



DRAFT Five Year Capital Improvement Plan

Water and Sewer Capital Projects

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1.0 Overall Capital Improvements Plan

1.1 Introduction

1.1.1 The Department of Sanitary Engineering is faced with the difficult task of allocating limited resources among a seemingly unlimited number of demands and needs for public services. Capital improvement planning is an ongoing, systematic approach to identify, schedule, and efficiently allocate public dollars to needed capital projects. Typically a Capital Improvement Plan (CIP) schedules cover a span of five years.

1.1.2 The main challenge facing the Sanitary Engineer in the current planning period is the sheer magnitude of projects required to keep the utility functioning and providing service to its customers. A number of rehabilitation and renewal projects are required simply to keep existing assets running. Without prompt attention, these assets could fail resulting in a loss of service to our customers. Examples of these projects include the Oakhurst Knolls and Century Acres WWTP Upgrades, various pump station upgrades, and the Timberlake Elevated Tank Replacement.

1.1.3 At the same time, there are a number of other projects that are required by regulators to meet permit requirements. While these projects aren't necessary to enhance customer service, non-performing these projects could result in permit violations and fines from outside agencies. Examples of these projects include the Darbydale WWTP Enhancement project, the Systemwide Valve Replacement project, and the CMOM/SES project.

1.1.4 Competing with asset renewal projects and regulatory required projects is the need to provide new service to new customers. Examples of these projects include the Kanawha Rosslyn, Eureka Park, Pleasant Acres, and Oak Hills sanitary sewer projects.

1.2 Content

1.2.1 This plan presents the following information to the reader:

- Project descriptions including justifications for undertaking each project
- Project costs
- Project financing requirements
- Project schedule
- Staffing plan

1.2.2 This plan does not provide insight into asset management, such as the care or proper maintenance routines needed to plan for repairs and/or maintenance of other FCSE facilities. The authors of this plan began with the assumption that most facilities required upgrades and/or replacements due to the exceeded operating lifetimes of many of the assets. Therefore, it is recommended that an asset management plan be completed in 2014 to supplement this CIP document and to optimize future capital expenditures.

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1.3 Project Summary

- 1.3.1 The CIP covers a near-term plan of five years from January 2014 through December 2018. The CIP also presents anticipated projects from 2019 through 2038 so that financing and staffing ranges can be determined.
- 1.3.2 While the intent of the plan is to provide a complete and comprehensive list of anticipated projects for the next five years, it is possible that new and unforeseen projects could emerge and require prompt attention within the planning period. Examples of these types of projects would be either a catastrophic failure of an existing asset or the discovery of an impending failure during a routine inspection.
- 1.3.3 The projects listed in the CIP are those that must be undertaken in addition to existing projects already underway.
- 1.3.4 The CIP considers 23 potable water projects with a total worth of \$63 million. If undertaken, the County would be required to repay \$95 million in principal and interest over a 20 year period to cover the cost of these projects.
- 1.3.5 The CIP considers 21 sanitary sewer projects with a total worth of \$47 million. If undertaken, the County would be required to repay \$72 million in principal and interest over a 20 year period to cover the cost of these projects.
- 1.3.6 The total value of the CIP is summarized below.

Parameter	Water	Sewer	Total
Engineering	\$14,662,000	\$11,812,000	\$26,474,000
Construction	\$48,589,000	\$35,815,000	\$84,404,000
Projects Subtotal	\$63,251,000	\$47,627,000	\$110,878,000
Interest	\$32,312,000	\$24,691,000	\$57,003,000
Projects Total	\$95,563,000	\$72,318,000	\$167,881,000

- 1.3.7 The debt incurred from the 2014 CIP would be in addition to existing debt obligations of the Agency. It is anticipated that future projects proposed in future CIPs will further increase debt obligations. Refer to Section 6 of this report.

2.0 Project Prioritization

- 2.1 The Department of Sanitary Engineering has limited resources and a number of assets requiring prompt attention so that an acceptable level of service can be maintained to the customers. While it would be beneficial to the County to undertake all projects from the CIP list simultaneously, funding constraints make this impossible. Thus projects must be ranked to determine priority and scheduling.
- 2.2 The first step in developing a project and evaluating its inclusion in CIP is to assign an objective to the project. The second step is to then assign a priority ranking to the project based on a number of evaluation criteria. Each project in the CIP was assigned an objective and a priority.

2.1 Project Objectives

- 2.1.1 The Department is required to have a reason or objective for undertaking a particular project. This section presents various descriptors that can be applied to each project to convey the need for the project to the reader. The descriptors are presented below.

Objective	Description
Repair / Maintenance	To prevent deterioration or maintain a facility in good condition
Replacement	To correct problems or deficiencies by replacing worn out parts or sections such as sewer lines, streets, or new facilities to relieve system overloads
Mandated	Project that meet federal or state regulatory requirements or public safety standards. For example, Ohio EPA projects as a result of permit renewals or Director's Findings and Orders are all required or mandated.
Expansion	To expand a system's service area to meet service demands (perhaps to serve newly annexed, undeveloped, or underserved areas). Projects in this category must relate to a long-range facility plan and conform to land use densities noted in the Comprehensive Plan but not diminish service to existing residents and properties.
Efficiency	To make the infrastructure system more efficient with technological improvements, etc. These projects should either be money-savers or provide more service without more resources.

2.2 Evaluation Criteria

- 2.2.1 A number of separate ranking criteria were developed to prioritize the projects on the CIP list. The evaluation criteria were created to carefully balance the needs of various stakeholders including the Department of Sanitary Engineering, County Administration including the Commissioners, the general public, and external regulatory agencies.

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2.2.2 Each project was independently scored according to each criterion using a numeric score of 0 through 5. Note that projects were not compared to each other as each project on the list is essential to complete. A score of 0 shows that a project poorly meets the objectives of the criteria. A score of 5 demonstrates that a project meets the objectives of those criteria. The evaluation criteria are outlined below.

2.2.1 Cost / Benefit

2.2.1.1 When evaluating alternatives for a single project, the cost of the project is normally a deciding factor in choosing an alternative. However, once a need has been identified and a project has been selected to remedy the need, the cost of the project vs. the cost of other projects on the CIP list becomes irrelevant. This is because projects must be completed in order to maintain service to the water and sewer customers of the County. This category looks at the benefit derived from a particular project and the cost required to achieve that benefit. For example, projects that have a relatively low cost but high revenue gains for the County are viewed favourably and thus score highly. Projects that cost more than the revenue they can produce are viewed as unfavourable and thus receive lower scores.

2.2.2 Operation and Maintenance

2.2.2.1 This category looks at the ability of the project to allow proper operation and maintenance of the system in a normal, customary, and cost effective way. If the project were to be deferred or nonperformed, then the County would need to employ extraordinary and unconventional, and perhaps costly, means to operate and maintain a particular system to deliver service to its customers.

2.2.3 Water Quality Benefit

2.2.3.1 Ability of the project to improve water quality, whether it is ambient water quality in streams and stormwater systems, wastewater plant effluent, or drinking water quality. Proceeding with the project would either maintain or improve water quality affected by the project. Nonperforming of the project would lead to a deterioration of water quality.

2.2.4 Regulatory Acceptability

2.2.4.1 Ability of the project to satisfy requirements of regulatory agencies such as the Ohio EPA. This could be compliance with a NPDES permit, provisions of the SDWA, or a DFFO.

2.2.5 Consequence of Failure

2.2.5.1 Some assets in a utility system are more critical to maintaining service than other assets. Projects that maintain critical assets receive a higher score than projects that do not. While some projects may be viewed as critical by entities outside the County, they may not be deemed critical to maintaining existing service and thus receive low scores. Examples of critical assets include treatment plants, pump stations assets serving large populations, and elevated storage tanks.

2.2.5.2 While all County customers are equally important, the loss of an asset that affects a small population is easier to manage than an asset serving a large population. For example, failure of an 8-inch sewer serving one street could be quickly repaired by County crews

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while maintaining service using readily available equipment. Failure of a 48-inch trunk sewer serving thousands of people would take extraordinary measures and would naturally result in a loss of service and a large disruption. Therefore projects serving large populations score higher than projects serving smaller populations.

- 2.2.5.3 Projects that have a high probability of failure are in more urgent need of attention, and thus score higher. Assets that are in good working order or are part of a redundant system score lower as the probability of failure is less.

2.3 Project Scoring

- 2.3.1 Tables 2-1 and 2-2 list all projects from the CIP, the score each received in each ranking criteria, and their priority on the project list. Regardless of the project’s score, it is essential that each project on the list be completed within the planning period, and the project priority simply indicates the order in which the projects will be completed.

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Table 2-1
Water Capital Project Priority List

WATER PROJECTS	Cost / Benefit	Operation and Maintenance	Water Quality Benefit	Regulatory Acceptability	Consequence of Failure	Total Score	Relative Priority
AMR / AMI	5	5	0	2	3	15	3
Timberlake WTP Softening	3	1	5	3	0	12	5
SD4 Water Valve Replacement	5	5	5	5	4	24	1
Timberlake Water Main Pigging	3	4	4	3	1	15	3
2014 Waterline Replacement	2	4	2	2	2	12	5
2015 Waterline Replacement	2	4	2	2	2	12	5
2016 Waterline Replacement	2	4	2	2	2	12	5
2017 Waterline Replacement	2	4	2	2	2	12	5
2018 Waterline Replacement	2	4	2	2	2	12	5
Leonard Park	3	1	4	0	0	8	8
Broad Street Waterline Relocation	4	2	1	0	2	9	7
Woodlawn / Beacon Hill Waterline	4	2	1	0	3	10	6
Timberlake Elevated Tank Replacement	4	2	1	1	5	13	4
2014 Systemwide Leak Detection	5	5	0	3	5	18	2
2015 Systemwide Leak Detection	5	5	0	3	5	18	2
2016 Systemwide Leak Detection	5	5	0	3	5	18	2
2017 Systemwide Leak Detection	5	5	0	3	5	18	2
2018 Systemwide Leak Detection	5	5	0	3	5	18	2
Waterline Extensions Preliminary Study	1	0	2	3	0	6	9
Waterline Extensions Group 1	1	1	3	3	0	8	8
Waterline Extensions Group 2	1	1	3	3	0	8	8
Waterline Extensions Group 3	1	1	3	3	0	8	8
Waterline Extensions Group 4	1	1	3	3	0	8	8

Table 2-2
Sewer Capital Project Priority List

SEWER PROJECTS	Cost / Benefit	Operation and Maintenance	Water Quality Benefit	Regulatory Acceptability	Consequence of Failure	Total Score	Relative Priority
Cherrydale Pump Station Improvements	3	5	1	1	5	15	6
Timberbrook Pump Station Improvements	3	5	0	1	5	14	7
Village Park Pump Station Improvements	3	5	0	1	5	14	7
Young Estates Pump Station Improvements	3	5	0	1	5	14	7
Timberlake Sewer Corrosion Abatement	4	5	2	1	5	17	4
Darbydale WWTP Improvements	3	2	5	5	1	16	5
Oakhurst WWTP Improvements	4	4	5	5	3	21	2
Oakhurst WWTP Filter Replacement	4	5	5	5	5	23	1
Century Acres WWTP Improvements	4	5	5	1	5	20	3
CMOM / SSES	3	1	1	5	5	15	6
General Sanitary I/I Rehabilitation	3	1	1	5	5	15	6
Eureka Park Sanitary Sewer	1	0	4	0	0	5	10
Mon E Bak Sanitary Sewer	1	0	4	0	0	5	10
Brown Road East Sanitary Sewer	1	0	4	0	0	5	10
Darby Watershed Utilities Study	1	0	0	0	0	1	11
Pleasant Acres MHP Connection to Darbydale	1	0	2	5	0	8	8
Oak Hills MHP Connection to Darbydale	1	0	2	5	0	8	8
Kanawha / Rosslyn Sanitary Sewer	1	0	5	0	0	6	9
Stimmel Sanitary Sewer	1	0	5	0	0	6	9
Hague Sanitary Sewer	1	0	5	0	0	6	9
Ferris Sanitary Sewer	1	0	5	0	0	6	9

3.0 Project Descriptions

3.1 A description of each project in the 5-Year CIP is presented below.

3.1 Water Project Descriptions

3.1.1 AMR / AMI

Project	AMR / AMI (automated meter reading / automated meter infrastructure)
Description	Replace meter registers and radios with new radios and reading infrastructure. Project consists of the upgrading of 5,000 registers and meters. The County would contract with the meter vendor to make the actual replacements at each premises.
Objective	Repair / maintenance Efficiency
Priority	3
Schedule	Q1 2014 – Q3 2014
Engineering	\$100,000
Construction	\$1,200,000
Total Project Cost	\$1,300,000
Funding Source	Not specified
Alternatives	Installation of automated meter reading equipment will increase the efficiency of field and office staff, will alert staff to suspicious customer activity, and will allow department to bill on a monthly basis

3.1.2 Timberlake WTP Softening

Project	Timberlake WTP Softening
Description	The existing Timberlake WTP currently provides treated water to the residents of Timberlake and Harrisburg. The raw water source for this plant contains iron, manganese, and is also considered quite high. The residents served by the plant pay the same water rate as other customers in the County's system, but receive a much lower quality of water. Furthermore, the residents of Harrisburg and Timberlake were told by the County that softened water would be produced by the plant by the end of 2012. Incorporating softening into the plant will also help to remove other contaminants from the raw water such as ammonium and arsenic.
Objective	Repair / maintenance
Priority	5
Schedule	Q1 2014 – Q1 2016
Engineering	\$248,000
Construction	\$870,000
Total Project Cost	\$1,118,000
Funding Source	Not specified
Alternatives	No alternative exists for this project. If arsenic becomes a problem in the raw water source, then softening will become required by the OEPA.

3.1.3 SD4 Valve Replacement

Project	SD4 Valve Replacement
Description	Replace existing water main valves in the SD4 distribution system. Most valves are inoperable. This prevents crews from isolating water mains during maintenance activities. Furthermore, OEPA requires the County to conduct unidirectional flushing annually, and this can't be performed unless all valves are operational.
Objective	Repair / maintenance Replacement Mandated
Priority	1
Schedule	Q1 2014 – Q2 2016
Engineering	\$432,000
Construction	\$3,090,000
Total Project Cost	\$3,522,000
Funding Source	Not specified
Alternatives	No alternatives to this project exist.

3.1.4 Timberlake Water Main Pigging

Project	Timberlake Water Main Pigging
Description	The Timberlake water system was inherited by the Agency in 2011. Numerous complaints of water quality have been brought to the attention of the Agency, and it is suspected that the waterlines contain debris as a result of past operational practices. Pigging the waterline, a process whereby a soft device slightly smaller than the pipe, called a pig, is pushed through the pipe which will remove any existing debris, will improve water quality, and will prepare the system for the introduction of softened water.
Objective	Repair / maintenance
Priority	3
Schedule	Q3 2014 - Q2 2015
Engineering	\$70,000
Construction	\$150,000
Total Project Cost	\$220,000
Funding Source	Not specified
Alternatives	Flushing through existing hydrants can be an alternative. Yet a sufficient number of hydrants do not exist and flushing is not as effective as pigging.

3.1.5 2014 – 2018 Waterline Renewal

Project	2014 – 2018 Waterline Renewal
Description	The County owns and operates approximately 64 miles of waterline across each of its water systems. The lifespan of a waterline is approximately 70 years, depending on when it was constructed, the material of construction, the construction techniques used at the time of installation, and soil conditions. Waterlines deteriorate in several ways including external corrosion, internal corrosion, and by inherent structural defects. When a waterline reaches the end of its useful life it must be replaced to allow the County to continue servicing its customers. The intent of this project is to replace approximately one mile of water main per year on a continuous cycle. Each year, the Agency will recommend a replacement project to be undertaken
Objective	Repair / maintenance Replacement
Priority	5
Schedule	Q1 2014 – Q4 2018
Engineering	\$335,000 each, \$1,675,000 total
Construction	\$1,800,000 each, \$9,000,000 total
Total Project Cost	\$2,135,000 each, \$10,675,000 total
Funding Source	Not specified
Alternatives	No alternatives exist. Waterline replacement cannot be deferred or a larger number of waterlines will require simultaneous replacement in the future.

3.1.6 Leonard Park

Project	Leonard Park Water System
Description	Residents of the Leonard Park neighborhood rely on private wells for water. Many of these wells are failing and provide inadequate quality and quantity of water. Installing a public water system in this neighborhood will alleviate this long standing issue.
Objective	Expansion
Priority	8
Schedule	Q3 2013 – Q4 2014
Engineering	\$682,000
Construction	\$2,719,000
Total Project Cost	\$3,401,000
Funding Source	Not specified
Alternatives	No alternative exists for this project.

3.1.7 Broad Street Water Line Relocation

Project	Broad Street Water Line Relocation
Description	Broad Street, which is owned, operated, and maintained by ODOT, bisects SD4. The department has several large water lines within the Broad Street right of way. ODOT currently has a project underway to replace the road, which requires the agency to relocate water lines.
Objective	Replacement
Priority	7
Schedule	Q3 2013 – Q4 2014
Engineering	\$40,000
Construction	\$450,000
Total Project Cost	\$490,000
Funding Source	Not specified
Alternatives	No alternative exists for this project.

3.1.8 Woodlawn / Beacon Hill Water Line

Project	Woodlawn / Beacon Hill Water Line
Description	Prairie Township from time to time reconstructs roads within SD4. The township and the agency have formed a partnership so that the agency can replace aging water lines during township road reconstruction projects. Replacing water lines in this matter significantly reduces the agency's cost for projects of this type.
Objective	Replacement
Priority	6
Schedule	Q1 2013 – Q1 2014
Engineering	---
Construction	\$150,000
Total Project Cost	\$150,000
Funding Source	OPWC
Alternatives	No alternative exists for this project.

3.1.9 Timberlake Elevated Tank Replacement

Project	Timberlake Elevated Tank Replacement
Description	The existing Timberlake elevated water tank was inherited from the former Cordell Utilities. This tank is of unknown age. It was originally constructed at an unknown site at an unknown time, was dismantled, transported, and erected on its current site in the early 1970's. This tank is in poor condition and may be reaching the point of structural failure. The tank does not provide adequate pressure to the residents of Timberlake. Therefore, a new tank at a higher elevation is required.
Objective	Replacement
Priority	4
Schedule	Q3 2014 – Q4 2015
Engineering	\$170,000
Construction	\$1,200,000
Total Project Cost	\$1,370,000
Funding Source	Not specified
Alternatives	No alternative exists for this project. The elevated tank is an essential part of the Timberlake distribution system.

3.1.10 Systemwide Leak Detection 2014 - 2018

Project	Systemwide Leak Detection
Description	Waterlines, no matter how well they are constructed, develop leaks. Water lost from the system results in lost revenue and increased operating costs, therefore water leaks need to be located and repaired. This project provides for quarterly leak detection for all water lines and their subsequent repair.
Objective	Repair / Maintenance
Priority	2
Schedule	4 times annually
Engineering	---
Construction	\$32,000 p.a.
Total Project Cost	\$32,000 p.a.
Funding Source	Not specified
Alternatives	No alternative exists for this project.

3.1.11 Waterline Extensions Preliminary Study

Project	Waterline Extensions Preliminary Study
Description	<p>The County recently entered into an agreement with the City of Columbus that allows the County to provide new water service to 20 neighborhoods throughout the County. The goal of the study is to determine connection points to the City's distribution system, develop preliminary waterline alignments, and develop more accurate engineering and construction costs. This information is required to further refine future versions of the CIP.</p> <p>This project is a prerequisite to beginning any waterline extension projects.</p>
Objective	Expansion
Priority	9
Schedule	Q2 2014 – Q4 2014
Engineering	\$150,000
Construction	---
Total Project Cost	\$150,000
Funding Source	Not specified
Alternatives	Developer constructed

3.1.12 Waterline Extensions Groups 1 through 4

Project	Waterline Extensions Groups 1 through 4
Description	<p>The County recently entered into an agreement with the City of Columbus that allows the County to provide new water service to 20 neighborhoods throughout the County. Residents of these existing neighborhoods currently rely on private wells for water. The age and condition of these private wells is unknown. The water quality and quantity is also unknown. Installing a public water system in these neighborhoods will provide a safe and reliable source of drinking water.</p> <p>The neighborhoods have been identified as (in no particular order):</p> <ol style="list-style-type: none"> 1. Cleveland Heights 2. Drake and Cassady 3. Eureka Park 4. Gantz 5. Neff 6. Pleasant View 7. Quaker Hill 8. Tuxedo Park 9. Emersonia 10. Ponderosa 11. Rea and Son 12. Maplewood 13. Allwine 14. Mount Air 15. Galloway 16. Mon E Bak Farms 17. Brown Road East 18. Murnan Road 19. Youngland Estates 20. Village of Alton <p>Conceptual alignments and cost estimates have been developed for each neighborhood. The total engineering and construction costs are presented below.</p> <p>In the past, the County has developed partnerships with the township in which the waterline project is located. Under these partnering arrangements, the township generally funds the engineering effort, and the County funds the construction effort. It is envisioned that these waterline extension projects will proceed in a similar manner.</p> <p>At this time a prioritized schedule has not been developed. Instead, it is envisioned that the projects would be completed over a 10 year period, resulting in 10 groups with equal expenditures each year.</p>

Project	Waterline Extensions Groups 1 through 4
Objective	Expansion
Priority	8
Schedule	Q1 2015 – Q4 2018 and beyond
Engineering	Total: \$14,328,900 Annual: \$1,432,890
Construction	Total: \$73,937,124 Annual: \$7,393,712
Total Project Cost	Total: \$88,266,024 Annual: \$8,826,602
Funding Source	Not specified
Alternatives	No alternative exists for this project.

3.2 Sewer Project Descriptions

3.2.1 Cherrydale Pump Station Replacement

Project	Cherrydale Pump Station Replacement
Description	The existing Cherrydale pump station is in an advanced state of deterioration and requires immediate replacement. The station is unsafe for staff to enter as it is a confined space approximately 20+ feet deep. This pump station was in design phase several years ago due to deterioration and end of life, but the project stalled. Since then its condition has only worsened and staff are not to enter except for emergencies which is not an ideal way to prevent issues or respond to them. A new submersible pump station with a wet well, submersible pumps, valve vault, and force main is required.
Objective	Replacement
Priority	6
Schedule	Q3 2014 – Q3 2015
Engineering	\$99,000
Construction	\$250,000
Total Project Cost	\$349,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure of existing pump station will cause loss of sewer service to existing customers.

3.2.2 Timberbrook Pump Station Improvements

Project	Timberbrook Pump Station Improvements
Description	Upgrade the existing Timberbrook pump station. Improvements include new emergency generator, new wetwell, relocation of existing pumps, construction of new valve vault and emergency bypass, and upgrade of power service
Objective	Replacement
Priority	7
Schedule	Q1 2015 – Q1 2016
Engineering	\$145,000
Construction	\$550,000
Total Project Cost	\$695,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure of the pumping equipment will result in a backup of sewage into customer's homes.

3.2.3 Village Park Pump Station Improvements

Project	Village Park Pump Station Improvements
Description	Upgrade the existing Village Park Pump station. Improvements include new pumps, new pipework in wetwell, new valve vault with emergency bypass, and emergency generator.
Objective	Replacement
Priority	7
Schedule	Q1 2015 – Q1 2016
Engineering	\$145,000
Construction	\$500,000
Total Project Cost	\$645,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure of the pumping equipment will result in a backup of sewage into customer's homes.

3.2.4 Young Estates Pump Station Improvements

Project	Young Estates Pump Station Improvements
Description	Upgrade the existing Young Estates Pump station. Improvements include new pumps, new pipework in wetwell, new valve vault with emergency bypass, and emergency generator.
Objective	Replacement
Priority	7
Schedule	Q1 2015 – Q1 2016
Engineering	\$152,000
Construction	\$500,000
Total Project Cost	\$652,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure of the pumping equipment will result in a backup of sewage into customer's homes.

3.2.5 Darbydale WWTP Improvements

Project	Darbydale WWTP Improvements
Description	Upgrades to the existing Darbydale WWTP include expansion of screening facility, addition of grit removal, upgrade of solids processing stream, addition of wet stream capacity, incorporation of nutrient removal into wet stream, and other miscellaneous improvements to meet capacity and regulatory needs.
Objective	Repair / maintenance Replacement Mandated Expansion Efficiency
Priority	5
Schedule	Q3 2013 – Q4 2015
Engineering	\$745,000
Construction	\$6,000,000
Total Project Cost	\$6,745,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure to proceed with project with result in noncompliance with NPDES permit, and inefficient and unreliable treatment system.

3.2.6 Oakhurst WWTP Improvements

Project	Oakhurst WWTP Improvements
Description	Upgrade or replacement of existing Oakhurst Knolls WWTP. Existing plant is in an advanced state of deterioration. Study is required to determine feasibility of upgrading plant or replacing it with a pump station pumping to Darbydale. Process is unreliable and overwhelmed. Improvements needed include primary screening, flow equalization, upgrade of activated sludge process to include nutrient removal, replacement of tertiary filtration system, electrical upgrades, and other improvements. Future permit requirements will also mandate upgrade of existing facilities or conversion of the plant and transport of wastewater to another sewer system and treatment plant.
Objective	Repair Replacement Mandated Efficiency
Priority	2
Schedule	Q1 2014 – Q3 2016
Engineering	\$780,000
Construction	\$2,500,000
Total Project Cost	\$2,780,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure to proceed with project with result in noncompliance with NPDES permit, and inefficient and unreliable treatment system.

3.2.7 Oakhurst Filter Replacement

Project	Oakhurst Filter Replacement
Description	Replace the existing tertiary filters at the Oakhurst WWTP with new tertiary filters. The existing filters are inoperable and have ceased operation. Filters are necessary for compliance with effluent TSS limits. Permit violations have occurred.
Objective	Repair Replacement Mandated Efficiency
Priority	1
Schedule	Q1 2014 – Q3 2016
Engineering	\$780,000
Construction	\$2,500,000
Total Project Cost	\$2,780,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure to proceed with project with result in noncompliance with NPDES permit, and

	inefficient and unreliable treatment system.
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3.2.8 Century Acres WWTP Improvements

Project	Century Acres WWTP Improvements
Description	Replace existing Century Acres WWTP. Existing plant is in an advanced state of disrepair. Numerous basins are nearing structural failure, with existing sand filters already having failed. The facility is also becoming unsafe for staff to properly operate and maintain it.
Objective	Repair Replacement Efficiency
Priority	3
Schedule	Q3 2014 – Q1 2016
Engineering	\$655,000
Construction	\$1,050,000
Total Project Cost	\$1,705,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure to proceed with project with result in noncompliance with NPDES permit, and inefficient and unreliable treatment system. Failure of plant will result in loss of sewer service for existing customers.

3.2.9 CMOM / SSES

Project	CMOM / SSES
Description	CMOM / SSES for the existing sanitary sewer system is required as a result of OEPA Findings and Orders. SSES is required to be complete by August 2014.
Objective	Repair Efficiency Mandated
Priority	6
Schedule	Q1 2014 – Q4 2015
Engineering	\$3,500,000
Construction	\$0
Total Project Cost	\$3,500,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project. Failure to proceed with project will result in noncompliance with OEPA Director's Findings and Orders and may result in fines

3.2.10 General Sanitary Sewer I/I Rehabilitation

Project	General Sanitary Sewer I/I Rehabilitation
Description	This project is related to the SSES. The SSES will uncover deficiencies in the sanitary sewer system that will require repair. While the scope and magnitude of repair is unknown, it is known that the agency will be required by OEPA to begin making repairs soon after the SSES is complete.
Objective	Mandated
Priority	6
Schedule	Q1 2016 – Q4 2018
Engineering	\$1,530,000
Construction	\$3,000,000
Total Project Cost	\$4,530,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.11 Eureka Park Sanitary Sewer

Project	Eureka Park Sanitary Sewer
Description	Eureka Park is an existing neighborhood where homes are reliant on HSTS's. New sanitary sewers will be constructed to serve existing homes. Sewer system will discharge to existing City of Columbus sanitary sewer.
Objective	Mandated
Priority	10
Schedule	Q1 2012 – Q4 2014
Engineering	\$175,000
Construction	\$1,065,000
Total Project Cost	\$1,240,000
Funding Source	OPWC
Alternatives	There are no alternatives for this project.

3.2.12 Mon E Bak Sanitary Sewer

Project	Mon E Bak (MEB) Sanitary Sewer
Description	The MEB project is an ongoing sanitary sewer project. The project is currently on hold as a result of ongoing deliberations with the bonding company. The scope of remaining work includes rectification of underground defects and surface restoration.
Objective	Mandated
Priority	10
Schedule	Q1 2011 – Q4 2014
Engineering	\$80,000
Construction	\$555,000
Total Project Cost	\$630,000
Funding Source	OWDA
Alternatives	There are no alternatives for this project.

3.2.13 Brown Road East Sanitary Sewer

Project	Brown Road East (BRE) Sanitary Sewer
Description	The BRE project is an ongoing sanitary sewer project. There are two separate work packages requiring completion. The first work package consists of construction of new sanitary sewers and completion of the pump station and should be complete by the end of 2013. The second work package consists of the rectification of defects and final surface restoration. It is unknown when the second work package will be completed due to ongoing deliberations with the bonding company.
Objective	Mandated
Priority	10
Schedule	Q1 2011 – Q4 2014
Engineering	\$120,000
Construction	\$2,400,000
Total Project Cost	\$2,520,000
Funding Source	OPWC
Alternatives	There are no alternatives for this project.

3.2.14 Darby Watershed Utilities Study

Project	Darby Watershed Utilities Study
Description	This study is an effort to determine the cost of various alternatives for providing water and sewer service to the Darby Accord area and the Darby Town Center
Objective	Expansion
Priority	11
Schedule	Q1 2014– Q2 2014
Engineering	\$75,000
Construction	---
Total Project Cost	\$75,000
Funding Source	No funding source specified
Alternatives	There are no alternatives for this project.

3.2.15 Timberlake Corrosion Abatement

Project	Timberlake Corrosion Abatement
Description	Extended hydraulic detention time occurs in the sanitary sewers and force mains in the Timberlake and Harrisburg sanitary sewer systems. This results in the formation of high levels of hydrogen sulfide which causes objectionable odors, and also creates high levels of sulfuric acid which causes corrosion of sewer components. If ignored, corrosion will rapidly cause deterioration of pump station and sewer equipment, resulting in equipment failure and premature replacement. Systems are required to control the generation of hydrogen sulfide and rehabilitate corroded components.
Objective	Expansion
Priority	11
Schedule	Q1 2014– Q2 2015
Engineering	\$195,000
Construction	\$500,000
Total Project Cost	\$695,000
Funding Source	No funding source specified
Alternatives	There are no alternatives for this project.

3.2.16 Pleasant Acres MHP

Project	Pleasant Acres MHP
Description	The Pleasant Acres MHP relies on a privately owned sewage treatment plant for disposal of sanitary sewage generated at the park. The OEPA issued Findings and Orders to Franklin County requiring the elimination of the private WWTP, and connection of the park's sanitary sewers to the Darbydale WWTP. The project includes construction of a new pump station and force main, connection to the Darbydale WWTP, and conversion of the existing WWTP to an EQ basin.
Objective	Mandated
Priority	8
Schedule	Q1 2014 – Q1 2015
Engineering	\$161,000
Construction	\$780,000
Total Project Cost	\$941,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.17 Oak Hills MHP

Project	Oak Hills MHP
Description	The Oak Hills MHP relies on a privately owned sewage treatment plant for disposal of sanitary sewage generated at the park. The OEPA issued Findings and Orders to Franklin County requiring the elimination of the private WWTP, and connection of the park's sanitary sewers to the Darbydale WWTP. The project includes construction of a new pump station and force main, connection to the Darbydale collection system, and conversion of the existing WWTP to an EQ basin.
Objective	Mandated
Priority	8
Schedule	Q1 2015 – Q4 2016
Engineering	\$280,000
Construction	\$1,200,000
Total Project Cost	\$1,480,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.18 Kanawha Rosslyn Sanitary Sewer Improvements

Project	Kanawha / Rosslyn Sanitary Sewer Improvements
Description	The Kanawha Rosslyn area is an existing neighborhood where homes are reliant on HSTS's. New sanitary sewers will be constructed to serve existing homes. Sewer system will discharge to existing City of Columbus sanitary sewer.
Objective	Mandated
Priority	9
Schedule	Q1 2016 – Q4 2017
Engineering	\$790,000
Construction	\$4,000,000
Total Project Cost	\$4,790,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.19 Stimmel Sanitary Sewer Improvements

Project	Stimmel Sanitary Sewer Improvements
Description	The Stimmel area is an existing neighborhood where homes are reliant on HSTS's. New sanitary sewers will be constructed to serve existing homes. Sewer system will discharge to existing City of Columbus sanitary sewer.
Objective	Mandated
Priority	9
Schedule	Q1 2017 – Q4 2018
Engineering	\$710,000
Construction	\$3,600,000
Total Project Cost	\$4,310,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.20 Hague Sanitary Sewer Improvements

Project	Hague Sanitary Sewer Improvements
Description	The Hague area is an existing neighborhood where homes are reliant on HSTS's. New sanitary sewers will be constructed to serve existing homes. Sewer system will discharge to existing City of Columbus sanitary sewer.
Objective	Mandated
Priority	9
Schedule	Q1 2017 – Q4 2018
Engineering	\$895,000
Construction	\$4,800,000
Total Project Cost	\$5,695,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

3.2.21 Ferris Sanitary Sewer Improvements

Project	Ferris Sanitary Sewer Improvements
Description	The Ferris area is an existing neighborhood where homes are reliant on HSTS's. New sanitary sewers will be constructed to serve existing homes. Sewer system will discharge to existing City of Columbus sanitary sewer.
Objective	Mandated
Priority	9
Schedule	Q1 2017 – Q4 2018
Engineering	\$580,000
Construction	\$2,800,000
Total Project Cost	\$3,380,000
Funding Source	Not specified
Alternatives	There are no alternatives for this project.

4.0 Five Year Capital Budget Needs

4.1 This section lists each of the projects in the 5-Year CIP and the costs associated with each.

4.1 Water Projects

4.1.1 Table 4-1 summarizes the water projects listed in the 5-Year CIP along with the budget required to fund the engineering and construction efforts of each project.

Table 4-1 Water Project Budget Summary

Water Projects	Engineering	Construction	Total
AMR / AMI	\$100,000.00	\$1,200,000.00	\$1,300,000.00
Timberlake WTP Softening	\$248,000.00	\$870,000.00	\$1,118,000.00
SD4 Water Valve Replacement	\$432,000.00	\$3,090,000.00	\$3,522,000.00
Timberlake Water Main Pigging	\$70,000.00	\$150,000.00	\$220,000.00
2014 Waterline Replacement	\$335,000.00	\$1,800,000.00	\$2,135,000.00
2015 Waterline Replacement	\$335,000.00	\$1,800,000.00	\$2,135,000.00
2016 Waterline Replacement	\$335,000.00	\$1,800,000.00	\$2,135,000.00
2017 Waterline Replacement	\$335,000.00	\$1,800,000.00	\$2,135,000.00
2018 Waterline Replacement	\$230,000.00	\$1,800,000.00	\$2,030,000.00
Leonard Park	\$682,000.00	\$2,719,000.00	\$3,401,000.00
Broad Street Waterline Relocation	\$40,000.00	\$450,000.00	\$490,000.00
Woodlawn / Beacon Hill Waterline	\$ -	\$150,000.00	\$150,000.00
Timberlake Elevated Tank Replacement	\$170,000.00	\$1,200,000.00	\$1,370,000.00
2014 Systemwide Leak Detection	\$ -	\$32,000.00	\$32,000.00
2015 Systemwide Leak Detection	\$ -	\$32,000.00	\$32,000.00
2016 Systemwide Leak Detection	\$ -	\$32,000.00	\$32,000.00
2017 Systemwide Leak Detection	\$ -	\$32,000.00	\$32,000.00
2018 Systemwide Leak Detection	\$ -	\$32,000.00	\$32,000.00
Waterline Extensions Preliminary Study	\$150,000.00	-	\$150,000.00
Waterline Extensions Group 1	\$2,800,000.00	\$7,400,000.00	\$10,200,000.00
Waterline Extensions Group 2	\$2,800,000.00	\$7,400,000.00	\$10,200,000.00
Waterline Extensions Group 3	\$2,800,000.00	\$7,400,000.00	\$10,200,000.00
Waterline Extensions Group 4	\$2,800,000.00	\$7,400,000.00	\$10,200,000.00
Water Total	\$14,662,000.00	\$45,589,000.00	\$63,251,000.00

4.2 Sewer Projects

4.2.1 Table 4-2 summarizes the sewer projects listed in the 5-Year CIP along with the budget required to fund the engineering and construction efforts of each project.

Table 4-2 Sewer Project Budget Summary

Sewer Projects	Engineering	Construction	Total
Darbydale WWTP Improvements	\$745,000	\$6,000,000	\$6,745,000
Oakhurst WWTP Filter Replacement	-	\$270,000	\$270,000
Eureka Park Sanitary Sewer	\$175,000	\$1,065,000	\$1,240,000
Mon E Bak Sanitary Sewer	\$80,000	\$550,000	\$630,000
Brown Road East Sanitary Sewer	\$120,000	\$2,400,000	\$2,520,000
Timberlake Sewer Corrosion Abatement	\$195,000	\$500,000	\$695,000
Oakhurst WWTP Improvements	\$780,000	\$2,000,000	\$2,780,000
CMOM / SSES	\$3,500,000	-	\$3,500,000
Darby Watershed Utilities Study	\$75,000	-	\$75,000
Pleasant Acres MHP Connection to Darbydale	\$161,000	\$780,000	\$941,000
Cherrydale Pump Station Improvements	\$99,000	\$250,000	\$349,000
Century Acres WWTP Improvements	\$655,000	\$1,050,000	\$1,705,000
Timberbrook Pump Station Improvements	\$145,000	\$550,000	\$695,000
Village Park Pump Station Improvements	\$145,000	\$500,000	\$645,000
Young Estates Pump Station Improvements	\$152,000	\$500,000	\$652,000
Oak Hills MHP Connection to Darbydale	\$280,000	\$1,200,000	\$1,480,000
General Sanitary I/I Rehabilitation	\$1,530,000	\$3,000,000	\$4,530,000
Kanawha / Rosslyn Sanitary Sewer	\$790,000	\$4,000,000	\$4,790,000
Stimmel Sanitary Sewer	\$710,000	\$3,600,000	\$4,310,000
Hague Sanitary Sewer	\$895,000	\$4,800,000	\$5,695,000
Ferris Sanitary Sewer	\$580,000	\$2,800,000	\$3,380,000
Sewer Total	\$11,812,000	\$35,815,000	\$47,627,000

4.3 Projects Summary

4.2 Table 4-3 summarizes the budget requirements per year for the 5-Year planning period. Note that the table includes carryover from FY 2013.

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Table 4-3
Capital Budget Requirements by Year

Year	2013	2014	2015	2016	2017	2018	6 Year Total
Water Engineering	\$345,000	\$1,284,000	\$2,117,000	\$3,246,000	\$3,135,000	\$3,135,000	\$13,262,000
Water Construction	\$450,000	\$4,181,000	\$5,207,000	\$11,087,000	\$9,232,000	\$9,232,000	\$39,389,000
Water Total	\$795,000	\$5,465,000	\$7,324,000	\$14,333,000	\$12,367,000	\$12,367,000	\$52,651,000
Sewer Engineering	\$170,000	\$4,801,000	\$1,946,000	\$1,480,000	\$2,070,000	\$1,345,000	\$11,812,000
Sewer Construction	\$2,490,000	\$2,565,000	\$8,735,000	\$3,825,000	\$5,500,000	\$12,700,000	\$35,815,000
Sewer Total	\$2,660,000	\$7,366,000	\$10,681,000	\$5,305,000	\$7,570,000	\$14,045,000	\$47,627,000
Engineering Total	\$515,000	\$6,085,000	\$4,063,000	\$4,726,000	\$5,205,000	\$4,480,000	\$25,074,000
Construction Total	\$2,940,000	\$6,746,000	\$13,942,000	\$14,912,000	\$14,732,000	\$21,932,000	\$75,204,000
Projects Total	\$3,455,000	\$12,831,000	\$15,505,000	\$19,638,000	\$19,937,000	\$26,412,000	\$100,278,000

4.4 Project Financing

4.4.1 It is assumed that each project on the CIP will require loan funding to implement. A common source of funds is the Ohio Water Development Authority (OWDA), an agency that provides financing for public water and sewer projects. The current rate and term is 4.74% and 20 years. Table 4-4 illustrates the payback period for each project.

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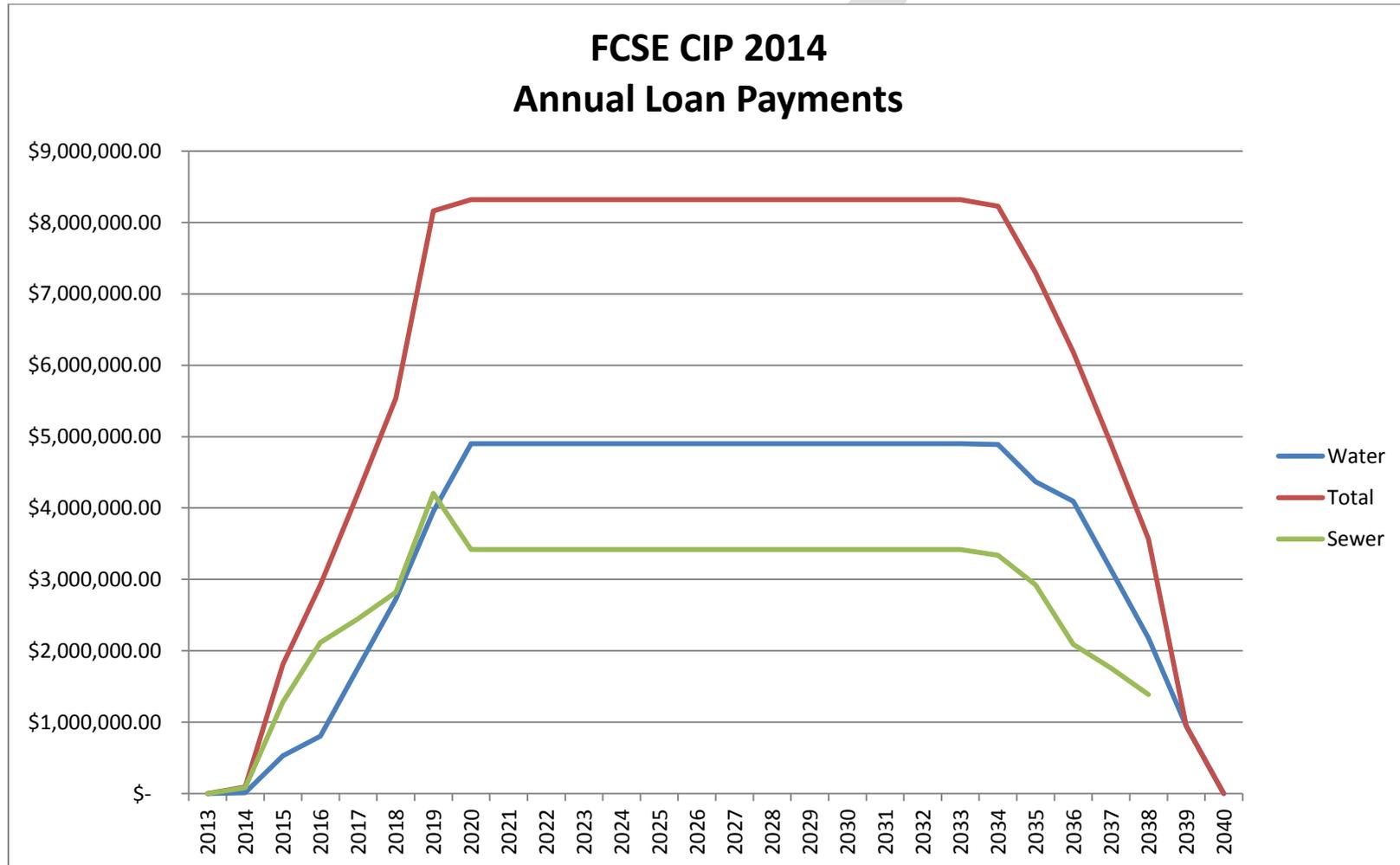
Table 4-4 2014 CIP Water Projects Loan Repayment Schedule

Water Projects	Project Cost	Begin Project	End Project	Begin Payments	Annual Payment Amount	2014	2015	2016	2017	2018	2019	2020
AMR / AMI	\$1,300,000	1-Jan-14	31-Dec-14	29-Jun-15	\$100,725	0	\$100,725	\$100,725	\$100,725	\$100,725	\$100,725	\$100,725
Timberlake WTP Softening	\$1,118,000	1-Jul-14	31-Mar-16	27-Sep-16	\$86,624	0	\$86,624	\$86,624	\$86,624	\$86,624	\$86,624	\$86,624
SD4 Water Valve Replacement	\$3,522,000	1-Jul-14	30-Jun-16	27-Dec-16	\$272,889	0	0	0	0	0	\$272,889	\$272,889
Timberlake Water Main Piggings	\$220,000	1-Jul-14	30-Jun-15	27-Dec-15	\$17,045		\$17,045	\$17,045	\$17,045	\$17,045	\$17,045	\$17,045
2014 Waterline Replacement	\$2,135,000	1-Jan-14	30-Sep-15	28-Mar-16	\$165,422			\$165,422	\$165,422	\$165,422	\$165,422	\$165,422
2015 Waterline Replacement	\$2,135,000	1-Jan-15	30-Sep-16	29-Mar-17	\$165,422				\$165,422	\$165,422	\$165,422	\$165,422
2016 Waterline Replacement	\$2,135,000	1-Jan-16	30-Sep-17	29-Mar-18	\$165,422					\$165,422	\$165,422	\$165,422
2017 Waterline Replacement	\$2,135,000	1-Jan-17	30-Sep-18	29-Mar-19	\$165,422						\$165,422	\$165,422
2018 Waterline Replacement	\$2,030,000	1-Jan-18	30-Sep-19	28-Mar-20	\$157,287							\$157,287
Leonard Park	\$3,401,000	1-Jan-13	31-Dec-14	29-Jun-15	\$263,513		\$263,513	\$263,513	\$263,513	\$263,513	\$263,513	\$263,513
Broad Street Waterline Relocation	\$490,000	1-Jan-13	31-Dec-14	29-Jun-15	\$37,965		\$37,965	\$37,965	\$37,965	\$37,965	\$37,965	\$37,965
Woodlawn / Beacon Hill Waterline	\$150,000	1-Jan-13	31-Dec-13	29-Jun-14	\$11,622	\$11,622	\$11,622	\$11,622	\$11,622	\$11,622	\$11,622	\$11,622
Timberlake Elevated Tank Replacement	\$1,370,000	1-Jul-14	31-Dec-15	28-Jun-16	\$106,149			\$106,149	\$106,149	\$106,149	\$106,149	\$106,149
2014 Systemwide Leak Detection	\$32,000	1-Jan-14	31-Dec-14	29-Jun-15	\$2,479		\$2,479	\$2,479	\$2,479	\$2,479	\$2,479	\$2,479
2015 Systemwide Leak Detection	\$32,000	1-Jan-15	31-Dec-15	28-Jun-16	\$2,479			\$2,479	\$2,479	\$2,479	\$2,479	\$2,479
2016 Systemwide Leak Detection	\$32,000	1-Jan-16	31-Dec-16	29-Jun-17	\$2,479				\$2,479	\$2,479	\$2,479	\$2,479
2017 Systemwide Leak Detection	\$32,000	1-Jan-17	31-Dec-17	29-Jun-18	\$2,479					\$2,479	\$2,479	\$2,479
2018 Systemwide Leak Detection	\$32,000	1-Jan-18	31-Dec-18	29-Jun-19	\$2,479						\$2,479	\$2,479
Waterline Extensions Preliminary Study	\$150,000	1-Mar-14	31-Dec-14	29-Jun-15	\$11,622		\$11,622	\$11,622	\$11,622	\$11,622	\$11,622	\$11,622
Waterline Extensions Group 1	\$10,200,000	1-Jan-15	31-Dec-16	29-Jun-17	\$790,309				\$790,309	\$790,309	\$790,309	\$790,309
Waterline Extensions Group 2	\$10,200,00	1-Jan-16	31-Dec-17	29-Jun-18	\$790,309					\$790,309	\$790,309	\$790,309
Waterline Extensions Group 3	\$10,200,000	1-Jan-17	31-Dec-18	29-Jun-19	\$790,309						\$790,309	\$790,309
Waterline Extensions Group 4	\$10,200,000	1-Jan-18	31-Dec-19	28-Jun-20	\$790,309							\$790,309
WATER TOTAL	\$63,251,000					\$11,622	\$531,599	\$805,650	\$1,763,862	\$2,722,073	\$3,953,174	\$4,900,770

Table 4-5
2014 CIP Sewer Projects Loan Repayment Schedule

Sewer Projects	Project Cost	Begin Project	End Project	Begin Payments	Annual Payment Amount	2014	2015	2016	2017	2018	2019	2020
Darbydale WWTP Improvements	\$6,745,000	1-Jul-13	31-Dec-15	28-Jun-16	\$522,611			\$522,611	\$522,611	\$522,611	\$522,611	\$522,611
Oakhurst WWTP Filter Replacement	\$270,000	1-Oct-13	30-Jun-14	27-Dec-14	\$20,919	\$20,919	\$20,919	\$20,919	\$20,919	\$20,919	\$20,919	\$20,919
Eureka Park Sanitary Sewer	\$1,240,000	1-Oct-13	31-Dec-14	29-Jun-15	\$96,076		\$96,076	\$96,076	\$96,076	\$96,076	\$96,076	\$96,076
Mon E Bak Sanitary Sewer	\$630,000	1-Oct-13	31-Dec-14	29-Jun-15	\$48,813		\$48,813	\$48,813	\$48,813	\$48,813	\$48,813	\$48,813
Brown Road East Sanitary Sewer	\$2,520,000	1-Oct-13	31-Dec-14	29-Jun-15	\$195,252		\$195,252	\$195,252	\$195,252	\$195,252	\$195,252	\$195,252
Timberlake Sewer Corrosion Abatement	\$695,000	1-Jan-14	31-Mar-14	27-Sep-14	\$53,849	\$53,849	\$53,849	\$53,849	\$53,849	\$53,849	\$53,849	\$53,849
Oakhurst WWTP Improvements	\$2,780,000	1-Jan-14	30-Sep-16	29-Mar-17	\$215,398			\$215,398	\$215,398	\$215,398	\$215,398	\$215,398
CMOM / SSES	\$3,500,000	1-Jan-14	31-Mar-15	27-Sep-15	\$787,598		\$787,598	\$787,598	\$787,598	\$787,598	\$787,598	\$787,598
Darby Watershed Utilities Study	\$75,000	1-Jan-14	31-Mar-14	27-Sep-14	\$5,811	\$5,811	\$5,811	\$5,811	\$5,811	\$5,811	\$5,811	\$5,811
Pleasant Acres MHP	\$941,000	1-Jan-14	31-Mar-15	27-Sep-15	\$72,909		\$72,909	\$72,909	\$72,909	\$72,909	\$72,909	\$72,909
Cherrydale Pump Station Improvements	\$349,000	1-Jul-14	31-Jul-15	27-Jan-16	\$27,040			\$27,040	\$27,040	\$27,040	\$27,040	\$27,040
Century Acres WWTP Improvements	\$1,705,000	1-Jul-14	31-Mar-16	27-Sep-16	\$132,105			\$132,105	\$132,105	\$132,105	\$132,105	\$132,105
Timberbrook Pump Station Improvements	\$695,000	1-Jan-15	31-Mar-16	27-Sep-16	\$53,849			\$53,849	\$53,849	\$53,849	\$53,849	\$53,849
Village Park Pump Station Improvements	\$645,000	1-Jan-15	31-Mar-16	27-Sep-16	\$49,975			\$49,975	\$49,975	\$49,975	\$49,975	\$49,975
Young Estates Pump Station Improvements	\$652,000	1-Jan-15	31-Mar-16	27-Sep-16	\$50,517			\$50,517	\$50,517	\$50,517	\$50,517	\$50,517
Oak Hills MHP	\$1,480,000	1-Jul-15	31-Dec-16	29-Jun-17	\$114,672				\$114,672	\$114,672	\$114,672	\$114,672
General Sanitary I/I Rehabilitation	\$4,530,000	1-Jan-16	31-Dec-18	29-Jun-19	\$350,990						\$350,990	\$350,990
Kanawha / Rosslyn Sanitary Sewer	\$4,790,000	1-Jan-16	31-Dec-17	29-Jun-18	\$371,135					\$371,135	\$371,135	\$371,135
Stimmel Sanitary Sewer	\$4,310,000	1-Jan-17	31-Dec-18	29-Jun-19	\$333,944						\$333,944	\$333,944
Hague Sanitary Sewer	\$5,695,000	1-Jan-17	31-Dec-18	29-Jun-19	\$441,256						\$441,256	\$441,256
Ferris Sanitary Sewer	\$3,380,000	1-Jan-17	31-Dec-18	29-Jun-19	\$261,886						\$261,886	\$261,886
Sewer Total	\$47,627,000.00					\$80,580	\$1,281,232	\$2,117,332	\$2,447,403	\$2,818,538	\$4,206,616	\$3,419,017

Figure 4-1
2014 CIP ALL Projects Loan Repayment Schedule



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Figure 4-2 2014 CIP Water Projects Schedule

Franklin County Department of Sanitary Engineering 5 Year Capital Improvements Plan																																		
Prepared by: Michael Pilutti, P.E.																																		
Preparation date: 9-Sep-13																																		
Revision date: 26-Oct-13																																		
Project	Begin Quarter	End Quarter	2013				2014				2015				2016				2017				2018				2019							
			Q1	Q2	Q3	Q4																												
AMR/AMI	Q1 2014	Q4 2014					■	■	■	■																								
Timberlake WTP Softening	Q3 2014	Q1 2016									■	■	■	■	■	■	■	■																
SD4 Valve Replacement	Q3 2014	Q2 2016									■	■	■	■	■	■	■	■																
Timberlake Ice Pigging	Q3 2014	Q2 2015									■	■	■	■																				
2014 Waterline Replacement	Q1 2014	Q4 2015					■	■	■	■	■	■	■	■																				
2015 Waterline Replacement	Q1 2015	Q4 2016									■	■	■	■	■	■	■	■																
2016 Waterline Replacement	Q1 2016	Q4 2017													■	■	■	■	■	■	■	■												
2017 Waterline Replacement	Q1 2017	Q4 2018																	■	■	■	■	■	■	■	■								
2018 Waterline Replacement	Q1 2018	Q4 2019																					■	■	■	■	■	■	■	■				
Leonard Park	Q1 2013	Q4 2014	■	■	■	■	■	■	■	■																								
Broad Street Waterline Relocation	Q1 2013	Q4 2014	■	■	■	■	■	■	■	■																								
Woodlawn / Beacon Hill Waterline	Q2 2013	Q4 2013		■	■	■	■	■	■	■																								
Timberlake Elevated Tank Replacement	Q3 2014	Q4 2015									■	■	■	■	■	■	■	■																
2014 Leak Detection	Q1 2014	Q4 2014					■	■	■	■																								
2015 Leak Detection	Q1 2015	Q4 2015									■	■	■	■																				
2016 Leak Detection	Q1 2016	Q4 2016													■	■	■	■																
2017 Leak Detection	Q1 2017	Q4 2017																	■	■	■	■												
2018 Leak Detection	Q1 2018	Q4 2018																					■	■	■	■								
Waterline Extension Preliminary Study	Q2 2014	Q4 2014									■	■	■	■																				
Waterline Extensions Group 1	Q1 2015	Q4 2016									■	■	■	■	■	■	■	■																
Waterline Extensions Group 2	Q1 2016	Q4 2017													■	■	■	■	■	■	■	■												
Waterline Extensions Group 3	Q1 2017	Q4 2018																	■	■	■	■	■	■	■	■								
Waterline Extensions Group 4	Q1 2018	Q4 2019																					■	■	■	■	■	■	■	■				

Figure 4-3 2014 CIP Sewer Projects Schedule

Franklin County Department of Sanitary Engineering 5 Year Capital Improvements Plan				Franklin County Where Government Works Department of Sanitary Engineering Stephen A. Renner, Director																									
Prepared by: Michael Pilutti, P.E.		Preparation date: 9-Sep-13		Revision date: 26-Oct-13		2013				2014				2015				2016				2017				2018			
Project	Begin Quarter	End Quarter	Duration Months	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Cherrydale Pump Station Improvements	Q3 2014	Q3 2015	12																										
Timberbrook Pump Station Improvements	Q1 2015	Q2 2016	15																										
Village Park Pump Station Improvements	Q1 2015	Q2 2016	15																										
Young Estates Pump Station Improvements	Q1 2015	Q2 2016	15																										
Timberlake Sewer Corrosion Abatement	Q2 2014	Q2 2015	12																										
Darbydale WWTP Improvements	Q3 2013	Q4 2015	30																										
Oakhurst WWTP Improvements	Q1 2014	Q3 2016	33																										
Oakhurst WWTP Filter Replacement	Q3 2013	Q2 2014	9																										
Century Acres WWTP Improvements	Q3 2014	Q1 2016	24																										
CMOM / SSES	Q1 2014	Q1 2015	15																										
General Sanitary I/I Rehabilitation	Q1 2016	Q4 2018	36																										
Eureka Park Sanitary Sewer	Q3 2013	Q4 2014	15																										
Mon E Bak Sanitary Sewer	Q3 2013	Q4 2014	15																										
Brown Road East Sanitary Sewer	Q3 2013	Q4 2014	15																										
Darby Watershed Utilities Study	Q1 2014	Q2 2014	6																										
Pleasant Acres MHP Connection to Darbydale	Q1 2014	Q2 2015	15																										
Oak Hills MHP Connection to Darbydale	Q3 2015	Q4 2016	18																										
Kanawha Rosslyn Sanitary Sewer	Q1 2016	Q4 2017	24																										
Stimmel Sanitary Sewer	Q1 2017	Q4 2018	24																										
Hague Sanitary Sewer	Q1 2017	Q4 2018	24																										
Ferris Sanitary Sewer	Q1 2017	Q4 2018	24																										

5.0 Engineering Staffing

5.1 The Department is faced with a number of challenges including rising costs, aging infrastructure, and increasingly stringent regulatory requirements. The Department is currently faced with turning from one urgent priority to the next and requires more staff to effectively manage these challenges. Adequate staffing levels are required to

- Ensure proper stewardship of the infrastructure
- Improve operational performance
- Provide quality customer service
- Respond effectively to regulatory requirements

5.2 In addition to managing projects from the CIP, the engineering section is responsible for the following activities:

- Developing the capital improvements plan
- Maintaining water and sewer system mapping
- Reviewing and approving/ rejecting plans from private developers
- Issuing connection permits to the water and sewer system and repair permits for existing connections
- Responding to regulatory requirements, inquires and permit renewals for County-owned and contractually operated water and sewer facilities
- Answering queries from the general public regarding the availability of public water and sewer service for particular parcels
- Providing guidance, opinions, research and reports to the Department Director, County administration and the Board of Commissioners
- Procuring the services of consulting engineering firms for various projects and then managing such projects for the Department
- Representing the County on Departmental construction projects
- Assisting field staff in the procurement of goods and services
- Assisting field staff with technical queries and solutions regarding the operation and maintenance of Departmental assets
- Identifying and managing OPEX projects
- Developing, maintaining, and implementing standard operating procedures for various activities
- Developing, maintaining, and implementing operations and maintenance manuals for various capital assets
- Developing, maintaining, and implementing the mandated CMOM program
- Developing, maintaining, and implementing the mandated backflow prevention and cross-connection control plan
- Developing, maintaining, and enforcing technical and engineering standards

- Liaise with the City of Columbus, other County agencies and various Townships on engineering and environmental initiatives and issues
- Keeping current with emerging equipment and technologies that will improve the County's utility facilities, efficiency or operations
- Monitoring water and wastewater flows and water consumption
- Coordinating with Department billing and financial staff on various tasks
- Assisting in applicant selection and interviews for various Departmental position openings

5.1 Current Staffing Level

5.1.1 The Department currently employs two professional engineers to manage the CIP and the additional activities listed above.

5.2 Near Term Staffing Requirements

5.2.1 To effectively cope with the current demands of the Department, the following staffing levels are required.

Table 5-1 Near Term Engineering Staffing Requirements

Position	Number	General Salary Excluding Benefits
CAPEX Engineer	2	\$85,000 p.a.
OPEX Engineer	1	\$65,000 p.a.
Inspector	1	\$40,000 p.a.
Total	4	\$275,000 p.a.

5.3 Five Year Staffing Requirements

5.3.1 The Department plans to undertake approximately 23 water projects and 20 sewer projects during the planning period for a total of 44 projects, if the plan is to be fully funded. Additional staffing will be required to effectively manage the projects and other duties of the agency.

5.3.2 When projects are in the design stage, competing priorities are generally easier to manage as task deadlines can sometimes be moved without adverse consequences. Conversely, when projects enter the construction phase, engineers must be able to respond quickly to project demands to avoid delays and potential contractor claims. Hence, if an engineer is simultaneously managing design and construction projects, the construction projects generally take priority over all else, and the progress (and sometimes quality) of design projects is delayed. It is quite typical for an agency to employ engineers that concentrate on the planning and design aspects of a project, and to hire separate construction phase engineers to manage construction activities. Therefore it is recommended that the

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Department hire separate CAPEX and construction engineers to manage the various phases of the proposed projects. Generally, an engineer can be expected to manage up to six projects simultaneously depending on the scope and complexity of the project. Based on these assumptions, the proposed staffing level is presented below.

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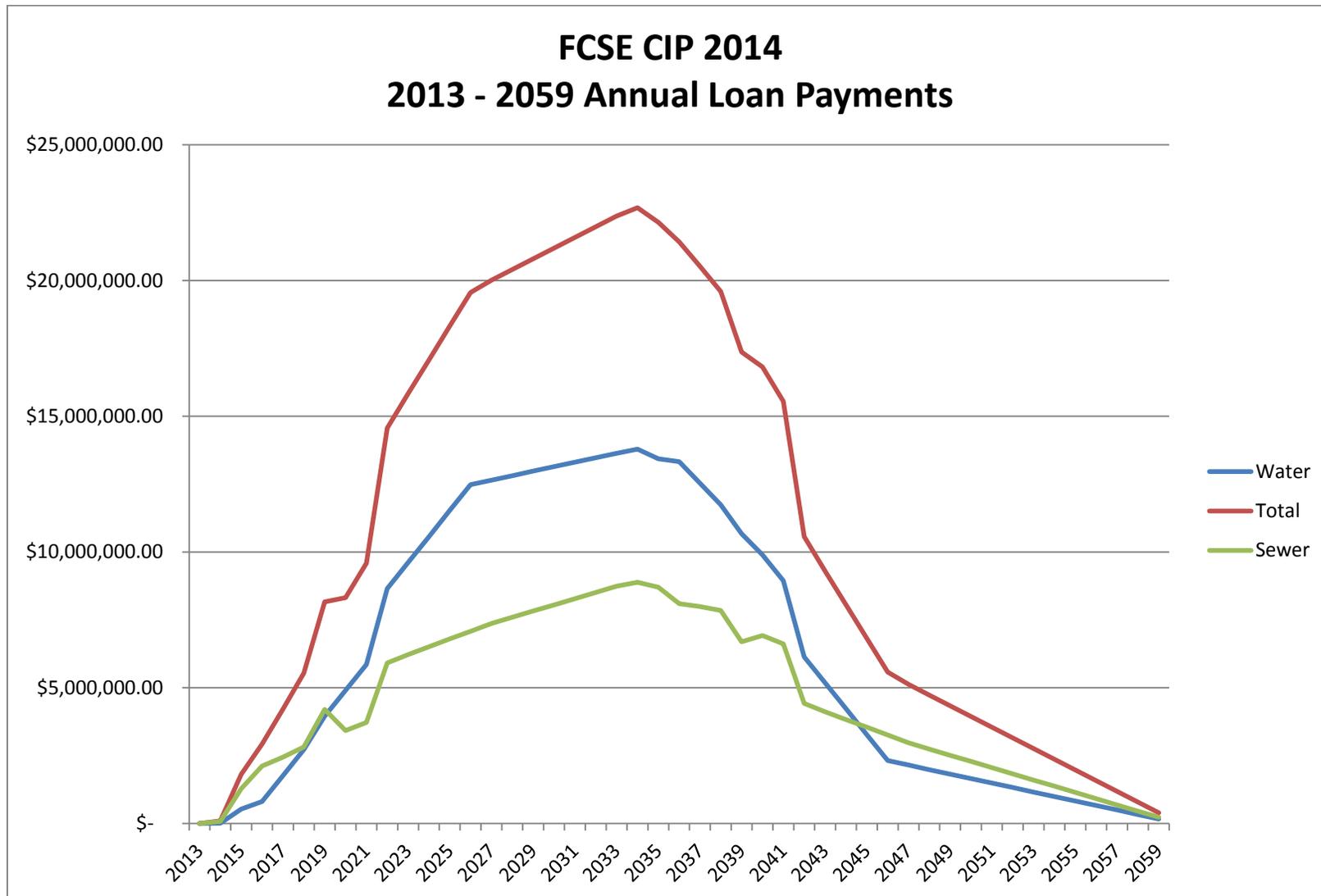
Table 5-2 5-Year Engineering Staffing Requirements

Year	2014	2015	2016	2017	2018
Number of active water design projects	8	10	8	7	1
Number of active sewer design projects	8	8	3	4	1
Number of active water construction projects	5	9	8	12	7
Number of active sewer construction projects	6	7	7	3	5
Number of CAPEX engineers required	2	3	2	2	1
Number of construction administrators required	2	2	2	2	2
Number of OPEX engineers required	1	1	1	1	1
Total Staff	5	6	5	5	5

6.0 Beyond 2018

- 6.1 The 5-year CIP has been designed to implement projects that meet the following needs:
- Upgrade and/or replace aging facilities that have historically been neglected and require immediate attention
 - Address regulatory requirements
 - Provide service to people who currently rely on private wells and HSTS
- 6.2 The 2014 CIP contemplates the completion of 44 water and sewer projects by the end of 2018. The debt service from these projects will not be retired until 2038. Beyond 2018 the Department will be required to undertake new projects, requiring the accumulation of additional debt service through 2038 and beyond. This section predicts the maximum amount of debt that the Department will be required to take on to fund the required projects.
- 6.3 Beyond 2018, the Department will be required to undertake a new set of projects. It is anticipated that most of these projects will be the rehabilitation of existing underground assets coupled with the upgrade of the older sewage pumping stations. Examples of these projects include the following:
- Rehabilitation of existing sanitary sewers as a result of the SSES. The SSES will provide a clear picture of the rehabilitation required including scope, cost, and schedule. It is anticipated that the rehabilitation could be in excess of \$40,000,000 and that the Department would be expected to complete the work in a fifteen year period. The annual loan repayment would be approximately \$3.2 million.
 - Rehabilitation of existing sewage pumping stations and force mains that have reached an age of 20 years.
 - Replacement of 1 to 2 miles of water distribution main per year to maintain the Department's goal of maintaining an average waterline age of 70 years.
- 6.4 Figure 6-1 illustrates the anticipated annual debt service through a planning period ending in 2059. The peak water debt service is \$13.8 million per year, the peak sewer debt service is \$8.9 million per year, and the peak total debt service as a result of capital spending is \$22.4 million per year.
- 6.5 The total cost to fund the CIP through the year 2059 is \$296 million for water projects, \$211 million for sewer projects, for a total of \$507 million to fund all projects. These figures include engineering, construction, and interest.

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