Town of Brunswick Asset Management Plan

Prepared for:

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Adopted:

This plan was adopted by the Town of Brunswick on August 15, 2016 by the Board of Commissioners.

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Mayor Nancy Hill

Prepared using:

Contents

Executive Summary

This Asset Management Plan is for the Town of Brunswick and describes how the utility will manage the infrastructure assets. The Town of Brunswick has a staff of two (2) part-time employees who perform day-to-day functions to keep the utility functioning properly. The utility manages 18,000 gallons per day. Maps of the utility are maintained by the utility at Brunswick Town Hall.

The Town of Brunswick has considered a range of service levels the utility could establish. These include the following:

Table E-1. Levels of Service

Levels of Service		Achieved
Goal	Performance Targets	
Protect public health and the environment; maintain system security	Reduce or eliminate bypasses and overflows; maintain security levels	Meets all performance objectives
Maintain excellent customer service	Respond to customer reports in timely manner	Meets all performance objectives
Maintain utility rates that improve sustainability of the system	Adopt rates for 2016/2017 fiscal year	Meets all performance objectives
Improve preventative maintenance	Complete all assessments and continue preventative maintenance	Meets all performance objectives
Expand sewer system	Expand system to include Bishford and Davis Streets	Application in progress
Maintain utility rates that improve sustainability of the system	Full delineation of water and sewer funds on consistent measures	No progress

To support the above Level of Service goals the utility has identified the following costs to help improve overall service to the community:

- Implementing the O&M will not require any additional funding, as staff has been diligent in maintaining the system with minimal staff. This may not be as true going forward, but currently, the system is doing a good job of paying for itself through expansion.
- It is estimated that the utility will spend a total of $700,000 on various water system improvement projects over the next 10 years. A detailed financial summary is presented in Table 8-1.
- Costs for sewer are funded through general rates, targeted rates and fees and charges.
- External financing for capital expenses exceeding $200,000 will be financed through CDBG-Infrastructure grants and similar funding sources.
- The average annual surplus/deficit over the next 10 years will be about $50,000.

The utility's action plan for improving the overall management of this utility and supporting the above Level of Service goals (including addressing the financial management, environmental management and specific issues) is shown in Table E-2.

Table E-2. Action Plan

Urgency	Service (All, W, WW)	Issue	Corrective Action Plan	Target Date for Completion
The five most important actions				
Medium	WW	Improve financial sustainability of system	Expand system to new customers along Highway 130, as well as Davis & Bishford Roads	2017
Medium	WW	Capacity limitation in forcemain from Leach Street to Whiteville sewer system.	Expand capacity of Leach Street Pump Station	2020

1 Introduction

This Asset Management Plan is for the Town of Brunswick wastewater system and describes how the utility will manage the infrastructure assets. Customer service demands and regulations require utilities to actively manage drinking water and wastewater assets through careful maintenance, repair and replacement decisions. This plan is an effective tool for combining technical, management and financial practices to ensure that the level of service required by the community is provided at the appropriate cost.

The plan has the following purposes:

1. To demonstrate responsible management of the drinking water and wastewater assets
2. To communicate and justify funding requirements indicated by the plan
3. To provide a management roadmap for the utility
4. To serve as a link between the Town of Brunswick and its customers

The Asset Management Plan contains an overview of the utility, mission statement, level of service agreement, critical asset list, operation and maintenance strategy, capital investment program, and financial strategies.

1.1 Mission Statement

The mission statement defines the goals of the Town of Brunswick and is the guide for level of service agreements discussed in section 3. The Town of Brunswick mission statement is as follows:

We commit to improving and maintaining the public health protection and performance of our drinking water/wastewater plant and distribution/collection utility assets, while minimizing the long-term cost of operating those assets. We strive to make the most cost-effective renewal and replacement investments and provide the highest-quality customer service possible.

1.2 Asset Management Team

The Town of Brunswick has a staff of two (2) part-time employees who perform day-to-day functions to keep the utility functioning properly. Together, these individuals have volunteered as members of the "the asset management team." Mr. Lenwood Williams works with consultants to perform asset management planning responsibilities. The team is responsible for preparing, implementing, and updating this plan.

To the extent that other staff are involved with this or other projects, the asset management team is responsible for coordinating such involvement in the developing and implementing this plan. More specific roles and responsibilities are listed in Table 1-1 and Table 1-2.

Figure 1-1. Town of Brunswick Organization Chart

Level	Person/Body	Role / Responsibility	Method of Oversight/Input
Highest Level	Citizenry	Customers of utility	Provide feedback to elected officials and staff
Town leaders	Board of Commissioners	Oversee utility operations	Direct staff, manage funds, enter contracts
Management staff	Lenwood Williams, Al Leonard	Inform Board of Commissioners and direct daily operations	Relay goings on to Board of Commissioners and direct staff, oversee expansion and contracts
Staff	Lenwood Williams, Richard	Operate system, relay information through proper channels	

Table 1-2. Town of Brunswick Asset Management Team

Name	Title	Organization	Role / Responsibility on Project
Board of Commissioners	Mayor, Commissioners	Town of Brunswick	Oversight
Al Leonard	Manager/Planner	Town of Brunswick	Technical review
Lenwood Williams	Operator	Town of Brunswick	Head Operator
Richard Staff	Operator	Town of Brunswick	Operator/Facility Staff
James Burke	Government Services Specialist	Cape Fear Council of Governments	Technical Assistance Provider

2 Utility Overview

The Town of Brunswick wastewater system serves a population of 367. The following table demonstrates key statistics about the utility and the population is serves. Maps of the utility are maintained by the utility at Brunswick Town Hall.

Table 2-1. Town of Brunswick Utility Overview

	Unit	Description
WASTEWATER		
The WW Network		
Pumping Equipment	Number	5
Motor Controls / Drives	Number	6
Sensors	Number	3
Buildings	Number	6
Pressure Pipework	Number	5
Galleries and Tunnels	Number	85
Generators	Number	2
Distribution / Collection Mains	LF	20380
General WW Information		
Treatment Plants	No.	1
Treated Effluent Discharge Points	No.	1
Type of Treatment	Descr.	
Discharge Volumes	Avg. Gallons/day	18000
Interconnected or Shared with other Drinking Utilities	Descr (if yes)	Connects to Whiteville Wastewater System
Water loss and Inflow / Infiltration calculations - Infiltration – Average daily wet weather flow = less than 120 gallons per capita per day (gpcd) - Inflow – Peak wet weather flow = less than 275 gpcd - Peaking Factor in sewer trunk lines = less than 4.0	Descr.	
Wastewater Asset Values		
Replacement Value	$000,000	953,620

Brunswick expects customer growth 10-15% over the next five (5) years. An expansion of the system connected to the Highway 130 Pump Station is already underway, with further plans to grow in the near future. Therefore, the utility will seek grant funding in order to expand the consumer base.

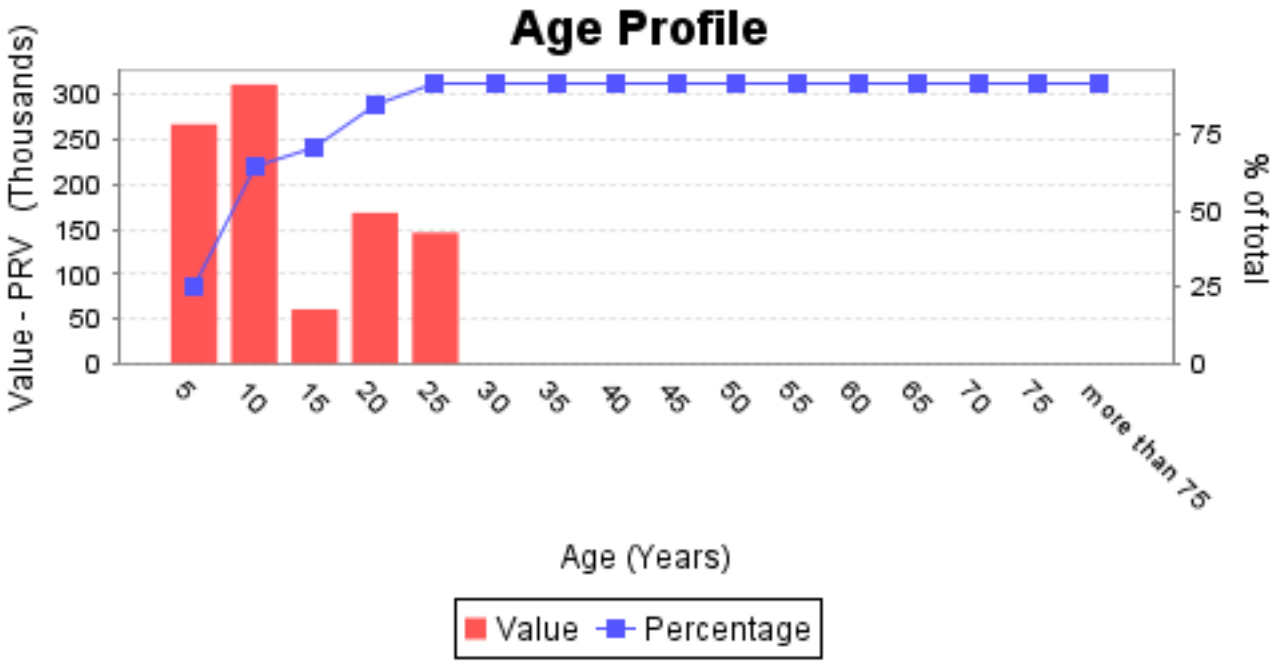

Figure 2-1. Town of Brunswick Age Profile

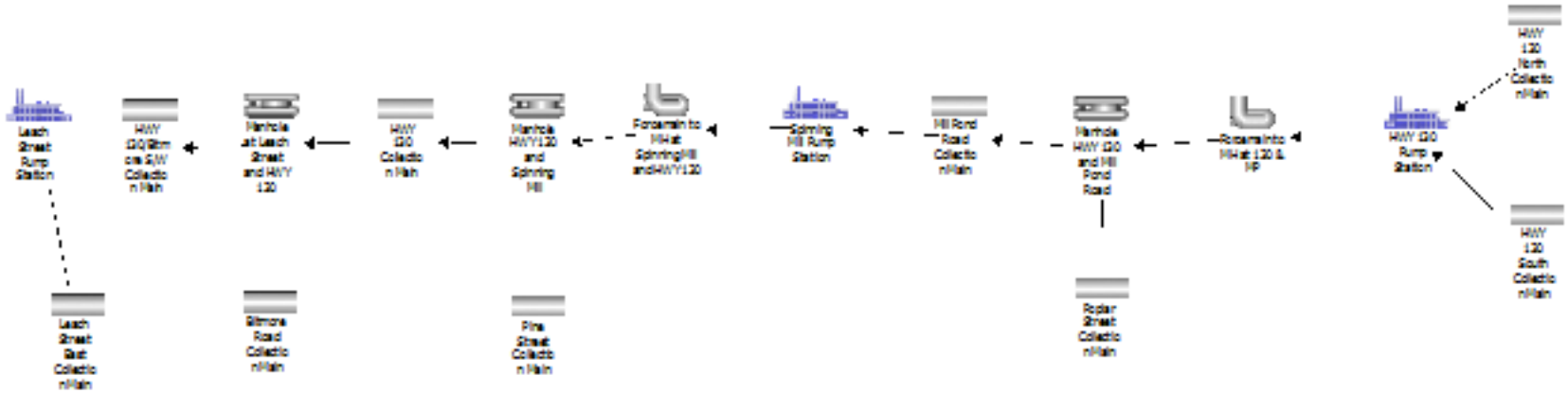

Figure 2-2. Town of Brunswick Schematic

3 Level of Service Agreement

The goal of the Town of Brunswick is to confirm wastewater is treated effectively and efficiently by providing services that meet or exceed customer expectations and comply with federal regulations. This section describes the utility's Level of Service goals and the key performance targets for each of the level of service goal for present and future performance. The level of service describes the characteristics of utility's performance such as "how much", "of what nature", and "how frequently" about the service and the performance target define how each level of service will be measured. The utility's progress toward meeting those goals will be reported biannually.

The levels of service determine the amount of funding that is required to maintain, renew and upgrade the water infrastructure to provide the customers with the levels of service specified. The Level of Service goals are defined across the four service areas identified below and a performance target is defined for each goal as a measure for the Level of Service goal. Changes to the levels of service goals and how the utility addresses the issues will affect funding requirements and how well the utility can provide the proper service to the community. The target levels of service that the utility has chosen to meet are presented in Table 3-1. This table lists the Level of Service goals and measures the success of each goal.

Table 3-1. Level of Service Goals

Levels of Service		Achieved
Goal	Performance Targets	
Protect public health and the environment; maintain system security	Reduce or eliminate bypasses and overflows; maintain security levels	Meets all performance objectives
Maintain excellent customer service	Respond to customer reports in timely manner	Meets all performance objectives
Maintain utility rates that improve sustainability of the system	Adopt rates for 2016/2017 fiscal year	Meets all performance objectives
Improve preventative maintenance	Complete all assessments and continue preventative maintenance	Meets all performance objectives
Expand sewer system	Expand system to include Bishford and Davis Streets	Application in progress
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4 Critical Assets

Some assets are more important than others in making sure that customers receive safe drinking water, or making sure that wastewater is treated effectively, or both. Therefore, the asset management team used the CUPSS software (developed by the U.S. Environmental Protection Agency) to identify and prioritize critical assets and to improve practices used for routine operation and maintenance. This process includes reviewing all assets and recording their conditions (likelihood of failure), criticality to the utility (consequence of failure) and redundancy (the number of back-up assets to help support each asset). This will ensure that the utility delivers the level of service described in the previous section.

The Town of Brunswick asset management team has completed the critical asset assessment. The Town now has an asset inventory which identifies the most critical assets. None of the Town's assets have currently been deemed critical, though a bottleneck has been identified by the consulting engineer at the four-inch (4") force main from the Leach Street Pump Station to where the system ties into the Whiteville System.

Tables 4-1 and 4-2 list assets critical to maintain the performance of the utility (none have been highlighted due to the age of the system).

Table 4-1. Town of Brunswick Critical Asset Inventory

Asset	Asset Type	Year Installed	Condition	CoF	Capacity	Risk	Replacement Date

5 Operation and Maintenance (O&M) Strategy

O&M consists of preventive and emergency/reactive maintenance. In this section, the strategy for O&M varies by the asset, criticality, condition and operating history. The risk matrix in My Check Up Asset Report provides the utility's assets and identifies the risk value for each asset. This risk matrix and section 4.0 of this document were used as the basis for establishing the maintenance program as a way to make sure that the utility address the highest risk assets. In addition, the maintenance program addresses the level of service performance objectives to ensure that the utility is running at a level acceptable to the customer.

Unexpected incidents could require changing the maintenance schedule for some assets. This is because corrective action must be taken in response to unexpected incidents, including those found during routine inspections and O&M activities. Utility staff will record condition assessments when maintenance is performed, at established intervals, or during scheduled inspections. Assets rated at the top of the priority ranking are presented below with the maintenance strategies. As an asset is repaired or replaced, its condition will improve and therefore can reduce the overall risk of the asset failing. The maintenance strategy will be revisited every two years.

5.1 Preventive Maintenance

Preventive maintenance is the day-to-day work necessary to keep assets operating properly, which includes the following:

1. Regular and ongoing annual tasks necessary to keep the assets at their required service level
2. Day-to-day and general upkeep designed to keep the assets operating at the required levels of service
3. Tasks that provide for the normal care and attention of the asset including repairs and minor replacements

Preventive maintenance is carried out because of a planned maintenance program (such as regularly scheduled asset repairs) and historically problematic operations (such as blockages and root infestation).Equipment must be maintained according to manufacturer's recommendations to achieve maximum return on investment. By simply following the manufacturer's suggested preventive maintenance the useful life of equipment can be increased 2 to 3 times when compared to run till failure. Communities, like Brunswick, that have eliminated preventive maintenance practices from their operating budget can achieve positive returns from a relatively small additional investment.

Table 5-1 shows preventive maintenance cost based on best management practices and manufacturer's recommended servicing intervals. Deferred maintenance tasks that have not historically been performed because of inadequate funding or staffing must be projected into future operating budgets to achieve life expectancy projected by the manufacturer or engineer.

Table 5-1. Town of Brunswick Preventive Maintenance Schedule for 2016

Task Name	Cost($)	Frequency	Estimate Annual Cost	Deferred Maintenance
Clean PS-A - Leach Street Pump Station	500	The 1st Monday every 6 month(s)	500	0
Clean PS-B - Spinning Mill Pump Station	500	The 1st Tuesday every 6 month(s)	1000	0
Clean PS-C - HWY 130 Pump Station	500	The 1st Wednesday every 6 month(s)	1000	0
Clean Pump Stations - Leach Street Pump Station	500	The 1st Monday every 6 month(s)	500	0
Insert Bacteria Blocks - Forcemain to MH at 130 & MP	410	Every 5 week(s) on Thursday	4100	0
Service PS-A Pump 1 - PS-A Pump 1	150	The 1st Monday of January	150	0
Service PS-A Pump 2 - PS-A Pump 2	150	The 1st Monday of January	150	0
Service PS-B Pump 1 - PS-B Pump 1	150	The 1st Tuesday of January	150	0
Service PS-B Pump 2 - PS-B Pump 2	150	The 1st Tuesday of January	150	0
Service PS-C Pump 1 - PS-C Pump 1	150	The 1st Wednesday of January	150	0
Service PS-C Pump 2 - PS-C Pump 2	150	The 1st Wednesday of January	150	0
Inspect Manholes 1	200	Every 2	2600	0

Task Name	Cost($)	Frequency	Estimate Annual Cost	Deferred Maintenance
		week(s) on Monday		
Inspect Manholes 2	200	Every 2 week(s) on Tuesday	2600	0
Inspect Manholes 3	200	Every 2 week(s) on Wednesday	2600	0
Inspect Manholes 4	150	Every 2 week(s) on Thursday	1950	0
Total Maintenance Cost			**$17,750**	
Total Deferred Maintenance Cost				**0**

*Additional cost necessary to fully implement the above described maintenance program are specified in the last column. These costs must be budgeted into the annual operating budget in order to achieve the manufacturer's recommended life expectancy and highest return on investment. Often the greatest obstacle to improved maintenance is staffing. Labor shortages must be addressed before an improved preventive maintenance plan can be implemented.

5.2 Emergency/Reactive Maintenance

Reactive maintenance is often carried out because of customer requests or sudden asset failures. The required service and maintenance to fix the customers issue(s) is identified by staff inspection. When failures do occur, staff has contracts in place to handle the work. Between both its water and wastewater systems, the Town is spending roughly $75,000 a year on maintenance, with less than $20,000 of that being on sewer assets and a small portion of that emergency/reactive maintenance.

5.3 Deferred Maintenance

Deferred maintenance is any maintenance, repair, restoration or replacement work that should have been accomplished before now, and that has not been performed. The utility has a total of $17,750 for all maintenance activities. Since the Town is currently performing preventative maintenance on its assets, it has kept deferred maintenance costs at zero.

6 Water Quality

This section addresses how the Town of Brunswick addresses water quality and water efficiency issues under the two major federal statutes governing water are the Safe Drinking Water Act (SDWA), the Clean Water Act (CWA), and State Drinking Water Regulations.

National Pollutant Discharge Elimination System (NPDES) Permitting Program

The NPDES permit number for this utility is 0037647. The information on the permit can be found at Brunswick Town Hall. Appendix C lists the exceedance, corrective action and the date when addressed. For the exceedances that have not been address see the action plan in Section 9.0.

Total Maximum Daily Loads (TMDLs)

Under CWA section 303(d), states are required to identify waters that do not meet water quality standards after the implementation of nationally required levels of pollution control technology, and to develop TMDLs for those waters. On the basis this determination, pollutant loadings are allocated among pollution sources in a water segment. Appendix B includes the waterbodies to which the utility discharges and the causes of impairment. To address these and future impairments, the asset management team has identified projects in the Capital Improvement Plan section 7.0 of this plan.

6.1 Implementation Strategy to Protect Watersheds

Water Quality Monitoring Strategy

Water quality monitoring provides the data to characterize waters and identify changes or trends in water quality over time. The collection of monitoring data enables Town of Brunswick to identify existing or emerging water quality problems and determine whether current pollution control mechanisms are effective in complying with the regulations. Brunswick uses the continuous basis at regular sites (i.e., fixed stations) to answer specific questions. The monitoring assets are included in Section 2.0 Utility Overview and tasks associated with water quality monitoring are included in Section 5.1.

Water and Energy Efficiency

The water and energy sectors are highly interdependent. Customers use enormous amounts of energy to withdraw, treat, and distribute water. Identifying approaches to integrate energy efficient practices into the daily management and long-term planning for our utility also contribute to the long-term sustainability of water infrastructure by reducing operation costs and adding to a utility's bottom line. Town of Brunswick is initiating the following steps to encourage water and energy efficiency to aid in forestalling future large capital expenditures in infrastructure and have identified several water and energy efficiency capital improvement projects:

- Participating in off-peak pumping
- Purchasing efficient pumps and motors
- Properly sizing equipment to its intended duty/load requirement
- Using variable speed devices
- Sustainable pricing

Best Management Practices (BMPs)

Adopting BMPs is an emerging trend among the water utility industry. Widespread adoption of better management practices offers great promise to reduce costs and direct system investments using a risk-based approach. BMPs are inherently pollution prevention practices. The asset management team has considered installing several types of BMPs. They include an implementation cost and conduct BMP activities throughout its preventive maintenance.

7 Capital Improvement Program (CIP)

The Town of Brunswick capital improvement program (CIP) plan is the description of future capital projects. Capital improvement projects generally create a new asset that previously did not exist or they upgrade and improve an existing capacity. The projects can result from growth or environmental needs, such as the following:

1. Expenditure that purchases or creates a new asset or in any way improves an asset beyond its original design capacity
2. Upgrades that increase the capacity of the asset
3. Construction designed to produce an improvement in the standard operation of the asset beyond its present capacity

In addition to capital improvement projects, the asset management team has reviewed and is establishing a renewal (or rehabilitation) strategy. Renewal expenditure is anything that does not increase the asset's design capacity but restores an existing asset to its original capacity. Any improvement projects that require more than simply restoring an asset to its original capacity are deemed to be a renewal project, such as the following:

1. Activities that do not increase the capacity of the asset (i.e., upgrade and enhance the assets restoring them to their original size, condition, and capacity)
2. Rehabilitation involving improvements and realignment or restores the assets to a new or fresh condition

In making renewal decisions, the utility considered several categories other than the normally recognized physical, failure or breakage. Such renewal decisions include the following:

1. Structural
2. Capacity
3. Level of service failures
4. Outdated functionality
5. Cost or economic impact

The utility staff and management know of potential assets that need to be repaired or rehabilitated. Reminders in the CUPSS task calendar let the staff members know when the condition of an asset begins to decline according to the manufacturer's life cycle recommendations of assets. The CUPSS Check Up Reports also have provided recommendations (replace, repair, or rehabilitate) for each asset. The utility staff members have taken these reminders and recommendations into account.

A summary of the current plan is presented in Table 7-1. Because the expected needs of the utility will change each year, the CIP plan will be updated to reflect those changes. Greater detail is presented in the town CIP.

Table 7-1. Town of Brunswick Capital Improvement Projects

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
PS-C Pump 1	$10,000	$227	Rehab/Replace	2060
PS-C Motor	$1,000	$21	Rehab/Replace	2064
PS-C Pump 2	$10,000	$227	Rehab/Replace	2060
PS-B Pump 1	$10,000	$476	Rehab/Replace	2016
PS-B Pump 2	$10,000	$244	Rehab/Replace	2036
PS-B Motor	$1,000	$48	Rehab/Replace	2016
PS-A Motor	$1,000	$53	Rehab/Replace	2016
PS-A Pump 1	$10,000	$476	Rehab/Replace	2016
PS-C Control Board	$500	$50	Rehab/Replace	2025
PS-C Generator	$25,000	$25,000	Rehab/Replace	2016
PS-A Control Board	$500	$33	Rehab/Replace	2016
PS-A Building	$25,000	$595	Rehab/Replace	2039
PS-A Generator	$25,000	$1,190	Rehab/Replace	2027
MH-BE-C1930	$4,250	$77	Rehab/Replace	2071
GS-MH-BE-C1550-MH-BE-C1930	$7,000	$175	Rehab/Replace	2056
MH-BE-C1550	$4,250	$101	Rehab/Replace	2058
GS-MH-130-C1160S-MH-BE-C1550	$6,900	$157	Rehab/Replace	2060
MH-130-C1160S	$4,250	$101	Rehab/Replace	2058
GS-MH-130-C1085S-MH-130-C1160S	$1,339	$30	Rehab/Replace	2060
MH-130-C1085S	$4,250	$101	Rehab/Replace	2058
GS-MH-130-C1085S-MH-130-C870S	$3,950	$90	Rehab/Replace	2060
MH-130-C870S	$4,250	$101	Rehab/Replace	2058
GS-MH-130-C470S-MH-130-C870S	$7,150	$162	Rehab/Replace	2060
MH-130-C470S	$4,250	$101	Rehab/Replace	2058
GS-MH-130-C120S-MH-130-C470S	$6,250	$142	Rehab/Replace	2060
MH-130-C120S	$4,250	$101	Rehab/Replace	2058

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
GS-MH-130-C120S-MH-130-C50	$1,339	$30	Rehab/Replace	2060
MH-130-C50	$4,250	$101	Rehab/Replace	2058
GS-PS-C	$1,250	$28	Rehab/Replace	2060
FM-PS-C-MH-MP-B2535	$30,000	$417	Rehab/Replace	2088
MH-MI-C3555	$4,250	$104	Rehab/Replace	2056
GS-MH-DO-C3160-MH-MI-C3555	$7,150	$162	Rehab/Replace	2059
MH-DO-C3160	$4,250	$104	Rehab/Replace	2056
GS-MH-HI-C2810-MH-DO-C3160	$6,430	$146	Rehab/Replace	2059
MH-HI-C2810	$4,250	$104	Rehab/Replace	2056
GS-MH-HI-C2590-MH-HI-C2810	$3,840	$87	Rehab/Replace	2059
MH-HI-C2590	$4,250	$104	Rehab/Replace	2056
GS-MH-HI-C2235-MH-HI-C2590	$4,560	$111	Rehab/Replace	2056
MH-HI-C2235	$4,250	$104	Rehab/Replace	2056
GS-MH-HI-C2235-MH-130-C2260N	$1,446	$33	Rehab/Replace	2059
MH-130-C2260N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C1860N-MH-130-C2260N	$7,150	$162	Rehab/Replace	2059
MH-130-C1860N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C1755N-MH-130-C1860N	$1,875	$43	Rehab/Replace	2059
MH-130-C1755N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C1635N-MH-130-C1755N	$2,232	$51	Rehab/Replace	2059
MH-130-C1635N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C1350N-MH-130-C1635N	$5,180	$118	Rehab/Replace	2059
MH-130-C1350N	$4,250	$104	Rehab/Replace	2056

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
GS-MH-130-C1350N-MH-130-C995N	$7,323	$179	Rehab/Replace	2056
MH-130-C995N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C630N-MH-130-C995N	$6,550	$149	Rehab/Replace	2059
MH-130-C630N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C400N-MH-130-C630N	$4,110	$93	Rehab/Replace	2059
MH-130-C400N	$4,250	$104	Rehab/Replace	2056
GS-MH-130-C400N-MH-130-C50	$6,250	$142	Rehab/Replace	2059
MH-MA-B3525	$4,250	$115	Rehab/Replace	2046
GS-MH-MA-B3350-MH-MA-B3525	$3,125	$78	Rehab/Replace	2049
MH-MA-B3350	$4,250	$106	Rehab/Replace	2049
GS-MH-PO-B3250-MH-MA-B3350	$1,875	$47	Rehab/Replace	2049
MH-PO-B3250	$4,250	$115	Rehab/Replace	2046
GS-MH-PO-B2880-MH-PO-B3250	$6,520	$163	Rehab/Replace	2049
MH-PO-B2880	$4,250	$115	Rehab/Replace	2046
MH-CY-B3350	$4,250	$115	Rehab/Replace	2046
GS-MH-CY-B2995-MH-CY-B3350	$6,430	$161	Rehab/Replace	2049
MH-CY-B2995	$4,250	$115	Rehab/Replace	2046
GS-MH-PO-B2880-MH-CY-B2995	$2,060	$52	Rehab/Replace	2049
GS-MH-PO-B2735-MH-PO-B2880	$3,750	$94	Rehab/Replace	2049
MH-PO-B2735	$3,750	$101	Rehab/Replace	2046
GS-MH-130-B2760-MH-130-B2840	$1,550	$39	Rehab/Replace	2049
GS-MH-130-B2940-MH-130-B3070	$2,420	$60	Rehab/Replace	2049

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
MH-130-B2940	$4,250	$115	Rehab/Replace	2046
GS-MH-130-B2840-MH-130-B2940	$4,250	$115	Rehab/Replace	2046
MH-130-B2840	$4,250	$115	Rehab/Replace	2046
MH-130-B2760	$4,250	$115	Rehab/Replace	2046
GS-MH-PO-B2735-MH-130-B2760	$1,520	$38	Rehab/Replace	2049
MH-PO-B2675	$4,250	$115	Rehab/Replace	2046
GS-MH-MP-B2535-MH-PO-B2675	$2,700	$68	Rehab/Replace	2049
MH-MP-B2535	$4,250	$115	Rehab/Replace	2046
GS-MH-MP-B2175-MH-MP-B2535	$6,450	$165	Rehab/Replace	2046
MH-MP-B2175	$4,250	$115	Rehab/Replace	2044
GS-MH-MP-B1875-MH-MP-B2175	$5,450	$140	Rehab/Replace	2046
MH-MP-B1875	$4,250	$115	Rehab/Replace	2046
GS-MH-MP-B1505-MH-MP-B1875	$6,600	$169	Rehab/Replace	2046
MH-MP-B1505	$4,250	$115	Rehab/Replace	2044
GS-MH-MP-B1420-MH-MP-B1505	$1,520	$39	Rehab/Replace	2046
MH-MP-B1420	$4,250	$106	Rehab/Replace	2049
GS-MH-MP-B1145-MH-MP-B1420	$5,000	$128	Rehab/Replace	2046
GS-MH-ML-B105-MH-MP-B185	$1,339	$34	Rehab/Replace	2046
GS-MH-MP-B1145-MH-MP-B790	$6,250	$164	Rehab/Replace	2033
MH-MP-B790	$4,250	$118	Rehab/Replace	2031
GS-MH-MP-B400-MH-MP-B790	$6,890	$191	Rehab/Replace	2031
MH-MP-B400	$4,250	$115	Rehab/Replace	2046
GS-MH-MP-B185-MH-	$3,929	$103	Rehab/Replace	2033

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
MP-B400				
MH-MP-B185	$3,929	$109	Rehab/Replace	2031
MH-ML-B105	$4,250	$115	Rehab/Replace	2044
GS-ML-B105-PS-B	$1,964	$53	Rehab/Replace	2044
GS-MH-ML-B105-MH-ML-B425	$5,715	$147	Rehab/Replace	2046
MH-MA-A3520	$4,250	$106	Rehab/Replace	2049
GS-MH-MA-A3220-MH-MA-A3520	$5,360	$134	Rehab/Replace	2049
FM-PS-B-MH-130-A1625S	$30,000	$448	Rehab/Replace	2062
MH-MA-A3220	$4,250	$106	Rehab/Replace	2049
GS-MH-PI-A2925-MH-MA-A3220	$5,360	$134	Rehab/Replace	2049
MH-PI-A2925	$4,250	$106	Rehab/Replace	2049
GS-MH-PI-A2560-MH-PI-A2925	$6,430	$150	Rehab/Replace	2052
MH-PI-A2560	$4,250	$106	Rehab/Replace	2049
MH-PI-A2560	$4,250	$106	Rehab/Replace	2049
GS-MH-CY-A3050-MH-OA-A3350W	$5,360	$125	Rehab/Replace	2052
MH-CY-A3050	$4,250	$106	Rehab/Replace	2049
GS-MH-CY-A3050-MH-OA-A3333E	$5,000	$116	Rehab/Replace	2052
MH-OA-A3333E	$4,250	$106	Rehab/Replace	2049
GS-MH-CY-A2810-MH-CY-A3050	$4,300	$100	Rehab/Replace	2052
MH-CY-A2810	$4,300	$108	Rehab/Replace	2049
GS-MH-PI-A2560-MH-CY-A2810	$4,500	$112	Rehab/Replace	2049
GS-MH-PI-A2275-MH-PI-A2560	$5,200	$121	Rehab/Replace	2052
GS-MH-130-A2160S-MH-PI-A2275	$2,000	$47	Rehab/Replace	2052

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
MH-130-A2585	$4,250	$106	Rehab/Replace	2049
GS-MH-PI-A2275-MH-130-A2585	$5,650	$131	Rehab/Replace	2052
MH-130-A2160S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1945S-MH-130-A2160S	$3,950	$92	Rehab/Replace	2052
MH-130-A1945S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1730S-MH-130-A1945S	$2,850	$66	Rehab/Replace	2052
MH-130-A1730S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1625S-MH-130-A1730S	$1,900	$44	Rehab/Replace	2052
MH-130-A1625S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1485S-MH-130-A1625S	$2,550	$59	Rehab/Replace	2052
MH-130-A1485S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1106S-MH-130-A1485S	$6,750	$157	Rehab/Replace	2052
MH-130-A1106S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A1106S-MH-130-A733S	$6,650	$155	Rehab/Replace	2052
MH-130-A733S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A393S-MH-130-A733S	$6,100	$142	Rehab/Replace	2052
MH-130-A393S	$4,250	$106	Rehab/Replace	2049
GS-MH-130-A245S-MH-130-A393S	$2,650	$62	Rehab/Replace	2052
MH-130-A245S	$4,250	$106	Rehab/Replace	2049
GS-MH-LE-A148W-MH-130-A245S	$1,800	$42	Rehab/Replace	2052
MH-BI-A1740N	$4,250	$106	Rehab/Replace	2049
GS-MH-BI-A1450N-MH-BI-A1740N	$2,500	$61	Rehab/Replace	2040
MH-BI-A1450N	$4,250	$112	Rehab/Replace	2037

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
GS-MH-BI-A1167N-MH-BI-A1450N	$5,100	$124	Rehab/Replace	2040
MH-BI-A1167N	$4,250	$112	Rehab/Replace	2037
GS-MH-BI-A1167N-MH-BI-A958N	$3,750	$91	Rehab/Replace	2040
MH-BI-A958N	$4,250	$112	Rehab/Replace	2037
GS-MH-BI-A665-MH-BI-A958N	$5,300	$129	Rehab/Replace	2040
MH-BI-A665	$4,250	$112	Rehab/Replace	2037
MH-TW-A1653	$4,250	$109	Rehab/Replace	2043
GS-MH-TW-A1524-MH-TW-A1653	$2,350	$56	Rehab/Replace	2046
MH-TW-A1524	$4,250	$109	Rehab/Replace	2043
GS-MH-TW-A1156-MH-TW-A1524	$6,550	$156	Rehab/Replace	2046
MH-TW-A1156	$4,250	$109	Rehab/Replace	2043
GS-MH-TW-A1027-MH-TW-A1156	$2,350	$56	Rehab/Replace	2046
MH-TW-A1027	$4,250	$115	Rehab/Replace	2041
GS-MH-TW-A1027-MH-BI-A934S	$1,700	$44	Rehab/Replace	2043
MH-BI-A934S	$1,700	$46	Rehab/Replace	2041
MH-BI-A1242S	$1,700	$47	Rehab/Replace	2035
GS-MH-BI-A1036S-MH-BI-A1242S	$3,650	$94	Rehab/Replace	2038
MH-BI-A1036S	$4,250	$118	Rehab/Replace	2035
GS-MH-BI-A1036S-MH-BI-A934S	$1,900	$49	Rehab/Replace	2038
GS-MH-BI-A665-MH-BI-A934S	$4,750	$122	Rehab/Replace	2038
GS-MH-LE-A441W-MH-BI-A665	$4,050	$104	Rehab/Replace	2038
MH-LE-A441W	$4,250	$118	Rehab/Replace	2035
GS-MH-LE-A322W-	$2,150	$55	Rehab/Replace	2038

Capital Improvement Project	Total Cost	Annual Savings	Type of Capital Improvement Project	Year to Conduct
MH-LE-A441W				
MH-LE-A322W	$4,250	$118	Rehab/Replace	2035
GS-MH-LE-A148W-MH-LE-A63	$1,500	$37	Rehab/Replace	2040
MH-LE-A63	$4,250	$112	Rehab/Replace	2037
MH-LE-A830E	$4,250	$112	Rehab/Replace	2035
GS-MH-LE-A440E-MH-LE-A830E	$7,000	$175	Rehab/Replace	2037
MH-LE-A440E	$4,250	$112	Rehab/Replace	2035
FM-PS-A-WVSS	$51,700	$760	Rehab/Replace	2065
MH-LE-A146E	$4,250	$106	Rehab/Replace	2037
PS-C Autodialer	$2,000	$154	Rehab/Replace	2028
PS-B Autodialer	$2,000	$154	Rehab/Replace	2016
PS-A Autodialer	$2,000	$154	Rehab/Replace	2016
PS-B Building	$25,000	$610	Rehab/Replace	2036
PS-C Building	$25,000	$610	Rehab/Replace	2036
PS-A Pump 2	$10,000	$476	Rehab/Replace	2016

8 Financial Management Strategy

This section describes the Town of Brunswick financial condition and its strategy for future financing. Large expenses are typically considered capital costs. Capital costs are one-time expenses (not including labor) used to replace or upgrade, because of capacity, a part of the utility. Capital costs do not include any O&M costs.

Costs for water are funded through general rates, targeted rates and fees and charges. External financing for capital projects will be financed through loans, grants, or rate increases. For details of capital projects, see the CIP plan. Table 8-1 below presents the estimated external financing.

If large expenses are required for expansion or upgrades, the Town of Brunswick plans to pay for the improvements through grants or bonds. The utility estimates that it will spend a total of $xx on water over the next 10 years to accommodate growth in the town, compliance with state and federal regulations, and introduce new drinking water or wastewater requirements. A detailed financial summary for the next 10 years is presented in Table 8-1.

Financial ratios are used to determine the financial health of a utility. The utility used the following Operating, Debt, Sales and Expense Ratios to shed light on the financial status of the utility and are included in Table 8-1 of this report.

8.1 Financial Forecast

The Financial Forecast shows predicted values of both revenue and expenses for the asset management teams using the values provided in the financial history, see Table 8-1. The projections are used to help the utility plan for and predict future expenses and revenue and how to better finance capital improvement projects by acquiring loans or grants or by planned rate changes.

8.2 Total Expenditure

The following table illustrates the forecasted financial needs for the next 10 years. The actual expenditure in FY 2014 and FY 2015, and the approved budget for 2016, is also shown for comparison.

Table 8-1. Town of Brunswick Total Expenditure Summary - Actual/Forecast

Town of Brunswick

Sewer Enterprise Fund	Actual	Actual	Actual	Actual	Actual	Average	Current Year BUDGET	Methodology	Projected	Projected
	FY 2011-2012	FY 2012-2013	FY2013-2014	FY 2014-2015	FY2015-2016		FY2016-2017		FY2017-2018	FY2018-2019
Number of Customers(Accounts)	367	367	367	367	367	367	371	1% Growth	374	378
RATES										
Base Rate (2000 gallons)	$ 30.20	$ 30.20	$ 30.20	$ 30.20	$ 30.20	$ 30.20	$ 30.20		$ 30.20	$ 30.20
First Block price per 1000 gallons(2001-6000 gallons)	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00		$ 7.00	$ 7.00
Second Block price per 1000 gallons(6001 - 9000 gallons)	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00		$ 7.00	$ 7.00
Third Block price per 1000 gallons(9001-10,000 gallons)	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00		$ 7.00		$ 7.00	$ 7.00
Fourth Block price per 1000 gallons(all over 10000 gallons)	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00		$ 7.00		$ 7.00	$ 7.00
Charge for 4,000 gallons per month	$ 44.20	$ 44.20	$ 44.20			$ 44.20	$ 44.20		$ 44.20	$ 44.20
Percentage Rate Increase Per Year		0%	0%				0%		0%	0%
Brunswick Median Houshold Income	$ 17,232	$ 19,063	$ 19,191	$ 19,191	$ 19,191		$ 19,191	1% growth	$ 19,383	$ 19,577
Charge for 4000 gallons as percent of Median Household Income	3.08%	2.78%	2.76%				2.76%		2.74%	2.71%
BUDGET	FY 2011-2012	FY 2012-2013	FY2013-2014	FY 2014-2015	FY2015-2016		FY2016-2017		FY2017-2018	FY2018-2019
Revenue										
Total Sales	$ 131,213	$ 135,097	$ 142,097	$ 148,005	$ 137,741	$ 136,136	$ -	Growth 1%	$ 137,497	$ 138,872
Earned Interest on Funds on Deposit	$ 2,372	$ 1,749	$ -	$ 1,374	$ 1,099	$ 1,374	$ -	2016; 1%	$ 1,387	$ 1,401
Transfers from Capital Reserve	$ -					$ -	$ -		$ -	$ -
Reconnection Fees	$ -	$ -	$ 2,140	$ 1,545	$ 1,160	$ 713	$ -	2016; Growth 1%	$ 720	$ 728
Tap, Impact & Availability Fees	$ 3,715	$ 3,915	$ 51,940	$ -		$ 19,857	$ -	Avg; 3% increase	$ 20,452	$ 20,657

Fund Balance Appropriation	$ -		$ -		$ -		$	19,000			$ -		$ -			$ -		$ -
Miscellaneous Revenue	$ 3,245		$ 150		$ 345		$ 158				$ 1,247		$ -		Avg; 1%	$ 1,259		$ 1,272
Late Fees	$ 7,753		$	8,010	$	1,793	$ 1,444				$ 5,852		$ -		2016; Growth 3%	$ 6,027		$ 6,088
Total Revenue	**$**	**148,298**	**$**	**148,921**	**$**	**198,315**	**$**	**171,526**	**$**	**140,000**	$	165,178	**$ -**			**$**	**161,316**	**$ 162,930**
Inflation Rate		2%		2%		2%						2%	2%		2%		2%	2%
Expenses																		
Salaries/Wages/Benefits	$ -		$ -		$ -		$ -		$	20,203	$	4,040.61	$ -		2016 Actual; 2%	$ -		$ -
Depreciation	$	19,003	$	36,318	$	36,784	$	36,784	$ -		$	25,777.80	$ -					
Repair and Maintenance	$	67,672	$	77,383	$	86,440	$	75,198	$ 4,371		$	62,212.83	$ -		Average; 10%	$	68,434	$ 75,278
Admin & General Operating Expenses	$	20,282	$	39,486	$	44,739	$	25,154	$	45,435	$	35,019.19	$ -		Average; 7%	$	37,471	$ 40,093
Contracted Services	$ -		$ -		$ -				$ -		$ -		$ -		2016 Actual; 5%	$ -		$ -
Transfers Between Funds	$ -		$ -		$ -						$ -		$ -					
Capital Reserve Contribution	$ -		$ -		$ -		$ -		$ -		$ -		$ -			$ -		$ -
Capital Outlay	$ -				$ -				$ 599		$	119.80	$ -		2016 Actual	$ -		$ -
Subtotal Operating Expenses	**$**	**106,957**	**$**	**153,187**	**$**	**167,963**	**$**	**137,136**	**$ 70,608**		**$**	**127,170**	**$ -**			**$**	**105,905**	**$ 115,371**
No Current Debt Service									$	12,986								
Subtotal Debt Payment	**$ -**		**$ -**		**$ -**		**$ -**		**$**	**12,986**	$ -		**$ -**			**$ -**		**$ -**
Total Expenses/Debt Payment/Reserves&Outlays	**$**	**106,957**	**$**	**153,187**	**$**	**167,963**	**$**	**137,136**	**$**	**83,594**	**$**	**142,702**	**$ -**			**$**	**105,905**	**$ 115,371**
Surplus/(Deficit)	**$**	**41,341**	**$**	**(4,266)**	**$**	**30,352**	**$**	**34,390**	**$**	**56,405**	**$**	**22,475**	**$ -**			**$**	**55,412**	**$ 47,559**
Ratio of Revenue/Expense		1.387		0.972		1.181		1.251		1.675		1.157					1.523	1.412

9 Action Plan

The Town of Brunswick Asset Management Plan refers to many objectives, targets, maintenance and improvements for the utility. Table 9-1 brings all these items together to clearly identify the actions required to successfully implement the Asset Management Plan. For example action items, see Appendix F.

Table 9-1 Action Plan Table

Urgency	Service (All, W, WW)	Issue	Corrective Action Plan	Performance Target No.	Target Date for Completion	Status	Final Completion Date
The five most important actions							
Medium	WW	Improve financial sustainability of system	Expand system to new customers along Highway 130	None	2017	IP	
Medium	WW	Capacity limitation in forcemain from Leach Street to Whiteville sewer system.	Expand capacity of Leach Street Pump Station	None	2020	NS	

9.1 Review Schedule

The Town of Brunswick plans to review this plan annually and update the community on new information and changes on 6/30/2017.

10 Appendices

Appendix A. Financial History
Expenses for Town of Brunswick

Year:2010

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$106,897	0.00%
Total Expense	$0	$106,897	

Year:2011

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$93,633	0.00%
Total Expense	$0	$93,633	

Year:2012

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$107,503	0.00%
Total Expense	$0	$107,503	

Year:2013

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$153,187	0.00%
Total Expense	$0	$153,187	

Year:2014

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$137,136	0.00%
Total Expense	$0	$137,136	

Year:2015

Type of Expense	Budgeted	Actual	Inflation
Operating Expenses	$0	$137,136	0.00%
Total Expense	$0	$137,136	

Revenue for Town of Brunswick

Year: 2010

Type of Revenue	Budgeted	Actual	Inflation

Revenue from user rates	$0	$119,981	0.00%
Total Revenue	$0	$119,981	

Year: 2011

Type of Revenue	Budgeted	Actual	Inflation
Revenue from user rates	$0	$132,893	0.00%
Total Revenue	$0	$132,893	

Year: 2012

Type of Revenue	Budgeted	Actual	Inflation
Revenue from user rates	$0	$138,174	0.00%
Total Revenue	$0	$138,174	

Year: 2013

Type of Revenue	Budgeted	Actual	Inflation
Revenue from user rates	$0	$139,162	0.00%
Total Revenue	$0	$139,162	

Year: 2014

Type of Revenue	Budgeted	Actual	Inflation
Revenue from user rates	$0	$146,639	0.00%
Total Revenue	$0	$146,639	

Year: 2015

Type of Revenue	Budgeted	Actual	Inflation
Revenue from user rates	$0	$152,145	0.00%
Total Revenue	$0	$152,145	

Appendix D. Glossary

Term	Definition
Annual Debt Payment	The dollar amount that must be paid each year toward retiring existing debt.
Annual Operating Expenses	Total annual cost of operating and maintaining the water or wastewater utility service. This does not include savings or future draws from capital savings accounts.
Asset	A component of a facility with an independent physical and functional identity and age (e.g. pump, motor, sedimentation tank, main).
Asset Category	Where the asset best fits within your system (e.g., source water, distribution or collection), for organizational purposes.
Asset Inventory	A list of assets with details about each one (installation date, original cost, condition, and such). Also known as an asset register.
Asset Management	A process for maintaining a desired level of customer service at the best appropriate cost.
Asset Name	The name of the technology or equipment that is used for your system to properly function (for example, “5th Street Pumping Station”). See also, Asset.
Asset Status	This is how your utilities view an asset. Assets can be active (most assets), not in use or a future investment. You would designate an asset a "future investment" if you would like it added to your capital improvement plan.
Asset Type	The asset’s functional purpose for a specific asset category (for example, intake structure, pumping station, transmission main, storage tank, and the like).
Associated Asset	Assets that are directly related to a primary asset’s function.
Associated Location	A location that complements an associated asset.
Capital Improvement (Expense)	Funds required for the future purchase, repair or alteration to or for an asset, structure, or major pieces of equipment.
Capital Improvement Program (CIP) Plan	A plan that projects and assesses which projects (including asset improvements, repairs, replacements, and such) need to be completed in the future.
Capital Reserve Contribution	Funds set aside to fund capital improvements (i.e. future

Term	Definition
	purchase, repair or alteration to or for an asset, structure, or major pieces of equipment).
Cash on Hand	The amount of cash that is available to the system within a 24 hour period.
Condition	The current condition, in your opinion, of an asset according to its age and physical functionality (ranging from poor to excellent).
Consequence of Failure	The real or hypothetical results associated with the failure of an asset.
Debt Payment	The dollar amount that must be paid each year toward paying down or retiring existing debt.
Debt Ratio	Debt Ratio =Total Liabilities / Total Assets The debt ratio measures the amount of debt being used by the organization. A ratio of 0.6 means that 60% of operations have been financed with debt and the remaining 40% has been financed by equity.
Emergency Reserve Contribution	Funds set aside for unexpected repairs and replacements. CUPSS recommends that utilities work toward an emergency reserve balance of 25% of its annual operating expenses.
Expected Useful Life	The average amount of time, in years, that a system or component is estimated to function when installed new.
Expense	Money spent by the utility to continue its ongoing operations.
Expense Ratio	Expense Ratio = Operating Expense / Total Expense The expense ratio measures the amount of operating expenses compared to total expenses. A high ratio indicates that most expenditures are for operations—leaving the remaining balance for non-operating costs (such as debt service, capital improvements, and such). If the non-operating balance is small, the utility is not likely to meet all its capital-related expenses, which might cause the system to deteriorate more rapidly.
Financial Assets	Intangible assets such as cash and bank balances.
Growth	The amount, as a percent, a community's demand for water or wastewater treatment has increased or decreased. This value will be used to adjust future

Term	Definition
	revenues and expenses.
Inflation	The anticipated rate of increase in the price level of goods and services.
Interest Rate	A rate that is charged or paid for the use of money. Note: Do not include a percentage sign.
Level of Service	The characteristics of system performance such as how much, of what nature, and how frequently, with regard to the system's service.
Liabilities	The financial obligations for which the utility is responsible.
Maintained According to Factory Recommendation	The frequency of routine maintenance as recommended by the manufacturer.
Operating Expenses	Total annual cost of operating and maintaining the water or wastewater utility service. This does not include savings or future funds withdrawal from capital savings accounts. Operating expenses include maintenance, equipment, salaries, wages, benefits, supplies, chemicals, contracts, utilities, monitoring, testing, emergency, rent, mortgage, insurance, services, training costs, billing costs, fees, and security costs.
Operating Ratio	Operating Ratio = Operating Revenue / Operating Expense The operating ratio demonstrates the relationship between operating revenues and operating expenses. A high ratio indicates that the organization has operating efficiency by keeping expenses low relative to revenue.
Original Cost	The amount paid for the initial purchase of an asset.
Probability of Failure	The chance an asset will fail based on the percent of effective life consumed and redundancy.
Redundancy	Spare assets that have the ability to do the same job, if a failure of the primary asset were to occur.
Replacement Cost	How much will it cost to replace the asset, if required today?
Revenue	Funds earned by the system through the sale of water or by other means.
Revenue Surplus/Deficit	The difference between the total cost of doing business and the funds received from fees, loans and grants, and interest earned from any accounts. If the result is zero or

Term	Definition
	greater, the utility is taking in enough money to fully recover its costs and have a surplus. If the result is less than zero, the utility will not cover all costs and therefore will have a deficit.
Risk	The potential for realization of unwanted adverse consequences or events.
Routine Maintenance Cost	How much does it cost for a single routine maintenance activity to be performed on the asset?
Sales Ratio	Sales Ratio = Sales / Total Revenue The sales ratio measures the percentage of total revenue that is made up of sales from operations. A low ratio indicates that the organization is overly reliant on outside funding.
Savings Withdrawal	A fixed amount of money removed from the savings account of the utility to help pay for capital improvement items or other planned or unplanned maintenance.
Total Annual Cost of Doing Business	The total annual operating expenses plus the required total annual reserve contributions to reserve funds.