-
	TOTAL	**$29,338,500**	**$8,958,387**	**$1,262,113**	**$19,118,000**

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2021-2025 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	Prj. Category	Approval Stage (1)	Plan Total Cost	This Capital Program							Prior Project Cost (2)	Future Project Cost (2)	Total Project Cost
					2020 *Budget Approved*	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2021-2025 Total			
	Operating/Capital Reserve Funds													
	Annual													
SD-S-A	Annual Projects	AM - Varies	A	$ 2,326,000	$ 320,500	$ 295,500	$ 295,500	$ 329,500	$ 542,500	$ 542,500	$ 2,005,500	$ -	$ -	$2,326,000
	Subtotal			**$ 2,326,000**	**$ 320,500**	**$ 295,500**	**$ 295,500**	**$ 329,500**	**$ 542,500**	**$ 542,500**	**$ 2,005,500**	**$ -**	**$ -**	**$ 2,326,000**
	Pretreatment Plant													
SD-S-22	Pretreatment Plant Improvements	AM - Varies	A	$ 4,200,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 3,500,000	$ -	$ -	$4,200,000
	Subtotal			**$ 4,200,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 3,500,000**			**$4,200,000**
	Western Lehigh Interceptor													
SD-S-3	Central Lehigh County WW Capacity Planning & Expansion	New Cust	V	$ 2,670,000	$ 620,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 50,000	$ 2,050,000	$ 3,500,000	$ -	$6,170,000
SD-S-4	Spring Creek Force Main Air/Vacuum Valve Replacements	Sys Imp	C	$ 145,000	$ 40,000	$ 40,000	$ 40,000	$ 25,000	$ -	$ -	$ 105,000	$ 48,000.00	$ -	$193,000
SD-S-9	Spring Creek Force Main Condition Assessment	AM-High	P	$ 300,000	$ -	$ 100,000	$ 200,000	$ -	$ -	$ -	$ 300,000	$ -	$ -	$300,000
	Subtotal			**$ 3,115,000**	**$ 660,000**	**$ 640,000**	**$ 740,000**	**$ 525,000**	**$ 500,000**	**$ 50,000**	**$ 2,455,000**	**$ 3,548,000**	**$ -**	**$ 6,663,000**
	Satellite Systems													
SD-S-6	Wynnewood I & I Investigation & Remediation Program	AM - Varies	V	$ 200,000	$ 50,000	$ 50,000	$ 50,000	$ 25,000	$ 25,000	$ -	$ 150,000	$ -	$ -	$200,000
SD-S-7	Wynnewood Terrace WWTP Remediation & Replacement	AM - High	C	$ 3,670,000	$ 700,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$3,670,000
SD-S-8	Arcadia West WWTP Mechanical Screen	Efficiency	P	$ 325,000	$ -	$ 50,000	$ 250,000	$ 25,000	$ -	$ -	$ 325,000	$ -	$ -	$325,000
SD-S-10	Weisenberg Township, Lowhill Township, UMiT SSES	Regulatory	P	$ 300,000	$ 75,000	$ -	$ -	$ -	$ 75,000	$ 150,000	$ 225,000	$ -	$ -	$300,000
SD-S-13	Sand Spring WWTP Remediation & Replacement	AM - High	C	$ 4,368,000	$ 3,600,000	$ 768,000	$ -	$ -	$ -	$ -	$ 768,000	$ -	$ -	$4,368,000
SD-S-17	Heidelberg Heights I & I Investigation & Remediation Program	AM - Varies	V	$ 1,125,000	$ 275,000	$ 250,000	$ 250,000	$ 150,000	$ 100,000	$ 100,000	$ 850,000	$ 740,000	$ -	$1,865,000
SD-S-18	Heidelberg Heights WWTP Rehabilitation	AM - High	P	$ 440,000	$ 40,000	$ 80,000	$ 20,000	$ 50,000	$ 100,000	$ 150,000	$ 400,000	$ -	$ -	$440,000
SD-S-25	Lynn Township WWTP Upgrades & Expansion Design	AM - High	P	$ 300,000	$ 50,000	$ 150,000	$ 100,000	$ -	$ -	$ -	$ 250,000	$ 2,800	$ -	$302,800
SD-S-26	Lynn Township I & I Investigation & Remediation Program	AM - High	V	$ 500,000	$ 300,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 200,000	$ -	$ -	$500,000
	Subtotal			**$ 11,228,000**	**$ 5,090,000**	**$ 1,388,000**	**$ 710,000**	**$ 290,000**	**$ 340,000**	**$ 440,000**	**$ 3,168,000**	**$ 742,800**	**$ -**	**$ 11,970,800**
	Little Lehigh Relief Interceptor													
SD-S-12	Park Pump Station Force Main Rehabilitation	AM - High	S	$ 1,300,000	$ 100,000	$ 100,000	$ 500,000	$ 600,000	$ -	$ -	$ 1,200,000	$ 10,000	$ -	$1,310,000
SD-S-15	Park Pump Station Rehabilitation/Improvements	AM - High	C	$ 1,360,000	$ 400,000	$ 80,000	$ 330,000	$ 550,000	$ -	$ -	$ 960,000	$ 3,970,000	$ -	$5,330,000
SD-S-16	Regional Park Pump Station	Regulatory	P	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ 100,000	$ 100,000	$ -	$ -	$100,000
	Subtotal			**$ 2,760,000**	**$ 500,000**	**$ 180,000**	**$ 830,000**	**$ 1,150,000**	**$ -**	**$ 100,000**	**$ 2,260,000**	**$ 3,980,000**	**$ -**	**$ 6,740,000**
	SUBTOTAL OPERATING/CAPITAL RESERVE FUNDS			**$ 23,629,000**	**$ 7,270,500**	**$ 3,203,500**	**$ 3,275,500**	**$ 2,994,500**	**$ 2,082,500**	**$ 1,832,500**	**$ 13,388,500**	**$ 8,270,800**	**$ -**	**$ 31,899,800**
	New Borrowing Funds													
	Western Lehigh Interceptor													
SD-S-24	Signatory I & I Investigation & Remediation Program	Regulatory	V	$ 2,650,000	$ 1,000,000	$ 500,000	$ 500,000	$ 500,000	$ 75,000	$ 75,000	$ 1,650,000	$ 7,500,000	$ 2,500,000	$12,650,000
SD-S-28	WLI - Trexlertown Area Storage Facility	Regulatory	S	$ 14,700,000	$ 400,000	$ 300,000	$ 900,000	$ 5,000,000	$ 8,000,000	$ 100,000	$ 14,300,000	$ 60,000	$ -	$14,760,000
	Subtotal			**$ 17,350,000**	**$ 1,400,000**	**$ 800,000**	**$ 1,400,000**	**$ 5,500,000**	**$ 8,075,000**	**$ 175,000**	**$ 15,950,000**	**$ 7,560,000**	**$ 2,500,000**	**$ 27,410,000**
	SUBTOTAL NEW BORROWING FUNDS			**$ 17,350,000**	**$ 1,400,000**	**$ 800,000**	**$ 1,400,000**	**$ 5,500,000**	**$ 8,075,000**	**$ 175,000**	**$ 15,950,000**	**$ 7,560,000**	**$ 2,500,000**	**$ 27,410,000**
	GRAND TOTAL (RESERVES + NEW BORROWING)			**$ 40,979,000**	**$ 8,670,500**	**$ 4,003,500**	**$ 4,675,500**	**$ 8,494,500**	**$ 10,157,500**	**$ 2,007,500**	**$ 29,338,500**	**$ 15,830,800**	**$ 2,500,000**	**$ 59,309,800**

(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**	1/31/2020	**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**		PMD

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

Additional Information				
Expected Useful Life (Years)	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 an annual project that has been previously listed as separate projects. This annual project includes the following: Mobile Equipment, Sewer Company Acquisitions, Other Equipment, Wastewater Facility Asset Management Upgrades, and development related service connections.

Project Drivers and Needs to be Met by the Project

Annual items that help maintain the operation 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	N/A	
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,000,000
Professional Services	$	90,000
Other	$	50,000
Contingencies	$	86,000
Total Project Cost	**$**	**2,326,000**

Requested in this Capital Program	**$**	**2,005,500**

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

		Need	**Phase of Work**
2020 Budget		$ 320,500	procurement, planning, design & construction
1st Year	2021	$ 295,500	procurement, planning, design & construction
2nd Year	2022	$ 295,500	procurement, planning, design & construction
3rd Year	2023	$ 329,500	procurement, planning, design & construction
4th Year	2024	$ 542,500	procurement, planning, design & construction
5th Year	2025	$ 542,500	procurement, planning, design & construction

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

Project Name	PRETREATMENT PLANT IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**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 waste hauler station piping modifications, anaerobic digester mechanical upgrades, security upgrades, belt filter press #1 and #4 rebuilds, air deck mixer replacements (multi-year), solids building HVAC system upgrade, primary clarifiers mechanical refurbish (multi-year), final clarifiers drive replacements (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 a project to modify the waste hauler station piping in order to pre-thicken the waste (prior to conveyance to the digesters) will be completed, along with mechanical upgrades of the 3 digesters, pavement rehabilitation, and influent pump station upgrade.

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 IMPROVEMENTS

Prior Project Cost		N/A
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	4,000,000
Professional Services	$	150,000
Other	$	-
Contingencies	$	-
Total Project Cost	**$**	**4,200,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 700,000	planning, design & construction
1st Year	2021	$ 700,000	planning, design & construction
2nd Year	2022	$ 700,000	planning, design & construction
3rd Year	2023	$ 700,000	planning, design & construction
4th Year	2024	$ 700,000	planning, design & construction
5th Year	2025	$ 700,000	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**	1/31/2020	**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**	2032
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

Scope involves planning for additional treatment capacity for WLI service area and construction of selected alternative. This project is needed for future wastewater treatment capacity and covers either expanding the Kline's Island Wastewater Treatment Plant (KIWWTP) or converting the pretreatment plant to a full treatment facility, which includes discharge pumping and piping. Completion of the Act 537 Plan is set for 12/31/23 and construction of the yet to be selected option is assumed to be after this 5-year Capital Planning period.

Project Drivers and Needs to be Met by the Project

The City's Kline's Island WWTP does not currently have enough available wastewater treatment allocation to meet LCA's future needs. To meet wastewater treatment needs, the best available options must be investigated. Although some recovery of capacity will occur through inflow and infiltration removal, there is no wastewater allocation remaining for sale. Updating the 537 Plan is the primary cost factor for planning. Capital costs will be recovered through a combination of increased user fees and capital recovery fees to new customers. Risk of not doing this project include regulatory action against the region.

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

In 2013, ARRO, Inc. and AECOM were retained to prepare an Act 537 Plan (LCA focused, with City partner) to evaluate the alternatives for an additional 4 MGD of wastewater treatment capacity. The project was put on hold by DEP in 2015, with an emphasis on managing wet weather and removing I&I. In 2019, at the request of DEP, preliminary work on the Act 537 Plan (Regional) was restarted. The full Act 537 Plan (Regional) due is now due by 12/31/23. An Interim Act 537 Plan (Regional) is due by September 2020 that will inclue flow projections through 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

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

Prior Project Cost	**$ 60,000**
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 300,000
Land Acquisition	$ -
Construction/Equipment	$ -
Professional Services	$ 2,000,000
Other	$ 70,000
Contingencies	$ 300,000
Total Project Cost	**$ 2,670,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 620,000	Planning
1st Year	2021	$ 500,000	Planning
2nd Year	2022	$ 500,000	Planning
3rd Year	2023	$ 500,000	Planning
4th Year	2024	$ 500,000	Planning
5th Year	2025	$ 50,000	Planning

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

Project Name	SPRING CREEK FORCEMAIN AIR/VACUUM VALVE REPLACEMENTS						
Budget Area	Wastewater	**Department**	Operations	**Date**	1/31/2020	**Project No.**	SD-S-4
Location	WLI, various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		AK

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
X	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	**		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2023
Will the Project Require Obtaining Land Rights	No		

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

Detailed Project Description

Replacement of inoperable and/or badly corroded original air release or combination air/vacuum release valves (ARV's) on the existing Spring Creek Pump Station force main.

Project Drivers and Needs to be Met by the Project

Inoperable air release valves contribute to both poor hydraulics and wasted pump energy created by allowing air to either accumulate at high points along the force main, or to not provide proper vacuum release. Replacing the air valves should improve the pump station and force main performance. The odor control canisters at various ARVs will be replaced as part of construction.

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

Design work was completed in 2018. Project to be implemented as an annual upgrade with 2 or 3 ARVs replaced per year, starting in 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Replacement of the air valves should improve station efficiency, which may yield a nominal reduction in pump horsepower required to convey wastewater and therefore reduce electricity. Exact costs to be determined.

Project No.	SD-S-4
Project Name	SPRING CREEK FORCEMAIN AIR/VACUUM VALVE REPLACEMENTS

Prior Project Cost	$ 48,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 20,000
Land Acquisition	$ -
Construction/Equipment	$ 60,000
Professional Services	$ 30,000
Other	$ -
Contingencies	$ 10,000
Total Project Cost	**$ 120,000**

Requested in this Capital Program	**$ 105,000**

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

		Need	**Phase of Work**
2020 Budget		$ 40,000	Construction
1st Year	2021	$ 40,000	Construction
2nd Year	2022	$ 40,000	Construction
3rd Year	2023	$ 25,000	Construction
4th Year	2024	$ -	
5th Year	2025	$ -	

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**	1/31/2020	**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**	2022
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 the second section was installed in 2004. A PURE SmartBall investigation will be performed to identify the location of gas pockets and leaks. A broadband electromagnetic (BEM) test will then be conducted 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 is not included in this project as the scope 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 teh 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

Project will commence in 2021.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

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:		**2021-2025**
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	**$**	**300,000**

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

			Need	**Phase of Work**
2020 Budget		$	-	
1st Year	2021	$	100,000	Study/investigation
2nd Year	2022	$	200,000	Study/investigation
3rd Year	2023	$	-	
4th Year	2024	$	-	
5th Year	2025	$	-	

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**	1/31/2020	**Project No.**	SD-S-6
Location	WWD, North Whitehall Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Regulatory	**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**	2019
Approx. No. of Customers Benefitted	219		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2024
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

In 2020, LCA anticipates to completing an updated CCTV inspection condition assessment, identifying problem areas, and implementing annual repair/remediation measures to eliminate excess wet weather flow into the sanitary sewer system. An initial remediation project to address problem areas and mitigate inflow and infiltration (I/I) will be designed and bid in-house, and is anticipated to begin in 2020.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are: 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

The Test & Seal project was completed in Wynnewood at the end of 2016, however, wet weather flows remain a problem. An updated system-wide CCTV inspection condition assessment was substantially completed in 2019 that helped to identify problem areas and scope out necessary repairs. Capital plan cost is primarily 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		$150,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	40,000
Land Acquisition	$	-
Construction/Equipment	$	150,000
Professional Services	$	-
Other		
Contingencies	$	10,000
Total Project Cost	**$**	**200,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 50,000	planning & construction
1st Year	2021	$ 50,000	planning & construction
2nd Year	2022	$ 50,000	planning & construction
3rd Year	2023	$ 25,000	planning & construction
4th Year	2024	$ 25,000	planning & construction
5th Year	2025	$ -	

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

Project Name	WYNNEWOOD TERRACE WWTP REMEDIATION & REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-7
Location	WWD, North Whitehall 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	**X**	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		Other (explain):

Additional Information			
Expected Useful Life (Years)	40	**Project inception date**	2017
Approx. No. of Customers Benefitted	219		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2020
Will the Project Require Obtaining Land Rights	No		

Detailed Project Description

The existing developer-built steel tank wastewater treatment plant is approximately 30 years-old and at the end of its useful life (as identified in a 2015 Condition Assessment study performed by an engineer). The project is for the construction of a new concrete tank 60,000 gallon per day sequencing batch reactor process facility starting in 2019. This is to be completed in 2020 (adjacent to the original plant location).

Project Drivers and Needs to be Met by the Project

Project will address the high risk rating of this facility and restore the level of service. It will also address mechanical equipment and structures that are in poor condition. With ever increasing environmental restrictions, it is inevitable that the performance of the aging facility will decline and result in DEP permit violations. Regulatory agency input was incorporated during design phase in order to meet future stricter discharge parameters for the new plant.

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

A Condition Assessment of the WWTP was conducted in 2015 and design of the replacement facility was finished in mid-2018. The project was bid in Q32018. Construction will finish in early 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-S-7
Project Name	WYNNEWOOD TERRACE WWTP REMEDIATION & REPLACEMENT

Prior Project Cost	$2.430,000
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 50,000
Land Acquisition	$ -
Construction/Equipment	$ 3,250,000
Professional Services	$ 270,000
Other	$ -
Contingencies	$ 100,000
Total Project Cost	**$ 3,670,000**

Requested in this Capital Program	**$ -**

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

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

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**	1/31/2020	**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

Additional Information			
Expected Useful Life (Years)	20	**Project inception date**	2018
Approx. No. of Customers Benefitted	20		
Is this System part of a Common User Rate?	No	**Anticipated Project completion date**	2023
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 design and installation of an automatic mechanical screen and associated components at the influent end (headworks) of the plant.

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, 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 access locations) or 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 may reduce operations cost.

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. The preferred alternative to resolving the problem is a mechanical screen. The screen project will be designed in 2022 and constructed in 2022 and 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

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 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:	**2021-2025**	
LCA Staff	$	15,000
Land Acquisition	$	-
Construction/Equipment	$	225,000
Professional Services	$	65,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**325,000**

Requested in this Capital Program	**$**	**325,000**

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

		Need	**Phase of Work**
2020 Budget		$ -	
1st Year	2021	$ 50,000	design
2nd Year	2022	$ 250,000	permitting & construction
3rd Year	2023	$ 25,000	construction
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	WEISENBERG, LOWHILL, UMiT TOWNSHIP SSES/REHAB						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-10
Location	Weisenberg, Lowhill, and Upper Milford Townships			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**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**	2020
Approx. No. of Customers Benefitted	**		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	2025
Will the Project Require Obtaining Land Rights	No		

** Includes customers in the Weisenberg, Lowhill and Upper Milford systems.

Detailed Project Description

This project involves the preparation of a Sanitary Sewer Evaluation Study (SSES) to identify primary areas of concern and prioritize future sewer system improvements in the Weisenberg, Lowhill, and Upper Milford sanitary sewer systems. Components of the SSES may include manhole inspections, CCTV inspections, and flow monitoring. A remediation project to address problem areas and mitigate inflow and infiltration (I/I) will be part of a future project.

Project Drivers and Needs to be Met by the Project

The primary driver for this project is regulatory. These three systems ultimately tie in to the Western Lehigh Interceptor (WLI). Managing inflow and infiltration in these systems will in turn help manage flows in the WLI.

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

A Sanitary Sewer Evaluation Study was done for these systems in the early 2010s as part of the overall SCARP program. Information from this previous study will be used to help determine any increase in I&I.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-10
Project Name	WEISENBERG, LOWHILL, UMiT TOWNSHIP SSES/REHAB

Prior Project Cost		0
Estimated Project Costs:		**2021-2025**
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	175,000
Professional Services	$	60,000
Other	$	-
Contingencies	$	35,000
Total Project Cost	**$**	**300,000**

Requested in this Capital Program	**$**	**225,000**

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

		Need	**Phase of Work**
2020 Budget		$ 75,000	Study/investigation
1st Year	2021	$ -	
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ 75,000	Study/investigation
5th Year	2025	$ 150,000	construction of rehabilitation work

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

Project Name	SAND SPRINGS WWTP REMEDIATION & REPLACEMENT						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-13
Location	Sand Spring Develpment, North Whitehall 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	**X**	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		Other (explain):

Additional Information			
Expected Useful Life (Years)	40	**Project inception date**	2017
Approx. No. of Customers Benefitted	257		
Is this System part of a Common User Rate?	Yes	**Anticipated Project completion date**	2021
Will the Project Require Obtaining Land Rights	Yes		

Detailed Project Description

The existing developer-built steel tank wastewater treatment plant is approximately 45 years old and at the end of its useful life (as identified in a 2015 Condition Assessment study performed by a consultant). The project proposes a new concrete tank 35,000 GPD sequencing batch reactor process facility to be constructed in 2020 and 2021 adjacent to the original plant location.

Project Drivers and Needs to be Met by the Project

Project will address the high risk rating of this facility and restore the level of service, and will address mechanical equipment and structures that are in poor condition. With ever increasing environmental restrictions, it is inevitable that the aging facility experience declining performance and result in DEP permit violations. Regulatory agency input was incorporated during design phase to meet future stricter discharge parameters for the new plant.

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

A Condition Assessment of the WWTP was conducted in 2015 and design of the replacement facility was completed in early 2019. The project was bid the third quarter of 2019 and construction phase commenced in the fourth quarter of 2019.

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	SAND SPRINGS WWTP REMEDIATION & REPLACEMENT

Prior Project Cost		220,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	80,000
Land Acquisition	$	-
Construction/Equipment	$	3,862,000
Professional Services	$	251,000
Other	$	-
Contingencies	$	175,000
Total Project Cost	**$**	**4,368,000**

Requested in this Capital Program	**$**	**768,000**

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

		Need	**Phase of Work**
2020 Budget		$ 3,600,000	construction
1st Year	2021	$ 768,000	construction
2nd Year	2022	$ -	
3rd Year	2023	$ -	
4th Year	2024	$ -	
5th Year	2025	$ -	

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**	3/14/2019	**Project No.**	SD-S-17
Location	HHD, Heidelberg Township			**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
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**	2025
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, and is part of a DEP mandated Corrective Action Plan. Rehabilitative work includes replacement of original vitrified clay pipe (VCP) sewer main, VCP sewer lateral replacement, manhole replacement, manhole sealing, cleanout installation on laterals, and private side investigation. 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. The goal of this multi-year project is 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

Rehabilitation of four laterals and 320 linear-feet of main were completed in 2016 utilizing internal lining technology. Updated CCTV system inspection was performed in 2017 and repair locations were determined from the data. 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. Rehabilitation work in 2020 and 2021 will consist of replacing the remaining sections of original vitrified clay sewer pipe and laterals (approximated 1,200 linear feet of main pipe per year). Rehabilitation work beyond 2021 will focus on installing cleanouts on all laterals, private lateral 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		740,000
Estimated Project Costs:		**2021-2025**
LCA Staff	$	70,000
Land Acquisition	$	-
Construction/Equipment	$	875,000
Professional Services	$	80,000
Other	$	-
Contingencies	$	100,000
Total Project Cost	**$**	**1,125,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 275,000	design & construction
1st Year	2021	$ 250,000	design & construction
2nd Year	2022	$ 250,000	design & construction
3rd Year	2023	$ 150,000	design & construction
4th Year	2024	$ 100,000	design & construction
5th Year	2025	$ 100,000	design & 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**	1/31/2020	**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 partitioned steel equalization/sludge holding tank is part of the original plant from the 1970s and was rehabilitated in 2019. Future projects include installation of a mechanical screen at the headworks of the plant to remove rags and other inorganic material, installation of an expanded catwalk grating system above the elevated SBR tanks in order to improve maintenance access, and miscellaneous equipment upgrade/replacement.

Project Drivers and Needs to be Met by the Project

The primary project drivers are asset management and efficiency. 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.

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

Design of the 40+ year old EQ tank rehabilitation was completed early 2019 and the steel tank rehabilitation construction was completed in 2019.

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		210,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	300,000
Professional Services	$	80,000
Other		
Contingencies	$	30,000
Total Project Cost	**$**	**440,000**

Requested in this Capital Program	**$**	**400,000**

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

		Need	**Phase of Work**
2020 Budget		$ 40,000	planning & design
1st Year	2021	$ 80,000	construction
2nd Year	2022	$ 20,000	planning & design
3rd Year	2023	$ 50,000	design & permitting
4th Year	2024	$ 100,000	construction
5th Year	2025	$ 150,000	construction

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

Project Name	LYNN TOWNSHIP WWTP EXPANSION DESIGN						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-25
Location	Lynn Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		EH

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

Additional Information			
Expected Useful Life (Years)	35	**Project inception date**	2015
Approx. No. of Customers Benefitted	381		
Is this System part of a Common User Rate?	No	**Anticipated Project completion date**	TBD
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 growth that was anticipated. Since that time the significant growth pressure has subsided, and Lynn Township was directed by DEP to update their Act 537 Plan to include current growth projections. The updated growth projection numbers in the upcoming Act 537 Plan update by Lynn Township will be used to assess the urgency and quantify the magnitude of a future expansion project. The capital plan reflects design phase only at this time.

Project Drivers and Needs to be Met by the Project

Asset management and efficiency are the primary project drivers. The WWTP expansion, as originally designed, addressed in the Township's Act 537 Plan (2007) at the time and was driven by projected growth and system inflow and infiltration (I/I) issues. Timing of the WWTP expansion construction will be dependent upon short and long term capacity needs. The purpose of this project is to update the design in accordance with updated Act 537 population growth projections, and obtain DEP permitting in event that development needs necessitate plant expansion.

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

Growth projections will be re-examined in 2020 as part of the Township's work to update the Act 537 Sewage Facilities Plan, to ensure the plant is properly sized. Design will begin in 2021. Construction phase timing will be a function of development pressure and contingent upon developer capacity charges.

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 EXPANSION DESIGN

Prior Project Cost		2,800
Estimated Project Costs:		**2021-2025**
LCA Staff	$	25,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	200,000
Other		
Contingencies	$	25,000
Total Project Cost	**$**	**250,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 50,000	planning/design
1st Year	2021	$ 150,000	design
2nd Year	2022	$ 100,000	design & permitting
3rd Year	2023		
4th Year	2024		
5th Year	2025	$ -	

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**	1/31/2020	**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**	2025
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. Updated internal CCTV inspection of the sewage collection system and 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 are planned starting in 2020 and include a comprehensive manhole rehabilitation, collection system repairs, and investigation and enforcement of illegal connections on the private side.

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. 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 developed and implemented, along with smoke testing at the campus of the Northwestern Lehigh School District. 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 stabilization. A capital project is planned for 2020 will focus on manhole rehabilitation, and subsequent projects will further address inflow and infiltration by concentrating on private side work, including lateral inspection/rehabilitation.

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		170,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	300,000
Professional Services	$	100,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**500,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 300,000	design & construction
1st Year	2021	$ 40,000	construction
2nd Year	2022	$ 40,000	construction
3rd Year	2023	$ 40,000	construction
4th Year	2024	$ 40,000	construction
5th Year	2025	$ 40,000	construction

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

Project Name	PARK PUMP STATION FORCE MAIN REHABILITATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-12
Location	LCA LLRI-1 Facilities in the City of Allentown			**Prj. Type**	AO	**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		Equipment Obsolete
	Scheduled Replacement	**X**	Comply with Regulatory Requirements
X	Improved Service		Equipment/Infrastructure at End of Useful Life
	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**	2023
Will the Project Require Obtaining Land Rights	No		

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

Detailed Project Description

The primary driver for this project is asset management. This project will address the internal rehabilitation of a yet to be identified quantity of existing Park Pump Station Force Main. An internal inspection of the pipe will be performed in 2020 to identify the level of risk and extent of rehabilitation required, and will be used to develop the scope of rehabilitation construction (to be performed in 2021 and 2022). The internal inspection will involve a person entering the drained and ventilated force main from five air release valve access locations, and performing a limited representative visual inspection. For this Capital Plan, rehabilitation work is assumed to consist of internal pipe lining of critical sections.

Project Drivers and Needs to be Met by the Project

The Prestressed Concrete Cylinder Pipe (PCCP) force main pipe was installed in ~1980. This type of pipe is particularly subject to deterioration because corrosive Hydrogen Sulfide gas generated by the wastewater is converted to sulfuric acid (which degrades concrete and any exposed reinforcing steel cylinder pipe) thereby impacting the structural integrity of the pipe. Rehabilitation of the force main will restore level of service, assure longevity and mitigate the risk of a catastrophic failure.

Note: *PCCP consists of a concrete core, a thin steel cylinder, high tensile prestressing wires and a mortar coating. Structural deterioration occurs from sulfuric acid acting on exposed steel reinforcing.*

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

An internal inspection of the force main will be conducted in 2020 and the scope of rehabilitation work will be determined.

Note: *Utilization of the funding shown in this Capital Plan is contingent upon risk rating of the existing pipe (based on condition, probability of failure and consequence of failure factors).*

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	PARK PUMP STATION FORCE MAIN REHABILITATION

Prior Project Cost		10,000
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	40,000
Land Acquisition	$	-
Construction/Equipment	$	1,000,000
Professional Services	$	160,000
Other		
Contingencies	$	100,000
Total Project Cost	**$**	**1,300,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 100,000	investigation
1st Year	2021	$ 100,000	planning & design
2nd Year	2022	$ 500,000	rehabiliatation construction
3rd Year	2023	$ 600,000	rehabiliatation construction
4th Year	2024	$ -	
5th Year	2025	$ -	

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

Project Name	PARK PUMP STATION REHABILITATION/IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**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**	2023
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

Improvements to the pump station include 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 will be completed on the above improvements by early 2020. The upcoming phase of the station upgrade is to consist of replacement of the original backup diesel generator, which is nearing the end of its service life.

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. Many mechanical components are nearing the end of their service life with negative impacts to station performance and reliability. The improvements are needed to restore the station to its design capacity, maintain level of service and extend service life into the foreseeable future. This project is part of the work necessary to comply with the submitted RFMS.

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 upgrade design was completed in late 2017, the project was bid in early 2018, construction phase commenced in mid-2018 and the project will be completed the first quarter of 2019. Design of the replacement diesel generator is to be performed in 2021, with construction anticipated to be 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

The installation of higher efficiency pumps and motors with variable frequency drive control (VFDs) as part of this project should result in an electrical power savings, however at this time the amount is unknown. Exact costs to be determined. 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.

Project No.	SD-S-15
Project Name	PARK PUMP STATION REHABILITATION/IMPROVEMENTS

Prior Project Cost		3,970,000
Estimated Project Costs:		**2021-2025**
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	1,100,000
Professional Services	$	150,000
Other	$	10,000
Contingencies	$	70,000
Total Project Cost	**$**	**1,360,000**

Requested in this Capital Program	**$**	**960,000**

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

		Need	**Phase of Work**
2020 Budget		$ 400,000	construction complete phase 1
1st Year	2021	$ 80,000	design & permitting phase 2
2nd Year	2022	$ 330,000	construction phase 2
3rd Year	2023	$ 550,000	construction phase 2
4th Year	2024		
5th Year	2025	$ -	

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

Project Name	REGIONAL PARK PUMP STATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**Project No.**	SD-S-16
Location	LLRI-1, City of Allentown			**Prj. Type**	AO	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	New Cust	**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	**X**	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**	2016
Approx. No. of Customers Benefitted	**		
Is this System part of a Common User Rate?	N/A	**Anticipated Project completion date**	TBD
Will the Project Require Obtaining Land Rights	No		

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

Detailed Project Description

The 2016 draft Act 537 Plan identified future wastewater capacity needs for the Western Lehigh Interceptor. Subsequent studies and flow models performed by Arcadis have determined that a conveyance capacity of 45 million gallons per day (mgd) is required at the Park Pump Station within the next 20 years. The recommended alternative for providing this capacity is the construction of a "Sister Pump Station" next to the existing Park Pump Station, with a design capacity of approximately 25 mgd.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are regulatory and system capacity/new customers. This project will provide future conveyance capacity as determined from prior studies and hydraulic models of the Western Lehigh Interceptor and mitigate sanitary sewer overflows.

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

This concept was discussed as part of preliminary planning for future wastewater capacity needs. A force main alignment study will be performed in 2025 as part of a feasibility study, which should be completed by 2026 (following completion of Act 537 planning). Design phase is anticipated to begin following review of the feasibility study and incorporation of Act 537 planning impacts.

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-16
Project Name	REGIONAL PARK PUMP STATION

Prior Project Cost		0
Estimated Project Costs:	**2021-2025**	
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	70,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**100,000**

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

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

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

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**	1/31/2020	**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 **(1)** 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 directives - has not been completed yet.

Project Drivers and Needs to be Met by the Project

All SSES work, flow monitoring and preliminary modeling work has been completed to define the characteristics of the sewer basins and identify the leakiest basins. With the recent shift from the AO being lifted to full Act 537 Planning, efforts have been realigned. Recalibration of the model is expected in Q2 2020 with new flow metering data. The model will help in determining the effectiveness of the source removal work completed to date and design of the Trexlertown Interceptor Project. Risk of not doing this project include regulatory action against the region.

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

Investigation and preliminary alternatives analysis work was completed by 2016. Flow monitoring and analysis occurred in 2017 and 2019. The WLI model recalibration will be completed in 2020. Additional items for 2020 include a MH/end seal project and a new flow monitoring assignment for the WLSP. MH and end seal projects will continue in 2021 and 2022 as well.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

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

Prior Project Cost	**$ 2,500,000**
Estimated Project Costs:	**2021-2025**
LCA Staff	$ 300,000
Land Acquisition	$ -
Construction/Equipment	$ 50,000
Professional Services	$ 2,000,000
Other	$ 200,000
Contingencies	$ 100,000
Total Project Cost	**$ 2,650,000**

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

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

		Need	**Phase of Work**
2020 Budget		$ 1,000,000	Planning/Construction
1st Year	2021	$ 500,000	Planning/Construction
2nd Year	2022	$ 500,000	Planning/Construction
3rd Year	2023	$ 500,000	Planning/Construction
4th Year	2024	$ 75,000	Planning
5th Year	2025	$ 75,000	Planning

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

Project Name	WLI - TREXLERTOWN WASTEWATER STORAGE FACILITY						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/31/2020	**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**		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	**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**	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	Yes		

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

Detailed Project Description

As part of the Western Lehigh Interceptor SCARP program, a conveyance capacity bottleneck was identified in the Trexlertown area, and this was assigned a high priority due to the occurrence of sanitary sewer overflows in the vicinity. A parallel interceptor was originally conceived to run between Cetronia Rd south to Spring Creek Rd. The concept was modified to focus on providing wet weather storage capacity, due to concerns about downstream hydraulic impacts. The project is an interim solution to address wet weather capacity issues, and will become part of a future long-term solution to alleviate regional sewage conveyance capacity challenges.

Project Drivers and Needs to be Met by the Project

The primary drivers for the project are regulatory and system improvement. Additional wet weather wastewater storage and conveyance capacity is required in the segment of the WLI Interceptor. This project is intended to address short term wet weather flows, eliminate long range dry-day overflows, and allow for future growth.

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

Hydraulic modeling and conceptual cost estimates for the interceptor option were executed as part of the Signatory I&I project. Preliminary cost estimates for this project (interceptor option) and for the Iron Run pump station and force main (as an alternative option) were completed in 2018. A pre-design feasibility study commenced in late 2019 and is to be completed in the second quarter of 2020. Design phase will begin in late 2020.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-28
Project Name	WLI - TREXLERTOWN WASTEWATER STORAGE FACILITY

Prior Project Cost		$60,000
Estimated Project Costs:		**2021-2025**
LCA Staff	$	200,000
Land Acquisition	$	400,000
Construction/Equipment	$	12,000,000
Professional Services	$	1,200,000
Other	$	100,000
Contingencies	$	800,000
Total Project Cost	**$**	**14,700,000**

Requested in this Capital Program	**$**	**14,300,000**

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

			Need	**Phase of Work**
2020 Budget		$	400,000	planning & design
1st Year	2021	$	300,000	design & permitting
2nd Year	2022	$	900,000	construction
3rd Year	2023	$	5,000,000	construction
4th Year	2024	$	8,000,000	construction
5th Year	2025	$	100,000	planning