LEHIGH COUNTY AUTHORITY

LCA Main Office:
1053 Spruce Road
Wescosville, PA 18106
610-398-2503

Agendas & Minutes Posted:
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BOARD MEETING AGENDA – January 28, 2019

1. Call to Order
   - NOTICE OF MEETING RECORDINGS

     Meetings of Lehigh County Authority's Board of Directors that are held at LCA's Main Office at 1053 Spruce Road, Wescosville, PA, may be recorded for viewing online at lehighcountauthority.org. Recordings of LCA meetings are for public convenience and internal use only and are not considered as minutes for the meeting being recorded, nor are they part of public record. Recordings may be retained or destroyed at LCA's discretion.
   - *Public Participation Sign-In Request*
2. Review of Agenda / Executive Sessions
3. Approval of Minutes
   - *January 14, 2019 Board meeting minutes*
4. Public Comments
5. Action / Discussion Items:

   FINANCE AND ADMINISTRATION
   - *Preliminary 2020-2024 Capital Plan – Suburban Division and Administration (Discussion)*

   WATER

   WASTEWATER
   - *Suburban Division - Inflow & Infiltration Mitigation Action Plan: Lynn Township and Heidelberg Heights Sanitary Sewer Systems (Presentation and Discussion)*
6. Monthly Project Updates / Information Items (1st Board meeting per month)
7. Monthly Financial Review (2nd Board meeting per month) **– December 2018 report will be presented at the February 11, 2019 meeting**
8. Monthly System Operations Overview (2nd Board meeting per month) **– December 2018 report attached**
9. Staff Comments
10. Solicitor's Comments
11. Public Comments / Other Comments
12. Executive Sessions
13. Adjournment

UPCOMING BOARD MEETINGS

Meetings begin at Noon at LCA's Main Office, unless noted otherwise below.

February 11, 2019	February 25, 2019	March 11, 2019

PUBLIC PARTICIPATION POLICY

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. During the Public Comment portions of the meeting, members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.

REGULAR MEETING MINUTES
January 14, 2019

The Regular Meeting of the Lehigh County Authority was called to order at 12:00 p.m. on Monday, January 14, 2019, Chairman Brian Nagle presiding. Other Members present at the commencement of the meeting were: Linda Rosenfeld, Jeff Morgan, Richard Bohner, and Norma Cusick. Ted Lyons and Deana Zosky were on the phone for the duration of the meeting. Authority Staff present were Liesel Gross, Brad Landon, Charles Volk, Ed Klein, Pat Mandes, John Parsons, Chris Moughan, Susan Sampson and Lisa Miller.

REVIEW OF AGENDA

Chairman Nagle announced that today's Board meeting is being videotaped and streaming live and recordings will be posted to the Authority's website.

Liesel Gross noted an addition to the agenda. Under Finance & Administration, a land acquisition agreement is requested for staff authorization which Brad Landon will discuss in more detail. Also there will be an Executive Session regarding potential litigation at the end of the regular meeting. Chairman Nagle noted there will also be a personnel issue for discussion under Executive Session.

Scott Bieber entered the meeting at 12:02 p.m.

APPROVAL OF MINUTES

December 10, 2018 Regular Meeting Minutes

On a motion by Richard Bohner, seconded by Linda Rosenfeld, the Board approved the Minutes of December 10, 2018 meeting as written (8-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

Land Acquisition Agreement

Brad Landon explained that the previous action of condemnation of a portion of the parcel of land owned by Louise Kern in Upper Milford Township for the Upper Milford-Central Lehigh Division water system interconnection project is no longer needed due to negotiations with the owner having resulted in agreement for the Authority to purchase the uneconomic remnant portion of the parcel directly from the owner. A portion of Mrs. Kern's property is being acquired and her home torn down by Penn DOT for the Rte. 29 Bridge replacement project and the remainder is considering the uneconomic remnant by PennDOT. Mr. Landon asked the Board for approval of the acquisition and authorization for the Staff to finalize negotiations and execute any necessary agreements to purchase the property. The property will be purchased at fair market value and acquisition could be completed within a month.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved the land acquisition authorizing the Staff to finalize negotiations and execute any necessary acquisition documents or agreements (8-0).

Real Property Transaction - Resolution No. 1-2019-1

Liesel Gross explained the background of the land exchange between the Authority and Landston Equities, LLC and presented a map for visual clarification. The Authority and Landston would like to exchange their adjacent properties adjoining the Authority's wastewater pretreatment plant in Upper Macungie Township since each property is more beneficial to the other owner and have been appraised at similar values. She noted the Board previously authorized staff to pursue this land exchange at its October 23, 2017 meeting, and the resolution requested is to formalize the terms of the exchange which the Board had approved at that time. Some discussion followed.

On a motion by Linda Rosenfeld, seconded by Norma Cusick, the Board approved Resolution No. 1-2019-1 authorizing the exchange of parcels of land adjoining the wastewater pretreatment plant property in Upper Macungie Township (8-0).

Kevin Baker entered the meeting at 12:17 p.m.

LCA 2020 Action Plan & Update

Liesel Gross reviewed the memorandum regarding the LCA 2020 Strategic goals and 3-year action plan. LCA developed the goal-setting strategy using American Water Works Association's Effective Utility Management framework to establish its goals: Product Quality, Financial Viability, Infrastructure Stability, and Employee and Leadership Development. She reviewed the details of the 2018 Action Plan – Year End Status Report and the LCA 2020 Action Plan for 2019-2020 handouts that were provided to the Board in advance of the meetings. The four main goals that are critical elements of the LCA 2020 Action plan are resolution to the outstanding legal and financial matters related to the Allentown Water/Sewer Lease, elimination of sanitary sewer overflows (SSOs) and addressing long-term sewage capacity needs for our region, organization-wide focus on consistent asset management and preventive maintenance strategies to ensure system sustainability, and dedicated efforts to develop and maintain a highly engaged and skilled workforce.

Ed Klein reviewed the status of a few Financial Viability goals that were challenging in 2018 due to the schedule and scope changes to implement the Adaptive Insights software, revised forecasting tools, and improving internal accounting processes. Liesel Gross noted that a key highlight is the forecasting and financing plan for capital expenses which will be rolled out with the capital plan later in January.

The LCA 2020 Strategic Goals & 3-year Action plan document shows a new list of goals and also the carryover goal items from 2018. The most significant goals under Product Quality are to eliminate the SSOs by completing the Western Lehigh Interceptor emergency rehabilitation program and completing the system flow metering and modeling to support additional capacity planning. The top goal for Financial Viability is to address the City Division financial sustainability whether through monthly billing, lease restructuring, debt restructuring, capex financing and other available means. Under Infrastructure Stability, the Asset Management program and Preventative Maintenance key projects will be completed in 2019. Employee and Leadership Development will focus on developing a training tracking program and also implementing a "stay interview" technique.

Kevin Baker suggested adding customer outreach and stakeholder engagement to the goals in the future. Ms. Gross agreed, adding that customer outreach along with resiliency, both locally and globally, will be looked at in the future as the goal-setting process evolves.

USEPA Administrative Order – Sanitary Sewer Overflows – Update

Liesel Gross presented a PowerPoint presentation regarding an update on the Western Lehigh sewer service area and EPA Administrative Order to eliminate sanitary sewer overflows. When comparing LCA's water and sewer usage, the sewer flows trend with metered water sales, showing growth in LCA service area is driving higher flows. Currently, LCA has adequate treatment capacity available for growth. There was some discussion on how treatment allocation is distributed to each municipality and to new customers.

Ms. Gross reviewed efforts to remove wet-weather inflow and infiltration (I&I) within Authority-owned facilities. She highlighted that the Authority's regional interceptors make up 31 miles of the system, while the remaining municipalities, including the City of Allentown, own and operate nearly 600 additional miles of sewer collection systems and interceptors. A collaborative approach among all the parties is required to address the wet-weather issues on a regional basis. Some discussion followed regarding key components on the plans such as addressing leakage in private sewer laterals and basement inspections.

Ms. Gross explained that EPA has not yet responded to the August 2018 Regional Flow Management Strategy (RFMS) submission by the municipalities. The Authority has met with the Pennsylvania Department of Environmental Protection (DEP) twice since that time to review challenges specific to the Western Lehigh sewer service area. On December 26, 2018, the Authority and City of Allentown received a letter from DEP with a detailed set of requests requiring a joint response by March 29, 2019. DEP is looking for information regarding timing and approach for flow monitoring and system characterization, individual municipal I&I reduction programs, individual municipal maintenance programs, hydraulic and treatment capacity constraints, and how growth will be addressed.

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross reviewed the January 2019 project update report that was sent out with the Board packet and highlighted some items for discussion coming up at the January 28 2019 meeting and also for February 11, 2019, as noted in the report.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

Chairman Nagle called a recess at 1:28 p.m. The meeting reconvened at 1:38 p.m.

EXECUTIVE SESSION

An Executive Session was held at 1:38 p.m. to discuss potential litigation and a personnel issue.

The Executive Session ended at 2:35 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:35 p.m.

Richard H. Bohner
Secretary

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MEMORANDUM

TO: LCA Board of Directors
FROM: Liesel Gross, CEO
DATE: January 21, 2019
RE: Suburban Division Draft 5-Year Capital Plan (2020-2024)

At the January 28, 2019 meeting of Lehigh County Authority's Board of Directors, LCA staff will present an overview of the Draft 5-Year Capital Plan (2020-2024) for the Suburban Division. This memo is provided to offer a summary of the plan and the strategies incorporated in support of our organizational goals related to Financial Viability, and the next steps in the planning process.

Three overarching goals of LCA's newly revised planning process are:

1. Incorporate 5-year financial forecasts into plan documents, including projecting rate/revenue increases required to fund the plan.

2. To the extent possible, apply the general rule that annual capital expenses and regular / recurring system upgrades (such as annual water main replacements) be funded via operating funds derived from current revenues or existing reserves.

3. To the extent possible, apply the general rule that borrowing be limited for non-recurring, larger projects that represent a significant renewal, replacement or expansion of the system and will not be repeated in the foreseeable future.

As you review the draft plan enclosed, you will see these goals have been incorporated into the plans and illustrated by grouping projects into categories based on the funding mechanism to be applied, and illustrating 5-year financial performance expected. Revenue increases required to fund the program are also outlined within the plan. It is important to note that these revenue requirements are projected based on a comprehensive review of:

- ✓ projected operating expense inflation
- ✓ additional debt service that may be required to fund the program
- ✓ achievement of key financial benchmarks:
  - o operating cash on hand equal to at least 180 days of operating expenses
  - o debt service coverage ratio of at least 1.20

This plan, as presented, provides preliminary details for the projects expected over the next five years. Due to the interactive and ongoing communication between LCA staff and Board over the course of our biweekly meetings, most of the projects should be generally familiar to the Board. As our individual project approval processes have not changed, more details will also be presented for each project as they come forward for approval.

Following Board review of the Draft 5-Year Capital Plan (2020-2024) for the Suburban Division, next steps in the process include:

- Review of the Draft 5-Year Capital Plan (2020-2024) for the Allentown Division at the February 11, 2019 LCA Board meeting
- Revision of the draft plans based on Board feedback received
- Distribution of the draft plans to external organizations such as affected municipalities, Lehigh Valley Planning Commission, Lehigh County Board of Commissioners, and others, for a 30-day comment period
- Presentation of the draft plans publicly to any organizations who may wish such a presentation
- Presentation of final draft plans to the LCA Board with a review of public comments received

We expect these activities to be completed by the end of March, and the Board may approve the final draft plans at that time. Moving forward, the 2020 capital budget will be developed based on the approved plans and revised as needed for incorporation into the 2020 budget in October.

Please review the attached plans and let me know if you have any questions. We look forward to a lively discussion on January 28, 2019 to review the Suburban Division draft capital plan.

LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

DRAFT 5-YEAR CAPITAL PLAN

SUBURBAN DIVISION

2020-2024

JANUARY 2019

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2020-2024

TABLE OF CONTENTS

2020-2024 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	Administrative Order
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
2020–2024

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						
	2020	**2021**	**2022**	**2023**	**2024**	**TOTAL**
Project Costs	$5,784,500	$2,195,00	$4,792,000	$4,915,000	$4,818,000	$22,504,500
Sources of Funding:						
Operating/Capital Reserves	$1,415,000	$1,615,000	$4,642,000	$4,895,000	$4,818,000	$17,385,000
New Borrowing	4,369,500	$580,000	$150,000	$20,000	$0	$5,119,500
TOTAL FUNDING	**$5,784,500**	**$2,195,000**	**$4,792,000**	**$4,915,000**	**$4,818,000**	**$22,504,500**

Total spending on capital projects for the five-year period totals $22,504,500. Operating and capital reserves over the period will provide $17,385,000 for capital projects. New borrowing in the amount of $5,119,500 will provide the remaining funding required.

The $5,119,500 borrowing is to fund non-annual projects. To support the additional debt service worth $371,926 annually on the $5,119,500 borrowing and annual inflation on operating expenses, a rate increase of 6.90% each year will be required.

CONDENSED CASH FLOW - SUBURBAN WATER					
Dollars	**2020**	**2021**	**2022**	**2023**	**2024**
User Charges	10,446,877.00	11,167,712.00	11,938,284.00	12,762,026.00	13,642,606.00
Other Operating Revenues	217,018.00	217,018.00	217,018.00	217,018.00	217,018.00
Non-Operating Revenues	887,000.00	887,000.00	887,000.00	887,000.00	887,000.00
Operating expenses	(6,616,261.00)	(6,801,517.00)	(6,991,960.00)	(7,187,735.00)	(7,388,992.00)
Debt Service - Current Debt	(3,191,702.00)	(3,191,702.00)	(3,191,702.00)	(3,191,702.00)	(3,191,702.00)
Debt Service - NEW Debt	(371,926.00)	(371,926.00)	(371,926.00)	(371,926.00)	(371,926.00)
Investments Converting to Cash	-	-	2,500,000.00	2,500,000.00	-
Proceeds From NEW Debt	5,119,500.00	-	-	-	-
Capex - Admin Paygo	(350,000.00)	(250,000.00)	(225,000.00)	(187,500.00)	(137,500.00)
Capex - Paygo	(1,415,000.00)	(1,615,000.00)	(4,642,000.00)	(4,895,000.00)	(4,818,000.00)
Capex - NEW Borrowing	(4,369,500.00)	(580,000.00)	(150,000.00)	(20,000.00)	-
NET FUND FLOWS	**356,006.00**	**(538,415.00)**	**(30,286.00)**	**512,181.00**	**(1,161,496.00)**
User Charge Revenue Increase %	6.9%	6.9%	6.9%	6.9%	6.9%
Operating Cash Balance	3,343,578	3,450,163	3,536,877	3,651,558	3,745,562
Days on Hand	184	185	185	185	185
Project Reserve Balance	2,125,011	1,480,011	1,363,011	1,760,511	505,011
DEBT SERVICE COVERAGE RATIO	1.38	1.54	1.70	1.87	2.06

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2020-2024 CAPITAL PROGRAM
WATER

Project #	Name or Title of Proposal	(1) Prj. Type	Approval Stage (1)	Project Total Cost*	This Capital Program							Project Category (1)	
					2019 *Budget Approved*	2020 Year 1	2021 Year 2	2022 Year 3	2023 Year 4	2024 Year 5	2020-2024 Total	Primary	Secondary
	Operating/Capital Reserve Funds												
SD-W-A	Annual Projects	Regular	A	$ 9,421,000	$ 1,636,000	$ 1,415,000	$ 1,615,000	$ 1,542,000	$ 1,695,000	$ 1,518,000	$ 7,785,000	AM - Varies	Efficiency
SD-W-12	Water Main Replacement Projects	Regular	C	$ 12,100,000	$ 2,500,000	$ -	$ -	$ 3,100,000	$ 3,200,000	$ 3,300,000	$ 9,600,000	AM - Varies	Efficiency
	Subtotal			**$ 21,521,000**	**$ 4,136,000**	**$ 1,415,000**	**$ 1,615,000**	**$ 4,642,000**	**$ 4,895,000**	**$ 4,818,000**	**$ 17,385,000**		
	New Borrowing Funds												
SD-W-4*	Upper Milford Central Division Improvements - Buss Acres	Regular	P	$ 1,671,000	$ 700,000	$ 800,000	$ 100,000	$ -	$ -	$ -	$ 900,000	AM - High	Regulatory
SD-W-37	Additional *(Redunant)* Water Supply - Small Satellite Divisions	Regular	P	$ 870,000	$ 100,000	$ 200,000	$ 400,000	$ 150,000	$ 20,000	$ -	$ 770,000	Sys Imp	Rev Opp
SD-W-49*	CLD Auxiliary Pumping Station & Main Extension - Lower to Upper System	Regular	D	$ 1,562,860	$ 1,417,860	$ -	$ -	$ -	$ -	$ -	$ -	Sys Imp	N/A
SD-W-53	Water Meter Reading Equipment Upgrade	Regular	P	$ 3,927,000	$ 1,963,500	$ 1,963,500	$ -	$ -	$ -	$ -	$ 1,963,500	AM - Med	Efficiency
SD-W-54*	Central Lehigh to Upper Milford Division Interconnection	Regular	P	$ 2,665,180	$ 1,348,180	$ 1,296,000	$ -	$ -	$ -	$ -	$ 1,296,000	New Cust	Rev Opp
SD-W-55	CLD Well Improvements Study	Regular	P	$ 160,000	$ 60,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ 100,000	Sys Imp	Regulatory
SD-W-56	CLD Water System Optimization	Regular	P	$ 150,000	$ 60,000	$ 60,000	$ 30,000	$ -	$ -	$ -	$ 90,000	Sys Imp	Efficiency
	Subtotal			**$ 11,006,040**	**$ 5,649,540**	**$ 4,369,500**	**$ 580,000**	**$ 150,000**	**$ 20,000**	**$ -**	**$ 5,119,500**		
	GRAND TOTAL			**$ 32,527,040**	**$ 9,785,540**	**$ 5,784,500**	**$ 2,195,000**	**$ 4,792,000**	**$ 4,915,000**	**$ 4,818,000**	**$ 22,504,500**		

(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)
*Includes 2018 authorizations for W-4, W-49, W-54

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

Project Name	ANNUAL PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	N/A	Varies by system.
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	N/A	

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.

Purpose and Needs to be Met by the Project

Annual items that help maintain the operation and adequate level of service of existing water supply, distribution, and support 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-W-A
Project Name	ANNUAL PROJECTS

Estimated Project Costs :		
LCA Staff	$	1,000,000
Land Acquisition	$	-
Construction/Equipment	$	6,500,000
Professional Services	$	900,000
Other	$	521,000
Contingencies	$	500,000
Total Project Cost	**$**	**9,421,000**

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

Requested in this Capital Program	**$**	**7,785,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 1,636,000				
1st Year	2020	$ 1,415,000				$ 1,415,000
2nd Year	2021	$ 1,615,000				$ 1,615,000
3rd Year	2022	$ 1,542,000				$ 1,542,000
4th Year	2023	$ 1,695,000				$ 1,695,000
5th Year	2024	$ 1,518,000				$ 1,518,000

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	100	*Varies by components: (1) This system should be placed on the Common Rates.
Is this System part of a Common User Rate?	No (1)	
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 presurized 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.

Purpose and Needs to be Met by the Project

The Project will improve the level of service, reduce the risk of failure and provide regulatory compliance. Additionally, the design will accommodate the future addition of radon mitigation equipment if a reglatory 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 began in 2018.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ 61,900
Net	**$ 61,900**

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

Estimated Project Costs :		
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	1,140,000
Professional Services	$	200,000
Other	$	10,000
Contingencies	$	200,000
Total Project Cost	**$**	**1,600,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 700,000				
1st Year	2020	$ 800,000		$ 800,000		
2nd Year	2021	$ 100,000		$ 100,000		
3rd Year	2022	$ -		$ -		
4th Year	2023	$ -		$ -		
5th Year	2024	$ -		$ -		

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

Project Name	WATER MAIN REPLACEMENT PROJECTS						
Budget Area	Water	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	**	Varies by system - Main Replacements are located in multiple systems.
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

Replacement of cast iron (CI) mains in water systems that are priorized based on break history, geology (sinkholes), pipe condition, pipe age, and probability and consequence of failure. Year 1 of the Capital Plan (CP) (2020) 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.

Purpose 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

The construction of Cycles 4 main replacements (1.37 miles) was completed by the end of 2018. The design for Cycle-5 main replacement is in progress, and that project will be constructed in 2019 (1-mile).

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

Estimated Project Costs :		
LCA Staff	$	750,000
Land Acquisition	$	-
Construction/Equipment	$	8,550,000
Professional Services	$	2,000,000
Other	$	300,000
Contingencies	$	500,000
Total Project Cost	**$**	**12,100,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 2,500,000				
1st Year	2020	$ -				$ -
2nd Year	2021	$ -				$ -
3rd Year	2022	$ 3,100,000				$ 3,100,000
4th Year	2023	$ 3,200,000				$ 3,200,000
5th Year	2024	$ 3,300,000				$ 3,300,000

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

Project Name	ADDITIONAL *(REDUNDANT)* WATER SUPPLY - SMALL SATELLITE DIVISIONS						
Budget Area	Water	**Department**	Capital Works	**Date**	1/17/2019	**Project No.**	SD-W-37
Location	MND, CFD, MCD, located in various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Rev Opp	**Preparer**		CEV

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

Additional Information		
Expected Useful Life (Years)	20	**Comments**
Approx. No. of Customers Benefitted	*	*Varies by division: (1) Madison Park Division (MND) is not part of the common rate, but should be.
Is this System part of a Common User Rate?	(1)	
Will the Project Require Obtaining Land Rights	Yes	

Detailed Project Description

This Project addresses the needs of three satellite water systems that currently are operating on one well and have no redundant water supply. The Madison Park system has only one well, and an additional well will be developed and constructed under this 5 year Plan. The Clear View Farms and Mill Creek systems have one operating well each, but have at least one other existing well that has water supply or quality issues and cannot be presently utilized. In this case, the wells will be evaluated and if practicable, rehabilitated to improve capacity and/or water quality. Alternately, new wells will be developed and constructed for these sites. All these systems were acquired from developers or homeowners associations.

Purpose and Needs to be Met by the Project

The consequence of failure for the single wells serving these satellite systems is signficant, as water storage for these systems is approximately equal to one average day demand. Regulations for new public water systems require a backup or redundant source of supply.

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 2019.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ 53,000
Net	**$ 53,000**

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 - SMALL SATELLITE DIVISIONS

Estimated Project Costs :		
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	**$**	**770,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 100,000				
1st Year	2020	$ 200,000		$ 200,000		
2nd Year	2021	$ 400,000		$ 400,000		
3rd Year	2022	$ 150,000		$ 150,000		
4th Year	2023	$ 20,000		$ 20,000		
5th Year	2024	$ -		$ -		

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**	1/17/2019	**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
	Improved Service	**X**	Equipment/Infrastructure at End of Useful Life
	Study		Other (explain):

Additional Information		
Expected Useful Life (Years)	20	**Comments**
Approx. No. of Customers Benefitted	20,000	
Is this System part of a Common User Rate?	Yes	
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.

Purpose 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.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ 135,100
Net	**$ 135,100**

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

Estimated Project Costs :		
LCA Staff	$	70,000
Land Acquisition	$	-
Construction/Equipment	$	3,742,000
Professional Services	$	10,000
Other	$	5,000
Contingencies	$	100,000
Total Project Cost	**$**	**3,927,000**

Requested in this Capital Program	**$ 1,963,500**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 1,963,500				
1st Year	2020	$ 1,963,500		$ 1,963,500		
2nd Year	2021	$ -		$ -		
3rd Year	2022	$ -		$ -		
4th Year	2023	$ -		$ -		
5th Year	2024	$ -		$ -		

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	195	Includes 72 existing customers in Mink Estates and Far View Farms plus 123 new customers in the Kohler Tract.
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	Yes	

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. The waterline easements will be paid out of this project.

Purpose 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. Negotiations are under way to obtain the pump station lot and offsite water line easements.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	$	7,500
Debt Service	$	75,600
Net	**$**	**83,100**

Revenue Impact	
Gain/(Loss) in Annual Revenue	N/A
Assessment, Contribution in Aid-of-Construction	$ 197,570.00
Other	

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

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

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

Estimated Project Costs :		
LCA Staff	$	95,000
Land Acquisition	$	130,000
Construction/Equipment	$	1,200,000
Professional Services	$	210,050
Other	$	80,000
Contingencies	$	929,130
Total Project Cost	**$**	**2,644,180**

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

Requested in this Capital Program	**$**	**1,296,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, (1) Contr.-in-Aid	Reserves
2019 Budget		$ 1,348,180				
1st Year	2020	$ 1,296,000		$ 1,098,430	$ 197,570	
2nd Year	2021	$ -		$ -		
3rd Year	2022	$ -		$ -		
4th Year	2023	$ -		$ -		
5th Year	2024	$ -		$ -		

(1) Developers contribution applicable to the 123 homes in the proposed Kohler Tract subdivision.

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

Project Name	CLD WELL IMPROVEMENTS STUDY						
Budget Area	Water	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	Yes	
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 the upgrade options and costs to bring the wells back in to service. The study will help to determine the value of having the wells as sources should DEP implement "use it or lose it" regulations on groundwater 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.

Purpose and Needs to be Met by the Project

The wells could be used as additional sources to supplement flow, pressure, and chlorine residuals should water demand increase in the western Lehigh service area.

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

Annual Cost Impact		
Operating - *Increase/(Decrease)*	N/A	
Debt Service	$	6,900
Net	**$**	**6,900**

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

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	100,000
Other	$	10,000
Contingencies	$	30,000
Total Project Cost	**$**	**160,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 60,000				
1st Year	2020	$ 50,000		$ 50,000		
2nd Year	2021	$ 50,000		$ 50,000		
3rd Year	2022	$ -		$ -		
4th Year	2023	$ -		$ -		
5th Year	2024	$ -		$ -		

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

Project Name	CLD WATER SYSTEM OPTIMIZATION						
Budget Area	Water	**Department**	Capital Works	**Date**	1/17/2019	**Project No.**	SD-W-56
Location	CLD			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imo	**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		Equipment/Infrastructure at End of Useful Life
X	Study		Other (explain): Provide capacity for future growth

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

Detailed Project Description

This project consists of an engineering study to focus on water distribution needs in the western CLD system. Specifically, the project will evaluate future water demand scenarios and engineering alternatives for system improvements in order to provide adequate water supply and pressure to potential large demand customers in the western CLD system. The additional demand created by industrial/commercial growth may require increasing well production, upsizing of water mains, and/or upgrading and re-activating inactive wells.

Purpose and Needs to be Met by the Project

Accomodation of potential large industrial water users and major residential/commercial developments in the western 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

Project to commence in 2019.

Annual Cost Impact		
Operating - *Increase/(Decrease)*	N/A	
Debt Service	$	6,200
Net	**$**	**6,200**

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 WATER SYSTEM OPTIMIZATION

Estimated Project Costs :		
LCA Staff	$	10,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	120,000
Other	$	10,000
Contingencies	$	10,000
Total Project Cost	**$**	**150,000**

Requested in this Capital Program	**$**	**90,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 60,000				
1st Year	2020	$ 60,000		$ 60,000		
2nd Year	2021	$ 30,000		$ 30,000		
3rd Year	2022	$ -		$ -		
4th Year	2023	$ -		$ -		
5th Year	2024	$ -		$ -		

WASTEWATER

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
WASTEWATER
5-YEAR CAPITAL PLAN
2020–2024

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						
	2020	**2021**	**2022**	**2023**	**2024**	**TOTAL**
Project Costs	$7,115,500	$4,989,500	$9,894,500	$11,503,500	$1,837,500	$35,340,500
Sources of Funding:						
Operating/Capital Reserves	$6,315,500	$2,479,500	$3,834,500	$3,428,500	$1,662,500	$17,720,500
New Borrowing	$800,000	$2,510,000	$6,060,000	$8,075,000	$175,000	$17,620,000
TOTAL FUNDING	**$7,115,500**	**$4,989,500**	**$9,894,500**	**$11,503,500**	**$1,837,500**	**$35,340,500**

Total spending on capital projects for the five-year period totals $35,340,500. Operating and capital reserves over the period will provide $17,720,500 for capital projects. New borrowing in the amount of $17,620,000 will provide the remaining funding required.

The $17,620,000 of new borrowing will provide funding for AO projects in WLI group. The annual debt service on that borrowing of $1,183,453 annually will be collected from the signatories in the WLI group. The new debt service will cause a significant increase in rates to the WLI group for year 2020.

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

Year 2020 12.4%

Year 2021 2.6%

Year 2022 1.5%

Year 2023 2.7%

Year 2024 2.7%

CONDENSED CASH FLOW - SUBURBAN WASTEWATER					
Dollars	**2020**	**2021**	**2022**	**2023**	**2024**
User Charges	16,754,434.00	17,192,295.00	17,443,292.00	17,907,819.00	18,386,281.00
Other Operating Revenues	-	-	-	-	-
Non-Operating Revenues	925,750.00	951,243.00	977,501.00	1,004,546.00	1,032,402.00
Operating expenses	(12,390,378.65)	(12,762,089.90)	(13,144,953.29)	(13,539,301.50)	(13,945,480.42)
Debt Service - Current Debt	(684,476.00)	(684,476.00)	(684,476.00)	(684,476.00)	(684,476.00)
Debt Service - NEW Debt	(1,183,453.00)	(1,183,453.00)	(1,183,453.00)	(1,183,453.00)	(1,183,453.00)
Investments Converting to Cash	-	-	-	3,000,000.00	-
Proceeds From NEW Debt	17,620,000.00	-	-	-	-
Capex - Admin Paygo	(350,000.00)	(250,000.00)	(225,000.00)	(187,500.00)	(137,500.00)
Capex - Paygo	(6,315,500.00)	(2,479,500.00)	(3,834,500.00)	(3,428,500.00)	(1,662,500.00)
Capex - NEW Borrowing	(800,000.00)	(2,510,000.00)	(6,060,000.00)	(8,075,000.00)	(175,000.00)
NET FUND FLOWS	**13,576,376.35**	**(1,725,980.90)**	**(6,711,589.29)**	**(5,185,865.50)**	**1,630,273.58**
User Charge Revenue Increase %	12.4%	2.6%	1.5%	2.7%	2.7%
Operating Cash Balance	6,261,189	6,474,708	6,582,619	6,787,754	6,993,027
Days on Hand	184	185	183	183	183
Project Reserve Balance	14,294,170	12,354,670	5,535,170	144,170	1,569,170
DEBT SERVICE COVERAGE RATIO	2.83	2.88	2.82	2.88	2.93

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

BY SYSTEM	PROJECTS	TOTAL	OPERATING/CAPITAL RESERVES	NEW DEBT
Annual Projects	SA	$1,850,500	$1,850,500	-
Western Lehigh Interceptor	S3, S4, S9, S24, S28	$18,220,000	$600,000	$17,620,000
LCA Wastewater Treatment Plant	S22	$3,500,000	$3,500,000	-
Satellite Systems	S6, S7, S8, S10, S13, S17, S18, S25, S26	$10,325,000	$10,325,000	-
Little Lehigh Relief Interceptor System	S12, S15, S16	$1,445,000	$1,445,000	-
	TOTAL	**$35,340,500**	**$17,720,500**	**$17,620,000**

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION
2020-2024 CAPITAL PROGRAM
WASTEWATER

Project #	Name or Title of Proposal	(1) Prj. Type	Approval Stage (1)	Project Total Cost	This Capital Program							Project Category (1)	
					2019 *Budget Approved*	2020 Year 1	2021 Year 2	2022 Year 3	2023 Year 4	2024 Year 5	2020-2024 Total	Primary	Secondary
	Operating/Capital Reserve Funds												
	Annual												
SD-S-A	Annual Projects	Regular	A	$ 2,265,000	$ 414,500	$ 387,500	$ 295,500	$ 295,500	$ 329,500	$ 542,500	$ 1,850,500	AM - Varies	Efficiency
	Subtotal			**$ 2,265,000**	**$ 414,500**	**$ 387,500**	**$ 295,500**	**$ 295,500**	**$ 329,500**	**$ 542,500**	**$ 1,850,500**		
	Pretreatment Plant												
SD-S-22	Pretreatment Plant Improvements	Regular	A	$ 4,200,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 3,500,000	AM - Varies	Sys Imp
	Subtotal			**$ 4,200,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 700,000**	**$ 3,500,000**		
	Western Lehigh Interceptor												
SD-S-3*	Central Lehigh County WW Capacity Planning & Expansion	Regular	V	$ 150,000	$ 50,000	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000	New Cust	Rev Opprt
SD-S-4*	Spring Creek Force Main Air/Vacuum Valve Replacements	Regular	V	$ 255,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 200,000	Sys Imp	Efficiency
SD-S-9	Spring Creek Force Main Condition Assessment	Regular	P	$ 300,000	$ -	$ 100,000	$ 200,000	$ -	$ -	$ -	$ 300,000	AM-High	Sys Imp
	Subtotal			**$ 705,000**	**$ 90,000**	**$ 240,000**	**$ 240,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 600,000**		
	Satellite Systems												
SD-S-6*	Wynnewood I & I Investigation & Remediation Program	Regular	V	$ 200,000	$ 50,000	$ 100,000	$ 20,000	$ 10,000	$ 10,000	$ 10,000	$ 150,000	AM - Varies	Regulatory
SD-S-7*	Wynnewood Terrace WWTP Remediation & Replacement	Regular	V	$ 4,010,000	$ 2,000,000	$ 1,670,000	$ -	$ -	$ -	$ -	$ 1,670,000	AM - High	Efficiency
SD-S-8	Arcadia West WWTP Mechanical Screen	Regular	P	$ 325,000	$ -	$ 50,000	$ 250,000	$ 25,000	$ -	$ -	$ 325,000	Efficiency	Sys Imp
SD-S-10	Weisenberg Township, Lowhill Township, UMiT SSES	Regular	P	$ 225,000	$ -	$ -	$ -	$ -	$ 75,000	$ 150,000	$ 225,000	Regulatory	Sys Imp
SD-S-13*	Sand Spring WWTP Remediation & Replacement	Regular	S	$ 3,363,000	$ 800,000	$ 2,400,000	$ 110,000	$ -	$ -	$ -	$ 2,510,000	AM - High	Efficiency
SD-S-17*	Heidelberg Heights I & I Investigation & Remediation Program	Regular	V	$ 1,100,000	$ 250,000	$ 250,000	$ 100,000	$ 50,000	$ 50,000	$ 50,000	$ 500,000	AM - Varies	Regulatory
SD-S-18*	Heidelberg Heights WWTP Rehabilitation	Regular	P	$ 566,000	$ 40,000	$ 150,000	$ 20,000	$ 40,000	$ 200,000	$ 100,000	$ 510,000	AM - High	Efficiency
SD-S-25*	Lynn Township WWTP Upgrades & Expansion	Regular	D-*Partial*	$ 4,255,000	$ 20,000	$ 173,000	$ 174,000	$ 1,944,000	$ 1,944,000	$ -	$ 4,235,000	AM - High	Efficiency
SD-S-26*	Lynn Township I & I Investigation & Remediation Program	Regular	P	$ 243,000	$ 30,000	$ 40,000	$ 60,000	$ 50,000	$ 30,000	$ 20,000	$ 200,000	AM - High	Regulatory
	Subtotal			**$ 14,287,000**	**$ 3,190,000**	**$ 4,833,000**	**$ 734,000**	**$ 2,119,000**	**$ 2,309,000**	**$ 330,000**	**$ 10,325,000**		
	Little Lehigh Relief Interceptor												
SD-S-12	Park Pump Station Force Main Rehabilitation	AO	P	$ 1,360,000	$ 100,000	$ 100,000	$ 500,000	$ 660,000	$ -	$ -	$ 1,260,000	AM - High	Efficiency
SD-S-15*	Park Pump Station Rehabilitation/Improvements	AO	P	$ 4,315,000	$ 4,100,000	$ 55,000	$ -	$ -	$ -	$ -	$ 55,000	AM - High	Regulatory
SD-S-16	Regional Park Pump Station	AO	P	$ 130,000	$ -	$ -	$ 10,000	$ 20,000	$ 50,000	$ 50,000	$ 130,000	Regulatory	AM - High
	Subtotal			**$ 5,805,000**	**$ 4,200,000**	**$ 155,000**	**$ 510,000**	**$ 680,000**	**$ 50,000**	**$ 50,000**	**$ 1,445,000**		
	SUBTOTAL OPERATING/CAPITAL RESERVE FUNDS			**$ 27,262,000**	**$ 8,594,500**	**$ 6,315,500**	**$ 2,479,500**	**$ 3,834,500**	**$ 3,428,500**	**$ 1,662,500**	**$ 17,720,500**		
	New Borrowing Funds												
	Western Lehigh Interceptor												
SD-S-24*	Signatory I & I Investigation & Remediation Program	AO	V	$ 4,060,000	$ 500,000	$ 500,000	$ 1,610,000	$ 1,060,000	$ 75,000	$ 75,000	$ 3,320,000	Regulatory	Sys Imp
SD-S-28	WLI - Trexlertown Area Interceptor Upgrade	AO	P	$ 14,400,000	$ 100,000	$ 300,000	$ 900,000	$ 5,000,000	$ 8,000,000	$ 100,000	$ 14,300,000	Regulatory	Sys Imp
	Subtotal			**$ 18,460,000**	**$ 600,000**	**$ 800,000**	**$ 2,510,000**	**$ 6,060,000**	**$ 8,075,000**	**$ 175,000**	**$ 17,620,000**		
	SUBTOTAL NEW BORROWING FUNDS			**$ 18,460,000**	**$ 600,000**	**$ 800,000**	**$ 2,510,000**	**$ 6,060,000**	**$ 8,075,000**	**$ 175,000**	**$ 17,620,000**		
	GRAND TOTAL (RESERVES + NEW BORROWING)			**$ 45,722,000**	**$ 9,194,500**	**$ 7,115,500**	**$ 4,989,500**	**$ 9,894,500**	**$ 11,503,500**	**$ 1,837,500**	**$ 35,340,500**		

(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents. All projects are LCA funded.
*Includes 2018 authorizations for S-3, S-4, S-6, S-7, S-13, S-17, S-18, S-25, S-26, S-15, S-24

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

Project Name	ANNUAL PROJECTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	N/A	7 LCA WL signatories.
Is this System part of a Common User Rate?	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.

Purpose 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

Estimated Project Costs :		
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	2,000,000
Professional Services	$	65,000
Other	$	50,000
Contingencies	$	50,000
Total Project Cost	**$**	**2,265,000**

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

Requested in this Capital Program	**$ 1,850,500**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 414,500				
1st Year	2020	$ 387,500				$ 387,500
2nd Year	2021	$ 295,500				$ 295,500
3rd Year	2022	$ 295,500				$ 295,500
4th Year	2023	$ 329,500				$ 329,500
5th Year	2024	$ 542,500				$ 542,500

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**	1/17/2019	**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**	New Cust	**Secondary**	Rev Opprt	**Preparer**		PLM

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	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

Scope involved 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) from 40 to 44 MGD or converting the pretreatment plant to a full treatment facility, which includes discharge pumping and piping. Completion of the Act 537 Plan and construction of the yet to be selected option is assumed to be after this 5-year Capital Planning period. Funding shown is so that monies are available if the Act 537 work resumes during this Capital Plan period.

Purpose 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.

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

ARRO, Inc. was retained to prepare the Act 537 Plan to evaulate the alternatives for an additional 4 MGD of wastewater treatment capacity. The project was put on hold by DEP. In 2019 and beyond, several studies will be conducted related to the PTP design capactiy and future growth. The first is the PTP Influent Residential and Industrial Flow Segregation Evaluation Project to determine if segregation of wastes is a viable option to processing wastes when the PTP reaches capacity. The second project is the conceptual design and will include an alignment evaluation for the segregation and a PTP expansion conceptual feasibility study.

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

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	120,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**150,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 50,000				
1st Year	2020	$ 100,000				$ 100,000
2nd Year	2021	$ -				
3rd Year	2022	$ -				
4th Year	2023	$ -				
5th Year	2024	$ -				

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**	1/17/2019	**Project No.**	SD-S-4
Location	WLI, various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		CEV

	Purpose of Expenditure *(check all that apply)*		
	New Facility		Correct Known or Potential Safety Issue
	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	**Comments**
Approx. No. of Customers Benefitted	**	**= The Spring Creek Pump Station & Force Main provides service to 7 WL signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

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.

Purpose 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 acccumulate 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 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

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

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	180,000
Professional Services	$	30,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**240,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 40,000				
1st Year	2020	$ 40,000				$ 40,000
2nd Year	2021	$ 40,000				$ 40,000
3rd Year	2022	$ 40,000				$ 40,000
4th Year	2023	$ 40,000				$ 40,000
5th Year	2024	$ 40,000				$ 40,000

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	219	
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

In 2019, LCA anticipates to update CCTV inspections, identification of problem areas, and repair/remediation measures to eliminate excess wet weather flow into the sanitary sewer system. A remediation project to address problem areas and mitigate inflow and infiltration (I/I) will be designed and bid in-house, and is anticipated to be constructed in 2020.

Purpose and Needs to be Met by the Project

During wet-weather events, excess flows create capactiy 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 by the end of 2016, however, wet weather flows remain a problem. An updated system-wide CCTV inspection must be performed in 2019 in order to identify problem areas and scope out necessary repairs. Periodic CCTV inspection updates are required as a follow up in later years to identify future 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 inflitration 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

Estimated Project Costs :		
LCA Staff	$	40,000
Land Acquisition	$	-
Construction/Equipment	$	100,000
Professional Services	$	-
Other	$	50,000
Contingencies	$	10,000
Total Project Cost	**$**	**200,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 50,000				
1st Year	2020	$ 100,000				$ 100,000
2nd Year	2021	$ 20,000				$ 20,000
3rd Year	2022	$ 10,000				$ 10,000
4th Year	2023	$ 10,000				$ 10,000
5th Year	2024	$ 10,000				$ 10,000

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	219	
Is this System part of a Common User Rate?	Yes	
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 proposes the construction of a new concrete tank 60,000 gallon per day sequencing batch reactor process facility in 2019. This is to be completed in 2020 (adjacent to the original plant location).

Purpose 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

Estimated Project Costs :		
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**

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

Requested in this Capital Program	**$**	**1,670,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 2,000,000				
1st Year	2020	$ 1,670,000				$ 1,670,000
2nd Year	2021	$ -				$ -
3rd Year	2022	$ -				$ -
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	20	Serves Arcadia West Industrial Park, West Hills Business Center, NW Lehigh SD Elementary School.
Is this System part of a Common User Rate?	No	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

The project involves the design and installation of an automatic cleaning mechanical headworks screen and associated components.

Purpose and Needs to be Met by the Project

There is currently no means to 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 2020 and constructed 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

The mechanical screen will increase operational costs marginally mainly due to electrical power and debris disposal. However, the increase in operational costs may be offset by a decrease in staff costs associated with not having to perform the removing rags and inorganic debris that currently are not screened from the waste stream. Exact costs to be determined.

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

Estimated Project Costs :		
LCA Staff	$	10,000
Land Acquisition	$	-
Construction/Equipment	$	225,000
Professional Services	$	70,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**325,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ -				
1st Year	2020	$ 50,000				$ 50,000
2nd Year	2021	$ 250,000				$ 250,000
3rd Year	2022	$ 25,000				$ 25,000
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

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**	1/17/2019	**Project No.**	SD-S-9
Location	WLI, various municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM High	**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		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)	TBD	**Comments**
Approx. No. of Customers Benefitted	**	**= The Spring Creek Force Main provides service to 7 WL signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

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 attempted to identify the location of gas pockets and leaks. A broadband electromagnetic (BEM) test will 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 repair, rehabilitation, or replacement is needed. Pipeline rehabilitation will be completed as needed.

Purpose and Needs to be Met by the Project

The Spring Creek Pump Station and Force Main is an integral part of the Western Lehigh service area. Any necessary rehabilitation of the force main will restore level of service, assure longevity 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 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-9
Project Name	SPRING CREEK FORCE MAIN CONDITION ASSESSMENT

Estimated Project Costs :		
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	200,000
Other	$	10,000
Contingencies	$	40,000
Total Project Cost	**$**	**300,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ -				
1st Year	2020	$ 100,000				$ 100,000
2nd Year	2021	$ 200,000				$ 200,000
3rd Year	2022	$ -				
4th Year	2023	$ -				
5th Year	2024	$ -				

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**	1/17/2019	**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**		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	**Comments**
Approx. No. of Customers Benefitted	**	** Includes customers in the Weisenberg, Lowhill and Upper Milford systems.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

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.

Purpose and Needs to be Met by the Project

These three systems ultimatly 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 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

Estimated Project Costs :		
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	100,000
Professional Services	$	75,000
Other	$	10,000
Contingencies	$	10,000
Total Project Cost	**$**	**225,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ -				
1st Year	2020	$ -				$ -
2nd Year	2021	$ -				$ -
3rd Year	2022	$ -				$ -
4th Year	2023	$ 75,000				$ 75,000
5th Year	2024	$ 150,000				$ 150,000

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	**	**= The Park Pump Station provides service to 7 WLI signatories and 3 of the City signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

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 2019 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 2020 and 2021). For this Capital Plan, rehabilitation work is assumed to consist of internal pipe lining of critical sections.

Purpose 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 corrrosive 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. Structrual 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 2019 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

Estimated Project Costs :		
LCA Staff	$	40,000
Land Acquisition	$	-
Construction/Equipment	$	1,000,000
Professional Services	$	160,000
Other	$	60,000
Contingencies	$	100,000
Total Project Cost	**$**	**1,360,000**

Requested in this Capital Program	**$ 1,260,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 100,000				
1st Year	2020	$ 100,000				$ 100,000
2nd Year	2021	$ 500,000				$ 500,000
3rd Year	2022	$ 660,000				$ 660,000
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

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**	1/17/2019	**Project No.**	SD-S-13
Location	SSD, 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	**Comments**
Approx. No. of Customers Benefitted	257	
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	Yes	

Detailed Project Description

The existing develper-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 constucted in 2019 and 2020 adjacent to the original plant location.

Purpose 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 will be completed in early 2019. The project will be put out for bid the second quarter of 2019 and construction will finish 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

Exact costs to be determined.

Project No.	SD-S-13
Project Name	SAND SPRINGS WWTP REMEDIATION & REPLACEMENT

Estimated Project Costs :		
LCA Staff	$	50,000
Land Acquisition	$	-
Construction/Equipment	$	2,860,000
Professional Services	$	300,000
Other	$	-
Contingencies	$	100,000
Total Project Cost	**$**	**3,310,000**

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

Requested in this Capital Program	**$**	**2,510,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 800,000				
1st Year	2020	$ 2,400,000				$ 2,400,000
2nd Year	2021	$ 110,000				$ 110,000
3rd Year	2022	$ -				$ -
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

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**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	**	**= The Park Pump Station provides service to 7 WLI signatories and 3 of City signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

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.

Purpose and Needs to be Met by the Project

The Park Pump Station is a critical component of the sewerage infrastructure network in the region, serving ten municipalities. Its operation is crutical 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 EPA Administrative Order (AO).

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 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

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.

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

Estimated Project Costs :		
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	3,335,000
Professional Services	$	560,000
Other	$	10,000
Contingencies	$	150,000
Total Project Cost	**$**	**4,155,000**

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

Requested in this Capital Program	**$**	**55,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 4,100,000				
1st Year	2020	$ 55,000				$ 55,000
2nd Year	2021	$ -				$ -
3rd Year	2022	$ -				$ -
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

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

Project Name	REGIONAL PARK PUMP STATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**Project No.**	SD-S-16
Location	LLRI-1, City of Allentown			**Prj. Type**	AO	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	AM - High	**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	**Comments**
Approx. No. of Customers Benefitted	**	**= The Park Pump Station provides service to 7 WLI signatories and 3 of City signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

The 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.

Purpose and Needs to be Met by the Project

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 2021 and a feasibility study will be performed in 2022 and 2023 (with design starting in 2024).

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

Project No.	SD-S-16
Project Name	REGIONAL PARK PUMP STATION

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	-
Professional Services	$	100,000
Other	$	-
Contingencies	$	10,000
Total Project Cost	**$**	**130,000**

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

Requested in this Capital Program	**$**	**130,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ -				
1st Year	2020	$ -				$ -
2nd Year	2021	$ 10,000				$ 10,000
3rd Year	2022	$ 20,000				$ 20,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ 50,000				$ 50,000

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**	1/17/2019	**Project No.**	SD-S-17
Location	HHD, Heidleberg Township			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Regulatory	**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	**Comments**
Approx. No. of Customers Benefitted	145	
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

Includes CCTV inspection, flow monitoring, and remediation measures involving internal pipe lining and complete dig-up replacements of sections of sewer main. It is assumed that the annual construction projects will be designed, managed and bid in-house.

Purpose and Needs to be Met by the Project

During wet-weather events, flows into the WWTP are 3 to 4 times the plants capacity at times. This causes operation problems, wastewater flow bypasses at the treatment plant, and DEP violations.

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. Complete CCTV update inspection was performed in 2017 and repair locations were determined from the data. In 2018 the complete replacement of 54 laterals and 1,070 linear-feet of main was completed. 2019 work includes the replacement of aproximately 28 laterals and 1,200 linear feet of sewer main.

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 should reduce occurrence of overflows/bypasses at the wastewater treatment plant and save staff time and money, although it is difficult to quantify potential savings. Exact costs to be determined.

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

Estimated Project Costs :		
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	500,000
Professional Services	$	5,000
Other	$	90,000
Contingencies	$	125,000
Total Project Cost	**$**	**750,000**

Project Estimate Level	
	Conceptual Estimate
	Preliminary Estimate
	Budget Estimate
	Definitive Estimate

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 250,000				
1st Year	2020	$ 250,000				$ 250,000
2nd Year	2021	$ 100,000				$ 100,000
3rd Year	2022	$ 50,000				$ 50,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ 50,000				$ 50,000

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

Project Name	HEIDELBERG HEIGHTS WWTP REHABILITATION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**Project No.**	SD-S-18
Location	HHD, Heidleberg 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	**Comments**
Approx. No. of Customers Benefitted	145	
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

Multi-year project to provide needed upgrades to the steel tank wastewater treatment plant. The partitioned steel equalization/sludge holding tank is part of the original plant from the 1970s and requires structural rehabilitation and surface coating to prolong tank life and avoid complete tank replacement. In 2018, a feasibility study was performed by a consultant to assess the structural integrity of this tank and recommend a scope of rehabilitation to extend tank life. A future project also includes installation of an expanded catwalk grating system above the elevated SBR tanks (in order to improve maintenance access) and a mechanical screen at the headworks of the plant to remove rags and other inorganic material.

Purpose and Needs to be Met by the Project

The original combined steel EQ/Sludge holding tank is approximately 40 years-old and nearing the end of its service life, with areas of heavy corrossion which has compromised structural integrity. The tank is anticipated to be rehabilitated in late 2019/2020. An expanded catwalk grating system above the SBR tanks will improve maintenance acess. 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

A condition assessment of the steel equalization/sludge holding tank was completed by an engineer in 2018, which determined that the steel tank may be repaired to extend service life. Design will be completed in early 2019 and the steel tank rehabilitation project will be performed in late 2019/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

Exact costs to be determined.

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

Estimated Project Costs :		
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	340,000
Professional Services	$	80,000
Other	$	20,000
Contingencies	$	80,000
Total Project Cost	**$**	**550,000**

Requested in this Capital Program	**$ 510,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 40,000				
1st Year	2020	$ 150,000				$ 150,000
2nd Year	2021	$ 20,000				$ 20,000
3rd Year	2022	$ 40,000				$ 40,000
4th Year	2023	$ 200,000				$ 200,000
5th Year	2024	$ 100,000				$ 100,000

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

Project Name	PRETREATMENT PLANT IMPROVEMENTS						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	**	Provides pretreatment for industrial customers such as Boston Beer, Coca-Cola, Nestle Waters, Niagara, Ocean Spray, Bimbo and others.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This capital project is a comprehensive phased multi-year program to address the continued reliability and functionality of the LCA Wastewater Pre-treatment Plant. Short term projects include replacement of the "B-Mac" cryongenic system compressor, facility-wide SCADA system construction and implementation, door replacements, annual access road pavement reconstruction, grease station construction and waste hauler station improvements. Longer range program projects include upgrading the aging cryogenic system, aeration tank process optimization, primary setttling tank process expansion, final settling process expansion, final clarifier drive re-builds and tank upgrades, sludge dewatering equipment re-builds, digester boiler upgrades, roof replacements and HVAC sytem upgrades.

Purpose and Needs to be Met by the Project

Capital improvements at the facility have been historically underfunded. The severe duty corrossive environment of this 24/7 operation since 1990 and significantly increased industrial loading rates all drive the need for repairs, replacements and potential process expansions or modifications. The Capital Plan endeavors facilitate maintaining the reliability, level of service/performance and structural integrity of the physical plant, with an objective of maintaining economic solvency.

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

An annual program to rebuild the belt filter presses was started in 2015. There is an annual pavement reconstruction project on the waste hauler route used by large trucks within the plant site to replace failed and deteriorated asphalt pavement with concrete pavement. The SCADA system and grease station projects were also started in 2018.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

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

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

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 700,000				
1st Year	2020	$ 700,000				
2nd Year	2021	$ 700,000				
3rd Year	2022	$ 700,000				
4th Year	2023	$ 700,000				
5th Year	2024	$ 700,000				

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**	1/17/2019	**Project No.**	SD-S-24
Location	LCA WLI Sewer Service Area			**Prj. Type**	AO	**Prj. Funding**	LCA
Prj. Category	**Primary**	Regulatory	**Secondary**	Sys Imp	**Preparer**		PLM

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	**Comments**
Approx. No. of Customers Benefitted	WLI	Provides service to 7 WLI signatories, the Borough of Emmaus & others.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

The project includes two major components: **(1)** Investigatory/planning work such as flow monitoring, the SCARP development, SSES, Level of Service Determination, Alternatives Analysis, etc., that are necessary to develop the best course of action to reduce I&I within the system(s). Much of this work has been completed; **(2)** Design, permitting and the construction for rehabilitation of infrastructure that will be necessary to comply with the EPA Administrative Order (AO) for eliminating SSOs. LCA provides the leadership, technical expertise and administration for coordinating the AO projects located within the Signatory sewer systems.

Purpose and Needs to be Met by the Project

The Investigative phase has been completed. All SSES work, flow monitoring and modeling work has been completed to define the characteristics of the sewer basins and identify the leakiest basins. The planning phase is near completion and includes the alternatives evaluation, development of the capital improvements plan, cash flow projections and a memorandum of cooperation. Implementation of the capital improvement projects will be the focus of the next five years. Recalibration of the model is expected in 2019 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.

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

Investigation and alternatives analysis work has been completed. Implementation of the capital improvement projects will be the focus of the next five years.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ 228,400
Net	**$ 228,400**

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

Estimated Project Costs :		
LCA Staff	$	320,000
Land Acquisition	$	-
Construction/Equipment	$	3,000,000
Professional Services	$	300,000
Other	$	100,000
Contingencies	$	100,000
Total Project Cost	**$**	**3,820,000**

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

Requested in this Capital Program	**$**	**3,320,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 500,000				
1st Year	2020	$ 500,000		$ 500,000		
2nd Year	2021	$ 1,610,000		$ 1,610,000		
3rd Year	2022	$ 1,060,000		$ 1,060,000		
4th Year	2023	$ 75,000		$ 75,000		
5th Year	2024	$ 75,000		$ 75,000		

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

Project Name	LYNN TOWNSHIP WWTP EXPANSION						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	381	
Is this System part of a Common User Rate?	No	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

The expansion as originally envisioned by the Lynn Township Sewer Authority (LTSA) prior to acquisition of the sewer system by LCA, was the expansion of the WWTP capacity from 80,000 GPD to 160,000 GPD. The LTSA engineer, prior to the LCA acquisiton of the system, may serve as design engineer for an upcoming design project. Updated growth projection numbers are to be provided to LCA by Lynn Township, in order to assess the urgency and quantify the magnitude of a future expansion project.

Purpose and Needs to be Met by the Project

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 will be dependent upon I/I remediation efforts and updated growth forecasts.

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

Growth projections will be reexamined in 2019 to ensure the plant is properly sized. Design will begin in 2020. Construction will take place over two years and will begin in 2022.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Exact costs to be determined.

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

Estimated Project Costs :		
LCA Staff	$	295,000
Land Acquisition	$	-
Construction/Equipment	$	3,061,000
Professional Services	$	313,000
Other	$	31,000
Contingencies	$	555,000
Total Project Cost	**$**	**4,255,000**

Requested in this Capital Program	**$ 4,235,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 20,000				
1st Year	2020	$ 173,000				$ 173,000
2nd Year	2021	$ 174,000				$ 174,000
3rd Year	2022	$ 1,944,000				$ 1,944,000
4th Year	2023	$ 1,944,000				$ 1,944,000
5th Year	2024	$ -				$ -

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**	1/17/2019	**Project No.**	SD-S-26
Location	LTD, Lynn Township Division			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Regulatory	**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	**Comments**
Approx. No. of Customers Benefitted	381	
Is this System part of a Common User Rate?	No	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

Project will include a flow metering study and utilize prior CCTV inspection data to identify, target and repair/rehabilitate leaking sanitary sewer lines in the Lynn Township sewage collection system. A nominal amount of CCTV work is included in the scope to target identified problem areas pre- and post-construction. Smoke testing may also be performed to identify storm sewer interconnections. It is assumed that the construction project(s) will be designed and managed with in-house staffing.

Purpose and Needs to be Met by the Project

Reduce occurrence and magnitude of wet weather peak flows at the WWTP that cause hydrualic overloads, mitigate extraneous flow into the system, and maintain DEP compliance.

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. With the recently collected data and prior LCA CCTV inspections, a manhole rehabilitation project is currently being developed (as well as identifying corrective measures required for the 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

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

Estimated Project Costs :		
LCA Staff	$	30,000
Land Acquisition	$	-
Construction/Equipment	$	150,000
Professional Services	$	30,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**230,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 30,000				
1st Year	2020	$ 40,000				$ 40,000
2nd Year	2021	$ 60,000				$ 60,000
3rd Year	2022	$ 50,000				$ 50,000
4th Year	2023	$ 30,000				$ 30,000
5th Year	2024	$ 20,000				$ 20,000

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

Project Name	WLI - TREXLERTOWN AREA INTERCEPTOR UPGRADE						
Budget Area	Wastewater	**Department**	Capital Works	**Date**	1/17/2019	**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	**Comments**
Approx. No. of Customers Benefitted	**	**=The WLI system provides service to 7 WLI signatories.
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	Yes	

Detailed Project Description

The projects includes ~10,600 linear feet of 24 and 27-inch diameter sanitary sewer interceptor, installed parallel to the existing interceptor generally starting at MH U71 (*near the intersection of Cetronia and Trexlertown Roads)* and ending at MH L300 *(near the intersection of Trexlertown and Spring Creek Roads)* . The project also includes 59 manholes, meter station and the acquisition of the necessary permanent and construction easements. Note:
Trexlertown Road is the segment of the former RT 100 that the RT 222 Bypass circumvented.

Purpose and Needs to be Met by the Project

Additional wastewater conveyance capacity is required in the segment of the WLI Interceptor included in this project to address I&I and projected dry-day overflows (and to 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 were executed as part of the Signatory I&I project. Preliminary cost estimates for this project and for the Iron Run pump station and force main (as an alternative option) were completed in 2018.

Annual Cost Impact	
Operating - *Increase/(Decrease)*	N/A
Debt Service	$ 983,900
Net	**$ 983,900**

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 AREA INTERCEPTOR UPGRADE

Estimated Project Costs :		
LCA Staff	$	200,000
Land Acquisition	$	400,000
Construction/Equipment	$	12,000,000
Professional Services	$	1,200,000
Other	$	100,000
Contingencies	$	500,000
Total Project Cost	**$**	**14,400,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 100,000				
1st Year	2020	$ 300,000		$ 300,000		
2nd Year	2021	$ 900,000		$ 900,000		
3rd Year	2022	$ 5,000,000		$ 5,000,000		
4th Year	2023	$ 8,000,000		$ 8,000,000		
5th Year	2024	$ 100,000		$ 100,000		

LEHIGH COUNTY AUTHORITY

ALLENTOWN, PA

DRAFT 5-YEAR CAPITAL PLAN

ADMINISTRATION

2020-2024

JANUARY 2019

LEHIGH COUNTY AUTHORITY
5-YEAR CAPITAL PLAN
2020-2024

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2020-2024 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	Administrative Order
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

ADMINISTRATION

ADMINISTRATION
5-YEAR CAPITAL PLAN
2020-2024

CAPITAL FINANCING JUSTIFICATION

The Administrative projects of the Authority are funded through charge-backs to the various operating and capital budgets.

The Administrative projects are either a strictly Suburban Division (SD) project or a project which benefits both the City and Suburban Division (CON). In the case of the multi-division projects, the total costs have been apportioned 100% to the Suburban Division.

Project SD-A-1 is an Information Technology (IT) project to upgrade the Suburban SCADA capabilities. Water fund operating reserves will be used to finance the projects with partial recovery through charge-backs to Authority wastewater funds.

Project CON-A-1 is an organization-wide project related to the annual upgrades of computer hardware and software.

Project CON-A-2 is an organizational-wide upgrade to the Geographic Information System (GIS).

Project CON-A-3 is an organization-wide update and implementation of the LCA IT Master Plan.

Project CON-A-4 is an organization-wide project to develop an electronic document management system.

Project CON-A-5 is an organization-wide project to add additional security and disaster recovery tools to the existing IT system.

Project CON-A-6 is an organization-wide project to upgrade the existing CMMS system.

Funding Sources for each project are shown below.

ADMINISTRATION	2020	2021	2022	2023	2024	TOTAL
Project Costs	$700,000	$500,000	$450,000	$375,000	$275,000	$2,300,000
Funding Sources:						
Operating/Capital Reserves	$700,000	$500,000	$450,000	$375,000	$275,000	$2,300,000
New Borrowing	-	-	-	-	-	-
Total Funding	$700,000	$500,000	$450,000	$375,000	$275,000	$2,300,000

LEHIGH COUNTY AUTHORITY
ADMINISTRATION
2020-2024 CAPITAL PROGRAM

Project #	Name or Title of Proposal	(1) Prj. Type	Approvals Stage (1)	Project Total Cost	This Capital Program							Project Category (1)	
					2019 *Budget Approved*	2020 *Year 1*	2021 *Year 2*	2022 *Year 3*	2023 *Year 4*	2024 *Year 5*	2020-2024 Total	Primary	Secondary
	Operating/Capital Reserve Funds												
SD-A-1	SCADA Programming, Hardware Upgrades, Software & Training	Regular	A	$ 850,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 100,000	$ 700,000	AM - Varies	Efficiency
CON-A-1*	Computer System Hardware & Software Upgrades	Regular	A	$ 375,000	$ 100,000	$ 75,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 275,000	AM - High	Efficiency
CON-A-2*	GIS Upgrades & Application Development	Regular	V	$ 400,000	$ 100,000	$ 50,000	$ 75,000	$ 50,000	$ 50,000	$ 75,000	$ 300,000	Efficiency	Sys Imp
CON-A-3*	Information Technology Master Plan Update	Regular	P	$ 425,000	$ 50,000	$ 125,000	$ 100,000	$ 100,000	$ 50,000	$ -	$ 375,000	Planning	Sys Imp
CON-A-4*	Document Management	Regular	P	$ 475,000	$ 200,000	$ 200,000	$ 75,000	$ -	$ -	$ -	$ 275,000	Efficiency	Sys Imp
CON-A-5*	Disaster Recovery/Security Upgrades	Regular	P	$ 300,000	$ 125,000	$ 50,000	$ 25,000	$ 25,000	$ 50,000	$ 25,000	$ 175,000	Sys Imp	Efficiency
CON-A-6*	CMMS Upgrades	Regular	P	$ 325,000	$ 125,000	$ 50,000	$ 25,000	$ 75,000	$ 25,000	$ 25,000	$ 200,000	Sys Imp	Efficiency
GRAND TOTAL				**$ 3,150,000**	**$ 850,000**	**$ 700,000**	**$ 500,000**	**$ 450,000**	**$ 375,000**	**$ 275,000**	**$ 2,300,000**		

(*) CON = a Project that benefits both the Allentown and Suburban Divisions. All projects are LCA funded.
(1) Reference Glossary of Acronyms & Terms found immediately after the Table of Contents

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	SUPERVISORY CONTROL & DATA ACQUISTION (SCADA) PROGRAMMING, HARDWARE UPGRADES, SOFTWARE & TRAINING						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	SD-A-1
Location	Various LCA Divisions located in multiple municipalities			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - Varies	**Secondary**	Efficiency	**Preparer**		PB

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

Additional Information		
Expected Useful Life (Years)	5	**Comments**
Approx. No. of Customers Benefitted	*Varies	*Dependent upon the system
Is this System part of a Common User Rate?	Yes	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This annual on-going project includes both programming and hardware enhancements to the SCADA system to provide reliable telemetry and effective/proactive/flexible control of our facilities. It also includes an upgrade to SCADA & Telog communications and radio replacement of Telco lines to reduce monthly Telco charges to resolve ongoing communication problems with critical facilities. Training on the Historian software package is also included.

Purpose and Needs to be Met by the Project

The SCADA system currently provides real-time data and control for CLD water facilities and WLI related wastewater facilities and must be updated. The Telog system provides real-time data (no control) for satellite water and wastewater systems. Both are necessary to allow efficient operation of the water and wastewater system facilities.

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

SCADA upgrades have been completed at Pine Lakes and Crestwood in 2017 and 2018.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	SD-A-1
Project Name	SUPERVISORY CONTROL & DATA ACQUISITION (SCADA) PROGRAMMING, HARDWARE UPGRADES, SOFTWARE & TRAINING

Estimated Project Costs :		
LCA Staff	$	100,000
Land Acquisition	$	-
Construction/Equipment	$	600,000
Professional Services	$	100,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**850,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 150,000				
1st Year	2020	$ 150,000				$ 150,000
2nd Year	2021	$ 150,000				$ 150,000
3rd Year	2022	$ 150,000				$ 150,000
4th Year	2023	$ 150,000				$ 150,000
5th Year	2024	$ 100,000				$ 100,000

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	COMPUTER SYSTEM HARDWARE & SOFTWARE UPGRADES						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-1
Location	Allentown & Suburban Divisions			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	AM - High	**Secondary**	Efficiency	**Preparer**		PB

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

Additional Information		
Expected Useful Life (Years)	6	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This project includes both hardware and software costs for server replacements for units older than 6 years.

Purpose and Needs to be Met by the Project

Improved efficiencies will assist employees in becoming more productive.

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

Hardware replaced annually as needed. Software upgraded annually as needed.

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.	CON-A-1
Project Name	COMPUTER SYSTEM HARDWARE & SOFTWARE UPGRADES

Estimated Project Costs :		
LCA Staff	$	20,000
Land Acquisition	$	-
Construction/Equipment	$	300,000
Professional Services	$	20,000
Other	$	-
Contingencies	$	35,000
Total Project Cost	**$**	**375,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 100,000				
1st Year	2020	$ 75,000				$ 75,000
2nd Year	2021	$ 50,000				$ 50,000
3rd Year	2022	$ 50,000				$ 50,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ 50,000				$ 50,000

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	GEOGRAPHIC INFORMATION SYSTEM (GIS) UPGRADES & APPLICATION DEVELOPMENT						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-2
Location	Allentown & Suburban Divisions			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		PB

	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		Other (explain):

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

Detailed Project Description

The mobile application was deployed in 2012 with final operational staff training in 2013 and included the development of additional mobile functionality. Applications on an as-needed basis may include integration of the PA One-Call system and fire hydrant and manhole inspection databases. Mapping of water service lines is included in the project along with expanded use of GPS attributing of assets. IT Master Planning efforts may dictate some of the application work.

Purpose and Needs to be Met by the Project

The development and deployment of a mobile GIS application has provided field personnel with valuable data at their fingertips. The new applications that will be built off of the mobile platform will allow even more data to be viewed in the field and will also allow data to be collected electronically in the field. This will eliminate the need for duplicate data entry and will assist in streamlining some existing processess. The applications developed will also easily integrate into the maintenance management system that LCA deployed in early 2015.

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

GPS location of buried assets is progressing.

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.	CON-A-2
Project Name	GEOGRAPHIC INFORMATION SYSTEM (GIS) UPGRADES & APPLICATION DEVELOPMENT

Estimated Project Costs :	
LCA Staff	$ 50,000
Land Acquisition	
Construction/Equipment	$ 300,000
Professional Services	$ 25,000
Other	
Contingencies	$ 25,000
Total Project Cost	**$ 400,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 100,000				
1st Year	2020	$ 50,000				$ 50,000
2nd Year	2021	$ 75,000				$ 75,000
3rd Year	2022	$ 50,000				$ 50,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ 75,000				$ 75,000

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	INFORMATION TECHNOLOGY MASTER PLAN UPDATE						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-3
Location	Allentown & Suburban Divisions			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Planning	**Secondary**	Sys Imp	**Preparer**		PB

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

Additional Information		
Expected Useful Life (Years)	10	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This project provides funds for the update of the 8-year old LCA IT Master Plan (completed in early 2012) and the implementation of the recommendations cited. Additionally it includes funding to investigate and implement, if applicable, (a) software to manage developer related plan review and permitting and (b) software to manage the backflow prevention and FOG programs. It may also include other work deemed beneficial to LCA.

Purpose and Needs to be Met by the Project

The 2012 update identified needs in both technology and LCA's business/organization. In addition, IT will be a strategic and significant part of LCA's transition to the future as LCA begins a major knowledge transfer to the next generation of employees.

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

Update for 2019 will commence.

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.	CON-A-3
Project Name	INFORMATION TECHNOLOGY MASTER PLAN UPDATE

Estimated Project Costs :		
LCA Staff	$	225,000
Land Acquisition	$	-
Construction/Equipment	$	50,000
Professional Services	$	100,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**425,000**

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

Requested in this Capital Program	**$**	**375,000**

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 50,000				
1st Year	2020	$ 125,000				$ 125,000
2nd Year	2021	$ 100,000				$ 100,000
3rd Year	2022	$ 100,000				$ 100,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ -				$ -

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	DOCUMENT MANAGEMENT						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-4
Location	Allentown & Suburban Divisons			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Efficiency	**Secondary**	Sys Imp	**Preparer**		PB

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

Additional Information		
Expected Useful Life (Years)	10	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	No	

Detailed Project Description

This project provides for an Electronic Document Management System (EDMS) to store, search and share documents. This project does not plan for the imaging of existing paper documents.

Purpose and Needs to be Met by the Project

Readily available access to plans, reports and past correspondence will reduce research time. Storage space, files and cabinets for maintaining hard-copy documents will be minimized or eliminated. Digital, cross-referenced documents will improve accessibility and ease workflow.

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

Preliminary stages of this project began in 2018.

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

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

Borrowing Information	
Interest Rate	5.5000%
Term (Years)	30

Explanation if Necessary

Project No.	CON-A-4
Project Name	DOCUMENT MANAGEMENT

Estimated Project Costs :		
LCA Staff	$	125,000
Land Acquisition	$	-
Construction/Equipment	$	30,000
Professional Services	$	300,000
Other	$	-
Contingencies	$	20,000
Total Project Cost	**$**	**475,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 200,000				
1st Year	2020	$ 200,000				$ 200,000
2nd Year	2021	$ 75,000				$ 75,000
3rd Year	2022	$ -				$ -
4th Year	2023	$ -				$ -
5th Year	2024	$ -				$ -

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	DISASTER RECOVERY/SECURITY UPGRADES						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-5
Location	Allentown & Suburban Divisons			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		CWM

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

Additional Information		
Expected Useful Life (Years)	5	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	NO	

Detailed Project Description

This project will cover several areas to increase or add security, as well as improve our disaster recovery options for catastrophic failure.

Purpose and Needs to be Met by the Project

This project will provide on-site back up as well as unlimited cloud storage of all back-ups. It will also encompass spam filters, real time anti virus scanning, as well as Exchange backup. As part of the disaster recovery, a large room scaled UPS system to ensure server uptime will be incorporated.

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

Project will commence 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 No.	CON-A-5
Project Name	DISASTER RECOVERY/SECURITY UPGRADES

Estimated Project Costs :		
LCA Staff	$	25,000
Land Acquisition	$	-
Construction/Equipment	$	200,000
Professional Services	$	25,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**300,000**

Requested in this Capital Program	**$ 175,000**

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 125,000				
1st Year	2020	$ 50,000				$ 50,000
2nd Year	2021	$ 25,000				$ 25,000
3rd Year	2022	$ 25,000				$ 25,000
4th Year	2023	$ 50,000				$ 50,000
5th Year	2024	$ 25,000				$ 25,000

LEHIGH COUNTY AUTHORITY
ADMINISTRATION - CAPITAL IMPROVEMENTS PLAN
PROJECT DETAIL SHEET

Project Name	CMMS UPGRADES						
Budget Area	Administration	**Department**	IT	**Date**	1/17/2019	**Project No.**	CON-A-6
Location	Allentown & Suburban Divisons			**Prj. Type**	Regular	**Prj. Funding**	LCA
Prj. Category	**Primary**	Sys Imp	**Secondary**	Efficiency	**Preparer**		CWM

	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)	5	**Comments**
Approx. No. of Customers Benefitted	N/A	
Is this System part of a Common User Rate?	N/A	
Will the Project Require Obtaining Land Rights	NO	

Detailed Project Description

This project will affect several portions of the CMMS system, including server upgrade, API integration with external consulting firms, and a rack mounted NAS unit to ensure proper data storage.

Purpose and Needs to be Met by the Project

Server currently installed is running on minumum specifications and perfomance issues are being experienced. This project will increase storage, security, and performance.

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

Project will commence 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 No.	CON-A-6
Project Name	CMMS UPGRADES

Estimated Project Costs :		
LCA Staff	$	25,000
Land Acquisition	$	-
Construction/Equipment	$	200,000
Professional Services	$	50,000
Other	$	-
Contingencies	$	50,000
Total Project Cost	**$**	**325,000**

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

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

Source of Funds						
		Need	**Source**			
			Operating Revenues	Borrowing	Assessment, Contr.-in-Aid	Reserves
2019 Budget		$ 125,000				
1st Year	2020	$ 50,000				$ 50,000
2nd Year	2021	$ 25,000				$ 25,000
3rd Year	2022	$ 75,000				$ 75,000
4th Year	2023	$ 25,000				$ 25,000
5th Year	2024	$ 25,000				$ 25,000

Lehigh County Authority

System Operations Review - December 2018

Presented: January 28, 2019

Critical Activities	System	Description	Dec-18	2018 Totals	2017 Totals	Permit
			Daily Avg (MGD)	Daily Avg (MGD)	Daily Avg (MGD)	Daily Max (MGD)
Water Production	Allentown	Total	20.90	21.48	21.16	39.0
		Schantz Spring	8.08	6.90	6.39	9.0
		Crystal Spring	3.95	3.88	3.89	4.0
		Little Lehigh Creek	8.87	10.69	10.84	30.0
		Lehigh River	0.00	0.02	0.03	28.0
	Central Lehigh	Total	8.81	9.46	9.29	19.04 MGD Avg
		Feed from Allentown	7.02	6.74	6.94	7.0 MGD Avg 10.5 MGD Max
		Well Production (CLD)	1.79	2.71	2.35	8.54 MGD Avg
		Sum of all (12) other Suburban Water Systems	0.19	0.18	0.18	1.71 Sum of all wells
Wastewater Treatment		Kline's Island	41.14	36.08	30.78	40.0
		Pretreatment Plant	6.47	5.46	4.35	5.75 (design capacity)
		Sum of all (5) other Suburban WW Systems	0.23	0.20	0.16	0.36

		Dec-18	2018 Totals	2017 Totals	2016 Totals
Precipitation Totals (inches)		6.24	66.96	50.18	36.82
Compliance Reports Submitted to Allentown		18	285	291	269
Notices of Violation (NOVs)	(Allentown + Suburban)	0	1	3	3
Sanitary Sewer Overflows (SSOs)/Bypasses	(Allentown + Suburban)	6	78	22	16
Main Breaks Repaired	Allentown	1	33	19	19
	Suburban	1	23	12	11
Customer Service Phone Inquiries	(Allentown + Suburban)	1,673	26,440	27,313	28,099
Water Shutoffs for Non-Payment	(Allentown + Suburban)	0	1,838	1,577	1,685
Injury Accidents	(Allentown + Suburban)	1	14	8	10
Emergency Declarations	Allentown	0	(5) @ $76,469	(2) @ $51,235	(2) @ $87,079
	Suburban	0	(1) @ $21,197	(1) @ $72,554	(1) @ $33,495

Significant Repairs: Nothing major to report.

Description of NOVs and/or SSOs: There were two (2) bypasses during December. One of them occurred at Heidelberg Heights WWTP on 12/26/2018. The second occurred at Lynn Township WWTP on 12/31/2018. There were four (4) SSO's during December. Two (2) of them occurred in our suburban systems, with the first one on 12/21/2018 and the second one on 12/22/2018. Two (2) SSO's occurred in the city on 12/28/2018. There were no NOV's issued to any LCA system during December, 2018.

Other Highlights: One of the Operational tasks that sometimes goes unnoticed is addressing PA-1 calls. In 2018, LCA completed 13,936 tickets. Of this, 6,399 tickets were located in Suburban, and another 7,537 tickets were located within the city. PA-1 Calls are an extremely important task but it is done at the expense of high man hour demand.

Western Lehigh Interceptor High Flow Emergency Project

Status as of 1/18/2019

The Iron Run Trunk Line (IRTL) between the Industrial Pretreatment Plant (PTP) and Manhole (MH) U6, is the main area of recurring SSOs that led to the development of this project. MH U6 is located ~1,100' WSW of the intersection of Trexlertown Road and Hamilton Boulevard. The total distance televised in this reach was 7,115', and includes 93 manholes. In this section, LCA has identified 18 defects, the majority of which are joint leaks, along with heavy sediment in many locations.

With the assistance of Arcadis, remediation specifications for the IRTL have been developed and delivered on 1/17/2019. Final edits on the specifications will be done ASAP so the documents can be shared with five (5) perspective contractors and a pre-bid meeting can be scheduled. The plan is for the contractors to get the specifications during the week of 1/21/2019, and they will likely be given 10-14 days to submit their bids. Construction is to begin early in February for the entire 7,115' stretch of pipe, and this work will be referred to as Phase I.

During January, we have been CCTV-ing the Spring Creek Line between U6 and Spring Creek Pump Station (SCPS). There have been difficulties with the cameras in this area because of consistently high flows despite the fact that the PTP has been holding back flow on all of our work days. LCA has asked the PTP to hold back flows on Tuesdays and Thursdays because they need downtime for the Flow Equalization Basin (FEB) to drain. This has slowed the process as well. The line between MH U6 and the SCPS will be referred to as Phase II. It will be bid separately of Phase I.

Phase III will be on the Spring Creek Line from SCPS down to a yet underdetermined location. In order to CCTV this area, we will need to wait for the stop logs to be installed and the stop gate to be repaired in SCPS in order to divert all flow into the force main. Both of these tasks were scheduled on 1/21/2019, but were postponed due to weather. They will be completed ASAP.