CECIL COUNTY
MASTER WATER & SEWER PLAN

November 2018

Prepared by:

Cecil County Department of Land Use & Development Services
200 Chesapeake Boulevard, Suite 2300
Elkton, MD 21921

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RESOLUTION
CERTIFICATION BY CECIL COUNTY GOVERNMENT

WHEREAS, Section 9-503 of the Environment Article of the Annotated Code of Maryland requires the County to have a County Water and Sewer Plan; and

WHEREAS, Section 9-503 of the Environment Article of the Annotated Code of Maryland requires Cecil County to review, revise, or amend its Plan every 3 years; and

WHEREAS, pursuant to the requirements of Section 9-503 of the Environment Article of the Annotated Code of Maryland, the Plan has been sent to the principal elected official of each municipal corporation; and

WHEREAS, pursuant to the requirements of Section 9-506 of the Environment Article of the Annotated Code of Maryland, the Cecil County Department of Land Use and Development Services, the official planning agency for the County, has certified that the Plan is consistent with the Cecil County Comprehensive Plan; and

WHEREAS, a public hearing was held by the Planning Commission on _____ 2018; and

WHEREAS, the Planning Commission has recommended approval of the Cecil County Master Water and Sewer Plan; and

WHEREAS, a public hearing was held by the Cecil County Council on _____ 2018; and

WHEREAS, all requirements of the Environment Article of the Annotated Code of Maryland have been met with regard to the amendment of the Master Water and Sewer Plan;

WHEREAS, the County Council of Cecil County approved the Cecil County Master Water and Sewer Plan on _____ 2018;

NOW, THEREFORE, BE IT ENACTED, that the Cecil County Master Water and Sewer Plan is hereby adopted.

DATE:_____ BY:

ATTEST: _____
Dr. Alan J. McCarthy, County Executive

_____
Alfred C. Wein, Jr. – Director of Administration

Cecil County, Maryland - 2018 Master Water & Sewer Plan

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APPENDICES

EXECUTIVE SUMMARY

The former Board of County Commissioners adopted a new Comprehensive Plan for Cecil County on April 13, 2010. The primary intent of the Comprehensive Plan is to concentrate development in growth areas. This will allow the County to efficiently plan for and implement water and wastewater infrastructure and deflect future growth away from rural areas.

The growth areas (High, Medium High, Medium, Low, Residential Mixed Use, Employment Mixed Use, and Employment) are the areas most suitable for future development based on the County's existing built environment and land use patterns as well as its future land use goals. The growth area is either served or planned to be served by water and wastewater facilities. The goal is to concentrate residential, industrial, and commercial growth in the growth area, thereby reducing the cost of providing infrastructure by making it more efficient and by limiting growth pressure in the rural areas of the County.

The Comprehensive Plan recognizes that concentrating development in growth areas will help protect rural character by directing development to higher density areas served or intended to be served by water and wastewater infrastructure. Perhaps the most strategic growth area is the I-95/U.S. Route 40 corridor. This area has been designated for growth for many years, but development has been stymied by the lack of water and sewer infrastructure. The County has attempted to move development forward by awarding a franchise to Artesian Water Maryland to provide water service to portions of the area and to expand the County's wastewater infrastructure.

The 2010 Comprehensive Plan contains a Water Resources Element that has the following goals and objectives:

1. Increase the capacity and extent of water resources infrastructure – water supply and wastewater collection, treatment, and discharge capacity – in growth areas.

2. Plan growth in a way that allows sufficient time to develop adequate drinking water and wastewater resources and infrastructure.

3. Work with municipalities in the County, neighboring jurisdictions, the Susquehanna River Basin Commission, other regional organizations, and private service providers to address water resource issues related to water supply, wastewater treatment, and nonpoint source pollution.

The Master Water and Sewer Plan will provide the mechanism for the implementation of the goals and objectives of the County's Comprehensive Plan and to achieve the recommendations of the Plan's water resources and land use elements.

The engineering aspects of the water and sewerage projects described in this plan have been reviewed for adequacy for a registered engineer licensed in the State of Maryland.

CHAPTER 1
GOALS AND OBJECTIVES

1.0 GOALS

This section outlines the goals that the Master Water and Sewer Plan for Cecil County seeks to realize. Achieving these goals will require a concerted effort by private franchisees, Municipal, County, and State governments as well as the citizens of Cecil County. These goals were derived from the Cecil County Comprehensive Plan and were developed to ensure and enhance the high quality of life that the citizens of Cecil County enjoy.

- A high quality of life is achieved through the universal stewardship of the land, water and air, resulting in sustainable communities and protection of the environment.
- Growth is concentrated in existing population and business centers, growth area adjacent to these centers, or strategically selected new centers.
- Growth areas have the water resources and infrastructure to accommodate population and business expansion in an orderly, efficient, and environmentally sensitive manner.
- Strategies, policies, programs and funding for growth and development, resource conservation, infrastructure and transportation, are integrated across the local, regional, state and interstate level.
- Incentivize development within growth areas and discourage development outside growth areas.
- Encourage maximum growth and high density development in the growth area.
- Achieve a balance of residential development and employment opportunities.
- Attract high density, mixed use development at appropriate locations in the growth area.
- Concentrate high density development in areas where adequate public or private facilities will be provided.
- Provide land in appropriate locations for growth and expansion of economic development opportunities.
- Establish a clear relationship between existing and proposed future development, the drinking water resources, and wastewater facilities that will be necessary to serve that development.
- Increase the capacity of water resources infrastructure, water supply, wastewater collection, treatment and discharge capacity in growth areas.
- Plan growth in a way that allows sufficient time to develop adequate drinking water and wastewater resources and infrastructure.
- Work with municipalities in the County, neighboring jurisdictions, the Susquehanna River Basin Commission, other regional organizations, and private service providers to address resource issues related to water supply, wastewater treatment, and nonpoint source pollution.
- Direct most future growth to growth areas.

- Facilitate growth in growth areas by creating mixed use zoning districts and allowing planned unit developments to develop in desired locations.
- Encourage the provision of infrastructure and incentives that will enable growth areas to develop as attractive, well designed places.
- Promote the construction of new development on privately or publicly owned and operated water and wastewater systems, including shared facilities, to implement the County Comprehensive Plan and to avoid becoming an undue burden upon the financial resources of the residents of the County.
- Consider using shared facilities to promote clustering and the preservation of open space.
- Explore the establishment of new surface water sources such as surface impoundments and withdrawals.
- Identify areas suitable for treated wastewater land application and tertiary treatment wetlands.
- Pursue the abatement of failing septic systems through connection to community systems where appropriate.

1.1 Objectives

These objectives are to provide more specific definitions to the goals that the County seeks to achieve. These objectives were derived from the Cecil County Comprehensive Plan. These objectives were also derived from the goals stated in the previous section.

- Facilitate development in the County's growth area.
- Provide adequate water and sewer infrastructure to serve the growth area.
- Coordinate with the Towns to plan for future annexation areas.
- Aggressively pursue development of water and wastewater resource infrastructure in the growth area
- Cooperate and coordinate with public and private utilities through the execution of franchise agreements to provide long term water supply and wastewater collection and treatment facilities for the needs of development within the County.

1.2 Objectives for Water and Sewer Facilities and Services for the Land Use Districts

The Cecil County Comprehensive Plan Land Use element outlines several land use districts which have specific goals, objectives, and policies to encourage the desired type, form, density, and intensity of development in given areas. The following are excerpts from that Plan regarding water and sewer service to those districts.

High Density Growth Area – Generally located adjacent to the Towns of Elkton, North East, and Perryville, this district offers the highest density development with a mix of housing types including duplexes, townhouses, apartments, and condominiums. This district is served or planned to be served by sewer and water facilities.

Medium High Density Growth Area – Generally located adjacent to the Towns of North East and Elkton this district is envisioned to act as a transition from High to Medium growth areas. The district is intended to include a mix of housing types including single family, townhouse, apartments, and condominiums. This district is served or planned to be served by sewer and water facilities.

Medium Density Growth Area – Generally found on the periphery of the growth area around the Towns of Elkton, Charlestown, Perryville, Port Deposit, and the smaller Towns of Cecilton, Chesapeake City and Rising Sun. This district is served or planned to be served by sewer and water facilities.

Low Density Growth Area – This district provides a transition between more densely developed areas and rural areas. Although most areas of the district are not shown as water and sewer areas, there are areas that are served or planned to be served by water and sewer facilities. The remaining areas are eligible for service in the future. As such, they represent future growth opportunities in the designated growth area.

Employment – The intent of this district is to provide for major industrial, manufacturing, office, and business uses and economic development opportunities near major roads and railroads. Employment areas have or are planned to be served by sewer and water facilities.

Employment Mixed Use – Located south of U.S. Route 40 and north of MD Route 7 on the west side of Elkton adjacent to rail lines, this district is envisioned to contain master planned office, commercial, and residential areas. This district is served or planned to be served by sewer and water facilities.

Residential Mixed Use – Located on the north side of U.S. Route 40 west of Elkton, this district is envisioned to create mixed use transit supportive nodes with a residential emphasis. This district is served or planned to be served by sewer and water facilities.

Resource Protection and Rural Conservation Districts – Extension of water and sewer service systems will not be permitted in these in these districts except in cases of where a threat to public health exists. Private shared facilities may be permitted and can provide an opportunity to preserve large open space areas.

Village District – Extension of water and sewer service is only anticipated when there is a threat to public health or where water and sewer services can be readily extended from nearby areas.

Mineral Extraction – Water and Sewer service should be provided to land zoned for commercial and industrial uses or to correct existing problems with septic systems.

1.3 Policies

This section is intended to demonstrate how the goals and objectives will be achieved. Further, it is intended to clarify and qualify specific actions necessary to ensure the goals and objectives are achieved.

1.3.1 General Policies Regarding Water Supply and Sanitary Sewage Systems

A. Existing water and wastewater treatment plants shall continue to be maintained and improved to meet Maryland Water Quality Standards and State and EPA NPDES permit requirements.

B. The County will cooperate with State efforts to reduce any sources of stream pollution.

C. The citizens of Cecil County will be informed of pollution problems and their advice and cooperation solicited.

D. Where existing private water supply or private sewer systems prove inadequate or unsafe and are reasonably near public systems, the County or private provider will attempt to provide connection to the public or private system.

E. The nature and extent of existing water and sewer problems will be investigated and solutions sought. A coordinated effort between the Cecil County Health Department and Cecil County Department of Public Works to identify potential health problems and evaluate potential solutions will prove invaluable to resolving said problems.

F. In planning for and proposing private or public water and sewer facility construction programs, at a minimum the following shall be considered and documented:

- Recommendations of the Comprehensive Plan;
- Franchises granted to provide water and wastewater services;
- Areas experiencing public health hazards needing immediate attention;
- Existing systems in need of upgrade;
- Developing areas; and
- Determination of physical and financial feasibility.

G. For all development of residential, commercial, or industrial properties, the County shall ensure that water supply and sanitary sewer system installations shall be properly connected to an approved and functioning public and/or private wastewater treatment/water supply system in accordance with the following:

- A Water Appropriation and Use Permit or Notice of Exemption, as applicable, must be obtained from the Maryland Department of the Environment Water and Science Administration.
- A well construction permit must be obtained from the Maryland Department of the Environment via the Cecil County Health Department.

- A financial management plan must be submitted to the Maryland Department of the Environment Water Supply Program for review and approval. This plan shall detail estimated operating costs and revenues required to support these costs.

- An operation and maintenance (O&M) plan must be prepared and submitted to the Maryland Department of the Environment Division of Engineering and Permits for review and approval.

- National Pollutant Discharge Elimination Permits (NPDES) must be obtained for wastewater treatment plant discharges

- A State Water construction permit must be obtained from the Maryland Department of the Environment prior to the installation of a water or wastewater system, depending on the size and extent of the system

H. After a State construction permit has been issued, there are additional requirements which must be met prior to actual operation of new systems, which are:

- All County permits must be obtained, and all inspections performed, as may required by the approving authorities.

- A water or wastewater treatment plant superintendent and operator certified in the appropriate classification must be employed prior to startup and to attend the plant on a daily basis.

- Plans must be made for compliance with monitoring and reporting requirements of MDE in advance of the start up.

I. Recapturing Unused Water & Sewer Commitments

- The Department of Land Use and Development Services or a private utility may issue commitments to a specified project for water and/or sewer service. However, the commitment will remain valid only if the original conditions of the commitment remain unchanged. The applicant cannot propose changing the project without risking the commitment. Commitments are considered granted when a public works agreement (PWA) has been executed between Cecil County Government and the owner/developer.

- Any commitment holder shall lose their commitment for water and/or sewer service if they do not develop in a timely manner. From the date that Cecil County Government or the private utility grants a commitment, through the execution of a PWA to the project, the developer/owner shall have 18 months in which to construct one third of the project in residential developments. Nonresidential projects must be under construction to the satisfaction of the approving authority. If this has not been done, the commitment may be

forfeited and subject to reallocation. Cecil County Government or the private utility may extend this period for up to one additional year only if the applicant can demonstrate that the delay is attributable to governmental action or conditions beyond human control. Alternative schedules may be negotiated at the discretion of Cecil County Government or the private utility.

J. Flow Reduction Program

- Substantial reductions in the operation costs of water and wastewater facilities and withdrawal of groundwater are possible through the implementation of a flow reduction program. All existing structures within an existing or proposed water or wastewater service area shall be required to use low flow fixtures when upgrading plumbing fixtures. The installation of water conserving devices as an interim measure shall be strongly encouraged in all areas.

- All new structures to be constructed within the County shall be required to incorporate the following flow reduction measures:

  i. A pressure reducer will be required to maintain a system pressure not in excess of 60 psi.

  ii. No toilet utilizing in excess of 1.6 gallons per flush will be permitted.

  iii. Lavatories in the restrooms of public facilities will be equipped with devices that stop the flow of water (hot and cold combined) after not more than one gallon of water has flowed through the fitting.

  iv. Whenever possible, retrofitting of water conserving devices and/or fixtures shall be encouraged in all situations short of remodeling as defined by the Water Conservation Plumbing Fixtures Act.

K. Lots shall provide at least the minimum size and area requirements of the zoning district in which they are located and any other applicable local laws, ordinances, and regulations of Cecil County, the Health Department or MDE, whichever is more stringent.

L. Individual Water Supply and Individual Sewer Systems

- An individual water supply or individual sewer system may not be permitted to be installed where an adequate community water or wastewater facility is available (as determined by the Cecil County Department of Environmental Health). If an existing community water or sewer facility is inadequate or is not available, an individual system may be used as set forth below.

- Such systems are found by the Department of Environmental Health to be adequate, safe, and in compliance with State and local requirements.

- Permits for such systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future community system shall be made when such system becomes available.

1.3.2 Policies Regarding Interjurisdictional Coordination

A. All branches of Cecil County Government as well as private utilities will be expected to comply with the policies of the Plan.

B. Cecil County Government shall aid and encourage river basin cooperation with all adjoining jurisdictions including the Susquehanna River Basin Commission and Delaware River Basin Commission and private utilities.

C. Public and private water and sewer facilities will be designed and sized not to exceed the growth recommendations of the Comprehensive Plan for the area and based on the advice of the Director of Land Use and Development Services and the Director of Public Works.

1.3.3 Policies on Areas to be Served

A. W1 and S1 are areas that are presently served by central water and/or sewer facilities. New development occurring in the W1 and S1 areas shall be served by the central water and/or sewer systems. Exceptions shall only be permitted due to capacity problems or physical constraints that would preclude hook up to the central system. The burden of proof of feasibility shall be on the owner/developer and shall be reviewed by the entity responsible for the central water and/or sewer facility.

B. W2 and S2 are areas to be served by extension of community and multi-use water and sewage systems in the next 0-2 years. It is not the intent of the County to finance the construction of water and/or sewer facilities to all properties designated as W2 and S2, but to encourage private entities to finance the same. Privately financed water and/or sewer facilities shall be dedicated to the County at the discretion of the County. Exceptions shall occur when the County grants a franchise to a private entity to serve a portion of the County with private water and/or sewer facilities.

C. W3 and S3 are areas where improvements to construct new community multi-use water and sewer systems will be given priority in the next 2-3 years. Privately financed water and/or sewer facilities shall be dedicated to the County at the discretion of the County. Exceptions shall occur when the County grants a franchise to a private entity to serve a portion of the County with private water and/or sewer facilities.

D. W4 and S4 are areas that may be served within 3 to 6 years of the date of the adoption of this plan. Except as provided below, no parcel designated as W4 or S4 shall be served with water and sewer before the appropriate time. This limitation applies to proposed privately financed service extensions as well.

E. W5 and S5 are areas that may be served within 6 to 10 years of the date of the adoption of this Plan. Except as provided below, no parcel designated as W5 and S5 shall be served with water and sewer before the appropriate time. This limitation applies to proposed privately financed service extensions as well.

1.3.4 Denied Service Area Exceptions

Parcels not designated for service may only be served with water and sewer facilities under the following circumstances:

- To provide service to an existing residence, commercial, or industrial operation that is experiencing health or environmental problems that would be solved by the service extension as recommended by the Cecil County Health Department.
- To provide service to a property under a written agreement with the County, executed prior to the date of the creation of the service area designation that obligates the County to serve said property in a manner consistent with said agreement.
- For economic development purposes after a public hearing and upon receipt of a recommendation from the Economic Development Commission and the Planning Commission.

1.3.5 Amendment Procedures

This document, including service area boundaries, may be amended from time to time provided that no action be taken until a public hearing is held by the Planning Commission for a recommendation on said amendment and by the County Council for a final decision. Amendments must be reviewed and approved by the Maryland Department of the Environment in accordance with Section 9-507 of the Environment Article of the Annotated Code of Maryland.

At least fifteen (15) days prior to the Planning Commission hearing, one notice shall be published in a newspaper of general circulation in the County. The notice shall state the time, place and reason for the hearing.

Amendments to service areas within incorporated municipalities shall be considered by the municipality via a public hearing process prior to proceeding through the County public hearing process described above.

CHAPTER 2
BACKGROUND INFORMATION

2.0 Physical Features

2.1 Location and Area

Cecil County is located in Maryland's northeastern corner and is bordered by Delaware to the east, Pennsylvania to the north, the Susquehanna River and Harford County to the west, and the Sassafras River and Kent County to the south. The Chesapeake Bay borders the County to the southwest. The County covers 354 square miles.

2.2 Topography

The topography of Cecil County is an expression at the surface of the variations in the type of bedrock and the geological processes that have been at work in different periods throughout hundreds of millions of years. Water falling on the surface has sculpted the surface into its present form. The forms vary because many rocks and soil types differ in their resistance to weathering and decomposition. Geologic forces have created two distinctly separate areas in the County and these produce unmistakably different topographic features.

The southern portion of Cecil County lies within the Coastal Plain of the Delmarva Peninsula. Generally, the land shows little relief and its streams are small and sluggish. Marshes and other wetland areas of limited drainage abound. The entire region is underlain by relatively unconsolidated sediments (gravel, sands, and clay) of continental origin that dip gently to the southeast. These sediments are easily eroded, and wave action from the Chesapeake Bay, in addition to surface runoff, has created locally steep slopes and bluffs from 20 feet to nearly 100 feet in height.

The northern portion of Cecil County lies within the eastern Piedmont and expresses topography of typically eroded ancient uplands that possessed a wide variety of rocks of plutonic, metamorphic, and volcanic origin. The general characteristics of such areas depend on the degree of orogeny (mountain building), the kind of rocks present, and the extent of the subsequent erosion. The history of the Piedmont appears to be marked by moderate to weak orogeny and a considerable variety of rock types followed by long periods of erosion. The result is an uneven, hilly terrain punctuated by small gorges, cliffs, and ridges.

More specifically, the northeastern portion of the County is moderately hilly, with the greatest relief provided by the gorges of the Big Elk Creek and the Little Elk Creek as they cut through the more resistant rock layers. The north central section of the County is only slightly hilly, with wide

valleys and large scale undulations in the terrain; an exception being found in Bayview where the east branch of the North East Creek makes its way through a layer of metavolcanic rocks. The northwest section of the County provides the most varied topography. Near Port Deposit, bedrock of resistant diorite provides a mini plateau, which is incised by the Susquehanna River, revealing granite cliffs and providing little floodplain. Further north, the Octoraro and Conowingo Creeks form deep gorges as they pass through alternately resistant rocks and softer, altered formations, both of plutonic origin (Baltimore Complex). This region is also home to the highest elevation in the County, a point near Rock Springs at 535 feet above sea level.

2.3 Geology – Rock Types

The rock types in Cecil County can be grouped into two categories which are almost opposite in characteristics such as hardness, texture, structure, and permeability. This marked separation that is reflected in the development of dissimilar topography between the north and south portions of the County arises because of large differences in geologic age, involvement with processes, and origins of the rocks.

In the north, the rocks are both igneous and sedimentary in origin and have subsequently undergone extensive metamorphism through great heat and pressure as a result of deep burial and crustal deformation.

The rocks exposed in the south are all of sedimentary origin, are generally unconsolidated and of a much more recent age. Except for some degree of compaction, these sediments have changed very little in appearance since they were deposited. These sedimentary rock beds are underlain at depth by metamorphic bedrocks of types similar to those exposed in the north.

2.4 Soil Characteristics

Approximately 30% of the County's soils have adequate percolation rates for on-site sewage disposal systems. Only 19% of this group has both good percolation rates and level to gently sloping topography (classified as slight limitation).

Of the various soil associations found in Cecil County, those generally best for the use of septic systems are the Chester-Glenelg-Glenville, Sassafras-Woodstown, and Collington-Glenville. The Chester-Glenelg-Glenville association occurs on gently rolling land in the northern quarter of the County. The second association occurs on widely scattered gently sloping to hilly tracts in the southern two thirds of the County. The Collington-Glenville association occurs on many very steep slopes and extends up wooded ravines into pastures and cultivated fields in the southern one third of the County east of the Elk River.

2.5 Population

Population change is governed by three variables: birth, death, and net migration. All three are influenced by an infinite number of factors. Some factors can be rationally ascertained by analyzing past trends. Others, such as wars, depressions, disasters, and natural emergencies cannot be foreseen and forecasts assume they will not happen.

Population forecasting requires an intensive study of past trends of the area concerned. The primary source of this data is the U.S. Census Bureau, the Maryland Department of Planning, and Cecil County Land Use and Development Services.

The population growth of Cecil County during the past several decades is shown in Table 1. Some of the increase can be attributed to suburbanization and some to natural increase (difference between births and deaths). Historically, natural increase has been the controlling factor producing net growth in County population. However, recent population growth has occurred due to development pressure from the Wilmington, Philadelphia, and Baltimore regions.

The method used for projecting the County's population superimposes net migration figures on the national population increase. This technique is only as accurate as the assumptions made and the records available for births, deaths, and migration. Implementation of the County's Comprehensive Plan should direct the majority of future growth to the County's growth area.

Table 1

Year	POPULATION	Ave. Annual Growth Rate
1930	25,827	-
1940	26,407	0.22%
1950	33,356	2.36%
1960	48,408	3.79%
1970	53,291	0.96%
1980	60,430	1.26%
1990	71,347	1.67%
2000	85,951	1.87%
2010	101,108	1.76%
2020	104,600	0.34%
2030	119,550	1.43%
2040	135,450	1.32%

As can be seen in Table 2, the Maryland the Maryland Department of Planning projects that the County's growth rate will remain within historical norms over the next 30 years. Triennial review of the Plan and careful planning of staged construction will compensate for unforeseen circumstances affecting population forecasts. It will also allow the County to gauge the success of this plan in lessening the development pressure on the rural areas of the County and by providing the necessary water and wastewater infrastructure in the growth area. Additionally, use of the Chesapeake Bay for water based recreation will continue causing greater seasonal variations in the County's population.

Table 2 – POPULATION PROJECTIONS

County	2020 Pop.	2020 Housing	2030 Pop.	2030 Housing	2040 Pop.	2040 Housing
Total	104,600	39,507	119,550	44,743	135,450	50,001

Additional population projections are provided in Table 3 for the Elkton West franchise area. The projections are based on Traffic Analysis Zones (TAZ) that are located entirely or partially within the Elkton West Franchise Area.

Table 3 – ELKTON WEST FRANCHISE AREA POPULATION PROJECTIONS

NAME	2010	2020	2030	2040
Elkton West Total	16,166	22,180	27,359	29,962
Change	0	6,014	5,179	2,333

(Note: The Elkton West Franchise Area consists of the entirety of the following TAZs – 503, 505, 508, 516, 590, 600 and 610. The Elkton West Franchise Area contains a portion of the following TAZs – 510, 511, 513, 515, 518, 519, 525, 540, 550, 551, 552, 565, 585, 591, 595, 630, and 940.)

2.6 Land Use

Land use / land cover data is periodically prepared by the Maryland Department of Planning. Table 4 shows the land use for the years 1973 and 2010.

Table 4 – LAND USE/LAND COVER

	1973		*2010*			
Land Use	Acres	Percent	Acres	Percent	Change, Acres	1973-2010 Percent
Development Lands [1]	16,334	7.3%	53,021	23.8%	36,687	225%
Low Density Residential	8,768	3.9%	20,255	9.1%	11,487	131%
Medium/High Density Residential	1,531	0.7%	6,469	2.9%	4,938	323%
Commercial / Industrial	1,655	0.7%	4,808	2.2%	3,153	191%
Rural Residential [2]	n/a	n/a	13,987	6.3%	n/a	n/a
Other categories [3]	4,380	2.0%	7,502	3.4%	3,122	71%
Resource Lands [4]	206,325	92.7%	169,922	76.2%	-36,403	-18%
Agriculture	112,729	50.6%	85,625	38.4%	-27,104	-24%
Forest	91,259	41.0%	81,325	36.5%	-9,934	-11%
Wetlands	2,337	1.0%	2,972	1.3%	635	27%
Total [5]	222,659	100%	222,943	100%		

Notes:

1) Residential densities are defined as follows: Rural = 0.05-0.2 du/acre; Low = 0.2-2 du/acre; Medium/High = 2-up du/acre

2) Rural Residential and Transportation categories were not included in MDP's 1973 Land Use/Land Cover dataset.

3) Institutional, Extractive, Open Urban, Beaches, Bare Rock, Bare ground, Transportation

4) Excludes water

5) Change in overall land area is likely due to changes in MDP's mapping techniques and shifts in shoreline.

Sources: Maryland Department of Planning 1973 & 2010 Land Use Land Cover datasets.

CHAPTER 3
WATER SYSTEMS

3.0 General Description

Maryland Department of the Environment (MDE) regulations require that the governing bodies within each county develop their water supply systems so as to be consistent with the county comprehensive planning. In order to ensure and protect the health, safety, and welfare of the people of Cecil County, basic essential infrastructure facilities must be provided which include adequate water supply and distribution systems.

The water supply sources in Cecil County originate from both groundwater and surface water. The majority of the County's residents receive their water supply from wells, which include public and private water supply systems and individual on lot wells. Over half of the total County population receives water from individual on site wells, and the rest receive water from a public or private water supply system.

In addition to a water supply source, the larger systems must be able to transfer this supply to its consumers through suitably sized water distribution networks coupled with sufficient storage capacity to enable these systems to deliver peak demand flows and recommended fire flows.

The purpose of this chapter is to provide a phased approach to developing water distribution systems to satisfy regulatory requirements and to meet the water demands throughout the County within the near future.

3.1 Water Supply Sources

3.1.1 Water Resources Inventory

Over the recent past, there has been a substantial increase in population as well as commercial and industrial development due to the County's location within the transportation corridor connecting Baltimore, MD and Philadelphia, PA. Water use has increased accordingly, and potential for water quality change due to human related activity has also increased. Changes in farming practices, particularly the introduction of no till farming have had potentially significant positive effects on water quality. Groundwater and surface water sources in Cecil County are described in the following sections, along with the existing water systems owned and operated by various providers.

3.1.2 Groundwater Sources

A. General

Groundwater is utilized in Cecil County by public and private water systems and private on site wells. The latter includes industrial, commercial, institutional, and agricultural enterprises and individual domestic wells. A majority of County residents receive their water supply from wells. According to August 2018 estimates by the Maryland Department of the Environment, about 55% of County residents use water from a public or private water supply system.

The total amount of water allocated by groundwater sourced Water Appropriation and Use Permits is about 10 mgd as an annual average. Water Appropriation and Use Permits from groundwater sources total 3.9 mgd for potable supplies for private and government run water supplies, recreational, commercial, institutional, educational entities. Agricultural use of groundwater allocations totals 3.4 mgd. Mining and related activities allocations total 2.1 mgd. Industrial groundwater sourced Water Appropriation and Use Permits total 0.34 mgd for Cecil County. Actual water usage is hard to pinpoint since many small systems using an annual average of less than 10,000 gpd have no reporting requirements.

B. Geology and Potential Yields

Available groundwater is determined by both the hydrogeologic characteristics of subterranean rock formations and the local climate (amount of rainfall). In Cecil County, two basic forms of rock formation exist. The northern one third of the County is underlain by crystalline (igneous-metamorphic rock) rocks, whereas unconsolidated sediments underlie the southern two-thirds. Since the latter generally hold more water, the potential for land use development based on groundwater resources is greater south of the I-95 corridor.

1. Crystalline Rocks – there are two types of crystalline rocks, igneous and metamorphic. Igneous rocks are crystalline rocks that have solidified from a molten state either from subsurface magma or from the extrusive volcano. Metamorphic rocks are those that have been altered as a result of intense temperature and or pressure and introduction of new chemical substances. This process may alter the original massive character of the rock, developing leaf like bands known as foliation. Extensive development of the foliation is seen in schist formations. Recrystallization, which may accompany these geologic processes, eliminates any porosity that may have existed prior to metamorphism. The igneous intrusive bodies have no porosity.

   There are occurrences of crustal deformation resulting in the formation of many fractures, many of them steeply dipping, which cut through the rock. Such fractures, known as faults and joints, are not equally developed in all areas. These fractures created passageways for infiltrating

precipitation to percolate downward into the rock. In some cases the reaction of the rock with the groundwater caused alteration and solution of the minerals and enlargement of the fractures. Decomposition of the individual mineral grains, which is more extensive at the surface and decreases with depth, also created some porosity between grains. The groundwater flows through and is stored in these openings. The kind of minerals and the difference in their reactions with the groundwater as well as the degree and number of joints and fractures create different environments for groundwater movement and storage. Furthermore, in areas of moderate relief more of the weathered rock is stripped away, providing less area for groundwater retention than flat lying areas where there is a thicker weathered zone.

Formations such as the Port Deposit gneiss and Wissahickon schist develop depths of weathered zones that average 30 to 40 feet but may be as much as 100 feet. The depths of weathering are greatest for these formations in areas of gently rolling topography with low relief. On ridges that rise prominently above the surrounding area, or where there is moderate relief from deeply incised valleys, the depth of weathering is much less. Fracture traces are the surface expression of fractures. Zones with numerous closely spaced fractures may also produce deep zones of weathering. The groundwater potential is greatest in these formations in which deep zones of weathering can be developed. Greatest groundwater availability occurs in areas where fractures are interconnected.

The well yields in the granite, gneiss, and schist range from 0 to 300 gpm with very few wells over 50 gpm. Careful geologic interpretation may make it possible to locate wells of 50 to 100 gpm.

The basic rocks such as the gabbroic gneiss and serpentine do not commonly develop deep zone weathering. Soil cover is much thinner where these formations occur because the mineral assemblage has a greater resistance to reaction with percolating water. For this reason, these rocks are also found in areas of more rugged terrain. The volcanic gneiss formations, as well as the highly quartzitic gneiss, have similar hydrogeologic characteristics.

The best well locations are in stream valleys. Higher yields occur in stream valleys because the valleys usually lay over fracture zones of less resistant rocks. The range of yields may be expected to fall between 2 to 5 gpm, but the more probable range of yields would be 5 to 10 gpm. 50 to 75 gpm would be unusual but possible.

2. Unconsolidated Sediments – the formations included are the Cretaceous, Tertiary, and Pleistocene gravels, sands, silts, and clays that underlie the southern portion of the County. The sediments range in grain size from coarse gravel to clay. Individual beds may consist of gravel mixed with sand, sand mixed with silt and clay, or silt and clay. The coarser grain horizons termed aquifers have the greatest porosity and permeability. The horizons that

are predominantly clay, clay and silt, or close to being impervious, are called aquacludes. This porous structure, developed at the time of deposition, may have been somewhat reduced through compaction but has not been affected by recrystallization or a significant amount of cementation. The original water in the pore spaces may have been salt water; however, rainwater percolating down from the outcrop areas has flushed out the salt water and provided a reservoir of potable groundwater. Some of the deposits are composed of layers of various grain sizes and are interfingered in a series of lenses. However, lenses of low permeability can be mixed with a coarse gravel deposit, as well as moderately permeable layers found within beds of silt and clay. The location of such irregularities cannot be accurately predicted.

The surface deposits of sand and silt of Pleistocene age range from zero to about 100 feet thick. This is also true for the surficial deposits of recent age found along stream channels. The underlying formations, which are the Patuxent, Patapsco, and Raritan formations of the Potomac group and the Magothy, Matawan, and Monmouth formations of the Cretaceous age have a potential of producing from 5 to over 1000 gpm. Where large yields have been purposely attempted, flows of 500 to 700 gpm were obtained.

Wells in the Potomac Group at higher elevations are not likely to yield a supply exceeding the needs of a single home. Whenever the base of the Potomac lies above sea level, groundwater is not stored but simply drains off the underlying crystalline bedrock.

C. Geologic Summary

The geologic formations in the northern half of Cecil County are relatively impervious, crystalline rocks. Fracturing occurring during periods of crustal deformation and subsequent weathering by rain water percolating downward through the fractures and along foliation planes created the open space which provided the porosity and permeability necessary for groundwater storage and circulation. Proper geologic location of the well sites will assist in the development of wells with yields of more than 50 gpm. Such potential is greater in the eastern portion of the County than in the western. The record to date indicates little potential below depths of 150 feet except in unique situations. Sedimentary rocks, which form the coastal plain of Cecil County, can provide yields of 500 to 700 gpm.

The quality of groundwater is good. The sedimentary rocks produce water in which the pH is often low enough and iron content great enough that treatment is required to improve the quality. This can also happen in crystalline rocks. The water temperatures are in such a range that it will adequately serve for cooling purposes. The potential for groundwater development for parts of the County may not exceed attempts to utilize it, depending on the geographic location. An unused moderate potential is present in many portions of the eastern half of the County north of Elkton and a large undeveloped potential is present in much of the southern

portion of the County below Elkton. Additional groundwater development is still possible in many areas of the County.

D. Problems

Knowledge of groundwater is based on understanding parameters such as precipitation, stream flows, pump testing of wells, and geologic study of bedrock. Because direct observation and measurement of groundwater at a site cannot be made, accurate determinations of volume and quality for desired locations and depths cannot be predicted. Consequently, plans for the development of groundwater are sometimes based on subjective interpretation of available facts. For this reason, all nearby wells should be considered when planning a large water supply. More than one well may have to be drilled in order to determine the potential available. As more information is accumulated from the results of additional well explorations, the projections for future development will become more accurate. The unconsolidated sediments in the southern portion of the County lend themselves to more accurately projecting potential yields.

Contamination of groundwater may occur through the purposeful discharge of wastes into the wells. Such practices lower the groundwater quality of an area around the well and down-gradient of groundwater flow. Such discharges of untreated waste have occurred in the past and may still be taking place although the State attempts to control such uses of wells. Any such discharge must be reported, by law, to the Maryland Department of the Environment. When contamination is found, it is often difficult to determine the source. Most waste that goes down wells is through damaged or improperly constructed wells.

Variations in groundwater levels occur in almost all wells over a given period. Long term observations of wells have shown that the groundwater levels generally fall in the summer and fall, and rise in the winter and spring. If a series of years with below average precipitation occur consecutively, such as was experienced by Cecil County in the 1960's, the groundwater level may fall to progressively lower levels each summer.

For unconfined wells, one year of above average precipitation can restore the groundwater levels to a normal range of fluctuation. For wells in the crystalline rock and particularly for those located in the upper elevations where there is moderate relief, the fluctuations can be many tens of feet, although such extremes are rare. Those wells located in low elevations or where the topography is quite flat are least affected. Confined wells in the coastal plain may exhibit long term regional rate of declines as a result of increased withdrawals. Water levels in confined wells are regulated by MDE to ensure water levels are maintained above regulatory thresholds to ensure the sustainability of the withdrawal.

All wells produce a cone of depression when pumped. Large yielding wells generally produce a cone of depression the size of which depends on local geologic conditions and the amount of water pumped. These cones of depression can sometimes impact water availability to nearby wells.

E. Quantity

The total quantity of groundwater available cannot be calculated because of the variable subsurface conditions, precipitation, and withdrawals, some of which cannot be measured. The best understanding to date of the potential quantity has been developed from the study of the hydrologic cycle and long term measurement of stream flows.

Geology, because it affects the topography and type of soils as well as the subsurface storage capacities, determines the volume of groundwater that can be stored and whether the aquifer will yield water to the wells. Thus the potential estimation of the northern half of the County is different from the southern half. Previous investigators have determined that approximately 540,000 gallons per day per square mile is the average long term period rate of recharge in the area of metamorphic, crystalline rocks. It must be remembered that variable geologic conditions in the crystalline rocks, because of weather resistant rock types and areas of steep slopes, would cause the actual figure to significantly differ from one area to another. In the Coastal Plain or southern area of the County, the rate of recharge of groundwater has been calculated to be 740,000 gallons per day per square mile. The difference in recharge is determined by geologic conditions such as porosity of soils and topography.

Not all of the water that infiltrates is available for consumption through wells. Some of the water must serve to maintain the base flow of the streams and much water is in sediments like silt and clay that will not yield water to wells easily. However, considerable quantities can be withdrawn with no effect on stream flows. Most of the water that is used in homes, commercial establishments, and industry is returned to the ground or streams via septic systems. A large percentage of the water used for irrigation, however, is lost to evapotranspiration.

The range of yields is different for crystalline and sedimentary rocks. The most productive wells in the crystalline rocks yield about 100 gpm. Some large wells in the unconsolidated sediments have been pumped at over 1,000 gpm. Of course, for both areas there are wells that have yielded little or no water at all. The average yields for the formations which have been calculated by others lack accuracy for two reasons. First, there is no reliable record of the dry wells that were drilled and abandoned. Second, and more importantly, most of these wells were drilled for home use, which can be satisfied with 2 to 5 gpm. In this latter case, the potential of the site is not developed by going the full depth of the water bearing zones, and geologic data is not used to locate the well. In crystalline rocks, the best potential lies between 50 and 150 feet. Only in the favorable geologic locations would there be a significant yield

below this depth. In unconsolidated sediments, the potential depths range from 30 to 50 feet, the greater depths occurring toward the south near the Sassafras River. Large quantities of water can be developed at greater depths in the unconsolidated sediment; however, depths that exceed 500 feet seem to encounter brackish water.

F. Quality

The quality of groundwater in Cecil County is generally acceptable to all the users that it has served. Most of the water is soft with the exception of some wells in the serpentine and a few in the unconsolidated sediments. Iron, which has been a problem in only a few of the wells in the crystalline rock, has occurred in numerous wells in the unconsolidated sediments. Large users of this water with iron may be able to treat the water. Many of the waters from the unconsolidated sediments have a low pH and consequently are aggressive in their reaction with plumbing. This condition can also be treated to make the water acceptable.

Where wells are properly constructed there is little problem with pollution. The nature of the soils over both the crystalline and sedimentary rocks is such that there is most often more than 6 feet of fine grained cover to provide sufficient filtering to purify the water. This filtering phenomenon is what creates the generally high quality of groundwater in comparison to water taken from the surface streams. Unlike the open reservoirs created by the impoundments of the stream, the groundwater reservoir is covered and not subject to wide ranging changes in quality over short periods of time.

Except where waste may be deliberately pumped down a well, the quality of groundwater remains constant throughout the year. The groundwater temperature ranges from 56 degrees in the northern part of the county to 58 degrees in the southern part.

Salinity may be a problem in shallow wells adjacent to the estuaries of the Chesapeake Bay. Investigators have reported that wells drilled to over 500 feet in the sedimentary rocks in the southern portion of the County have encountered brackish water where salinity approaches 1,000 ppm or more.

G. Groundwater and Well Development

The full potential of groundwater supplies will not be realized unless all the technical data and information presently available in published reports and through trained and experienced professionals is fully utilized. Money spent on the location and construction of wells to supply commercial, industrial, and public or private water supplies could be wasted because of poor location and inadequate well construction and testing. Too often, the parties planning a well rely on the advice of friends or local groundwater lore due to the mistaken belief that

groundwater is a mystery about which little is known. Professional assistance is available through agencies such as the Maryland Geological Survey and professional consultants.

Well location is very critical to obtaining maximum yields in the area underlain by crystalline rocks and in the zone along the fall line. In the unconsolidated sediments the exact location is of less importance. A well diameter of 6 inches is sufficient to most of the available yields to be anticipated in the crystalline rocks. In the few wells which may yield more than 150 gpm, the well diameter should be 8 inches. For the development of the larger yields in the unconsolidated sediments, the well diameter is important. The screen size and gravel pack are determined by the grain size in the aquifer, not the yield. Increasing the diameter of the casing and screen may increase yield slightly, but more importantly, a larger pump can be lowered in the well.

Pumping tests are usually run on all wells to determine the reliable yield. In the unconsolidated sediments, additional testing such as electric logging and grain size analysis are essential for evaluating which strata should be cased off and which should be screened. There are other forms of testing which can be performed if conditions require them. The state laws applicable to groundwater development are contained in Title 5 of the Environment Article of the Annotated Code of Maryland.

3.1.3 Groundwater Potential by District

A. General

An examination of well yields within the County as well as groundwater development in comparable geologic settings were studied to evaluate the potentials. In almost any district in the County it is possible to drill a well that has little or no yield. At the same time, unusually large yields for a particular rock type have been encountered where there is no observable explanation. Estimates of well yields that may be encountered are given for the purpose of evaluating the relative potential between different areas. These figures for estimated yield are given not for wells located at random, but for sites that have been chosen based on study interpretation of available geologic information. The actual yields that may encountered could vary considerably from these given here.

B. Election District No. 1 (Cecilton)

District No. 1 has a surface deposit ranging from 15 to 90 feet thick which is composed of silts and sands that are satisfactory for the development of domestic supplies. 500 to 1,000 gpm wells might be located within the underlying sequence of cretaceous sands and gravels. In the southeast corner of the district from Fredericktown to Warwick the Aquia formation of the

tertiary period outcrops or subcrops beneath the Pleistocene deposits. Yields from this formation may be limited to 100 to 200 gpm. However, wells could penetrate this formation to the underlying Cretaceous horizons.

C. Election District No. 2 (Chesapeake City)

Pleistocene deposits on the surface would be sufficient for wells to supply homes. Large yields of 500 to 1,000 gpm can be obtained from the underlying Cretaceous formation. The groundwater resources of this Election District as well as District No. 1 are for the most part undeveloped. The supply should be sufficient to meet the needs of considerably greater industrial and urban development than presently exists.

D. Election District No. 3 (Elkton)

The state of Maryland completed a resource management plan for northeastern Cecil County in 1986 that addressed a number of problems being experienced by the Town of Elkton. The chief findings were:

- Groundwater levels in the area near U.S. Route 40 and the Maryland/Delaware state line have been declining rapidly due to heavy groundwater pumping from the Town of Elkton's No. 3 well and Artesian Water Company's No. 1 and No. 2 wells. The Town of Elkton has reduced its output as a result;

- Well interference was occurring in the area within the Patuxent formation and overlaying shallower formations;

- Limited additional groundwater supplies are available south of Elkton near the intersection of Maryland Route 213 and Frenchtown Road.

E. Election District No. 4 (Fair Hill)

This District is underlain by the Wissahickon formation on the north side and Port Deposit gneiss on the south side. A narrow body of gabbro and gneiss extends through the District parallel to Maryland Route 273. Wells of 50 to 100 gpm may be possible in the southern portion of the District east of the Big Elk Creek. The best sites in the rest of the District may have more yields of 5 to 50 gpm. Many locations will have yields ranging from 0 to 5 gpm. Small areas of unconsolidated sedimentary rocks exist in the far southeast corner of this district near Meadowview.

F. Election District No. 5 (North East)

The land area in this District to the east, south, and southwest of North East is underlain by the Potomac group of formations of the Cretaceous age with scattered relatively thin deposits of Pleistocene sand and gravels. The best potential well sites in the district would be on the peninsula between the North East and Elk rivers. Wells of sufficient depth to reach bottom horizons of the Potomac group may produce yields of 200 to 500 gpm.

The part of the District north of U.S. Route 40 has deposits of Cretaceous and Pleistocene ages on high elevations essentially capping the hills. The lack of substantial thickness and depth below the stream valleys makes it unlikely that wells greater than 5 to 10 gpm can be developed in these deposits. Greater yields may be possible in wells that penetrate the underlying crystalline rock formations such as in the Port Deposit gneiss. However, the sedimentary cover makes it difficult to locate the desired geologic structures in the gneiss. The Port Deposit gneiss along the north side of the District north of Theodore Road may have some potential sites that would yield 50 to 100 gpm.

G. Election District No. 6 (Rising Sun)

The bedrock in this District is metamorphic crystalline rock. North of Maryland Route 273 the bedrock is the basic variety, both serpentine and Baltimore gabbro formations. This bedrock, in conjunction with the topography of moderate relief makes it unlikely that wells greater than 25 gpm can be developed. South of Rising Sun and Maryland Route 273 the District is underlain by the Wissahickon formation and the Port Deposit gneiss. The well potential here may fall between 25 and 75 gpm for locations properly related to the underlying geologic structure. The area along the west side of the District near Mt. Pleasant Church appears to have limited potential ranging from 5 to 20 gpm.

H. Election District No. 7 (Port Deposit)

Most of this District is underlain by the Port Deposit gneiss with a narrow zone of Wissahickon formation crossing the District in a northeasterly direction near New Valley and a zone of metavolcanics paralleling Interstate 95. The depth of weathering and the topography are such that there appears to be little potential for a well of more than 25 gpm. The best area would appear to be a small section between the former Bainbridge Naval Training Center and Woodlawn. The former Woodlawn landfill site is located in this District. Remediation of the former landfill site has been completed with long term monitoring of the groundwater in place.

I. Election District No. 8 (Oakwood)

Most of the bedrock in this District is the basic type consisting of the serpentine and Baltimore gabbro complex. The topography has moderate relief with numerous areas of slopes along

stream valleys. This is also true for the Wissahickon formation that occurs in the northwest corner. It is unlikely that wells could be located with yields greater than 30 gpm and most wells are in the range of 5 to 10 gpm. The best potential appears to be in the area adjacent to U.S. Route 222 between Kilby's Corner and Rock Springs.

J. Election District No. 9 (Calvert)

The Wissahickon formation underlies most of the area within the District. Port Deposit gneiss occurs along the southeast side of the District and in a small area on the west side. Serpentine and Baltimore gabbroic gneiss occur in irregularly shaped areas along the northern boundary. The best potential for groundwater development in this District would be yields of 20 to 40 gpm. Wells on preferred geologic structures would probably average 10 to 25 gpm.

3.1.4 **Surface Water Sources**

A. General

Cecil County is essentially divided into two definite geologic sections, the Upland Piedmont Plateau and the Atlantic Coastal Plain. The fall line dividing the two sections lies between the CSX railroad and the Amtrak Northeast Corridor railroad.

The Upland Piedmont Plateau is dissected by four major waterways – the Susquehanna, the Octoraro, the North East, and the Elk. These waterways and several smaller streams provide a major portion of the water used daily in Cecil County. Most of the flow of the Octoraro is diverted north of Cecil County for use by the Chester Water Authority.

The Atlantic Coastal Plain is drained by the Bohemia and Sassafras rivers. The Chesapeake and Delaware Canal also effects drainage in this area.

B. Quantity

Surface water withdrawals for Cecil County presently total approximately 8.7 mgd. Groundwater withdrawals for Cecil County are presently 10 mgd.

C. Quality

The streams that flow through the southeastern portion of the County are small, sluggish, and flanked by many wet or marshy areas. The level in the stream is dependent on the tides and the water is brackish. The streams that flow through the northwestern portion of the County are non-tidal and flow faster due to the higher elevation of the area.

The water supply for Port Deposit, Perry Point VA Medical Center and Perryville are withdrawn from the tidally influenced portion of the Susquehanna River. North East has an intake on the tidal portion of the North East River. Non-tidal streams are utilized by Elkton and North East for their water supplies. Additionally, the Town of Elkton has an interconnection with Artesian Water Maryland, Inc, which in turn has pipeline connections to surface water sources in Pennsylvania. The Town of Rising Sun, via an interconnection agreement with the Chester Water Authority, also accesses surface water sources in Pennsylvania.

3.2 Major Community Water Systems

The existing conditions and planned facilities for major community water systems are described below. Appendix D shows the existing water facilities for the entire County and delineates service areas. The existing and proposed water service areas have been designated as follows:

W-1	Existing
W-2	0-2 years
W-3	2-3 years
W-4	3-6 years
W-5	6-10 years

3.2.1 Cecilton

A. Existing System

The Town's water supply is comprised of two wells approximately 300 feet deep located in the Magothy aquifer each capable of producing 250 gallons per minute (gpm). The Town's Groundwater Appropriation Permit (CE1972G004(05)) provides for an allocated average daily withdrawal of 176,000 gallons. Catalytic sand media in two pressure filters provide water treatment. Each sand filter is capable of treating 250 gpm. Water storage is provided via a 400,000 gallon elevated storage tank.

Over the past years, the Town of Cecilton has worked with the Maryland Port Administration (MPA) to extend water to the Pearce Creek Service Area. Consisting of approximately 235 existing dwellings and 125 unimproved lots of record, the Pearce Creek Service Area includes the communities of Sunset Pointe, Bay View Estates, West View Shores and several other lots in the immediate vicinity of the Pearce Creek Dredged Material Containment Facility (DMCF).

A 2013 United States Geological Survey (USGS) study found that previous use of the DMCF had degraded the groundwater beneath the DMCF. The study also found that migration of this groundwater had adversely affected adjacent wells in the above-mentioned communities. As a

condition of the MPA reactivating the DMCF, MDE required that corrective measures be taken to address the impacted wells.

In 2017, the Town of Cecilton and the MPA extended a 12 inch water main from the western extent of the Town boundary on MD Route 282, westerly along MD Route 282 to Grove Neck Road and then along Pond Neck Road to the Pearce Creek Service Area. As of this writing (late 2018), the project's trunk lines are complete, almost all individual homes are connected, and the existing private wells for the homes served by the newly installed water infrastructure are being abandoned by well drillers.

B. Proposed Improvements

None.

C. Water Service Area

Maps in Appendix D show the locations of the various service area categories.

3.2.2 Charlestown

A. Existing System

The Charlestown water system is comprised of three wells. Two wells are used regularly, and the third well provides backup. The currently permitted capacities of the system are 207,000 gpd average daily flow and 300,000 gpd maximum daily flow. Current demand on the system is approximately 82,000 gpd. Based on recently proposed subdivision activity at Cool Springs, Scott Gardens, and the Payne property, the Town anticipates near term (0-5 years) demand to increase to approximately 182,000 gpd. Treatment of the water supply is provided for iron removal, pH adjustment, and disinfection. A 500,000 gallon elevated tank provides storage.

B. Proposed Improvements

The Town is contemplating additional facilities (i.e. an additional elevated storage tank) upon the build-out of the Cool Springs subdivision. Additionally, an Emergency Interconnect Agreement between the Town of Charlestown and Artesian Water, Inc. was signed on March 9, 2010. Although the Town has no immediate plans to begin construction of the infrastructure associated with the emergency interconnect, it may occur at some time in the future.

C. Water Service Area

The water service area maps in Appendix D show the various service area categories.

3.2.3 Chesapeake City

A. Existing System

The Town, split by the Chesapeake & Delaware Canal historically maintained two separate water systems to serve its population of 673. The two water systems were connected, via a conduit installed beneath the canal, in late 2011.

In 2012, the Town initiated an interconnection agreement to purchase bulk water in the amount up to 400,000 gpd from Artesian Water Company. The bulk purchase required the extension and installation of a Town water main along Biddle Street from the Town's corporate limits to the Delaware state line. In April 2013 a commencement certificate was executed between the Town and Artesian Water Company. The Town no longer has any wells as the water supply is provided exclusively by Artesian Water Company.

In 2013, the Town extended water service to the Bohemia Manor Middle School and Bohemia Manor High School to provide potable water and fire service. A twelve inch diameter line provides the approximately 8,000 gpd needed by the two schools.

The Town further extended the water service to Chesapeake City Volunteer Fire Company's Station 12 (2859 Augustine Herman Hwy), Paramedic 3 (2865 Augustine Herman Hwy), and the Chesapeake Blues, LLC shopping center (2842-2860 2859 Augustine Herman Hwy).

B. Proposed Improvements

The Town recently (July 2018) finished construction of a 300,000 gallon water storage tank on the south side of town to provide water storage capabilities for both sides of Chesapeake City. The completion of the new storage tank permitted the removal of the existing south side water storage tank.

Construction of a new Chesapeake City Elementary School is currently being planned for the Bohemia Manor school complex, and the Town plans to extend water service to the new school.

C. Water Service Area

The water service area maps in Appendix D show the various service area categories.

3.2.4 Fair Hill Natural Resources Management Area Water System (State of Maryland owned)

A. Existing System

None.

B. Proposed Improvements

In May 2018, the Maryland Board of Public Works approved $1 million for proposed infrastructure improvements at the Fair Hill Natural Resources Management Area (4493 Telegraph Rd, Elkton, MD 21921) in anticipation of the site hosting a newly designated premier international equestrian event.

The proposed improvements, which will be completed in phases over the next few years, are essential for the site to host major equine events and other recreational opportunities. In summary, the project includes conversion of a test well into a new backup well and installation of various pipelines (approximately 2,000 feet of four inch HDPE raw water, 3,500 feet of six inch DIP, 6,200 feet of ten inch DIP for finished waters, and various two inch HDPE service lines).

Other improvements include a new precast concrete water treatment plant building (over a cast in place concrete wet well), 10,000 gallon hydropneumatic tank, a 150,000 gallon "old" style steel elevated tank, high service vertical turbine pumps, chemical feed systems, HVAC, instrumentation and controls, emergency generator, and various other electrical and related site work items.

C. Service Area

The water service area maps in Appendix D show the location of the proposed service area.

3.2.5 Elkton

A. Existing System

The Town's water system serves approximately 15,718 residents along with commercial, industrial, institutional, and governmental facilities within the corporate limits. Additionally, the Town provides water to customers outside the corporate limits, including Thomson Estates, Holly Hall, Elkwood Estates, the YMCA (MD 279/ US Route 40), and Triumph Industrial Park. The

Town sells water to Artesian Water Maryland for service to the State Highway Administration maintenance facility on MD Route 7, a number of properties in the MD Route 7/ West Pulaski Highway corridor, and two specific properties on Belle Hill Road via an interconnection agreement with Artesian Water Maryland.

Water Production System

The Town provides service to 6,687 water customer accounts using water from three sources, i.e., surface water, groundwater, and purchased water, to include the following:

1) Elkton Water Treatment Plant, operating under State Water Appropriation and Use Permit CE1966S005 (10) [February 15, 2016 – June 30, 2019], that allocates a daily average withdrawal of 1,500,000 gallons and a daily average withdrawal during the month of maximum use (MMU) of 2,000,000 gallons from the Big Elk Creek;

2) The Holly Hall system, consisting of three (3) wells, including Well Nos. 1R and 2R, operating under Water Appropriation and Use Permit No. CE2001G026 (02) [September 1, 2013 – May 1, 2022] that allocates a daily average withdrawal of 100,000 gallons and a daily withdrawal during the month of maximum use (MMU) of 200,000 gallons, and Well No. 3, operating under Water Appropriation and Use Permit No. CE1961G007 (12) [May 1, 2012 – May 1, 2022] that allocates a daily average withdrawal of 500,000 gallons and a daily average withdrawal during the month of maximum use (MMU) of 800,000 gallons;

3) Well No. 5 operating under Water Appropriation and Use Permit No. CE2013G001(01) [March 1, 2014 – May 1, 2022] that allocates a daily average withdrawal of 100,000 gallons and a daily average withdrawal during the month of maximum use (MMU) of 150,000 gallons;

4) Artesian-Elkton Interconnection providing up to a maximum of 1.5 mgd and a current minimum take of 250,000 gpd. The Artesian-Elkton interconnection provides water to the Red Hill Reservoir, the Town's largest potable water storage facility, for distribution. The Town's water system currently processes and distributes approximately 1.8 mgd.

Inframark (formerly known as Severn Trent Environmental Services) operates Elkton's treatment plant and well system under an agreement expiring in 2023.

Water Storage System

The Town's potable water storage system includes:

1.) Red Hill Reservoirs – two (2) 900,000- gallon in-ground reservoirs (1,800,000 gallons total);
2.) Blue Ball water tower – 500,000 gallons;

3.) Walnut Hill water tower – 500,000 gallons;
4.) Belle Hill water tower – 400,000 gallons;
5.) Thomson Estates standpipe – 200,000 gallons.

Total storage capacity is 3.4 million gallons.

Belle Hill Interconnection

The Town annexed two parcels of land on Belle Hill Road, specifically lands owned by Belle Hill LLC and Belle Hill Manor LP, et al., which are located in Artesian's water franchise territory. (In 2016, 8.7 acres of land was subdivided from the Belle Hill LLC property and is currently owned by JDOLIVER LLC.) Artesian is providing water service to this annexation area via an interconnection with Elkton's water service on Belle Hill Road. At the Belle Hill Interconnection, Artesian can purchase from the Town up to fifty thousand (50,000) gallons per day. Artesian utilizes an average of approximately 7,750 gpd, 15.5% of the allowable amount per the agreement with the Town of Elkton.

B. Proposed Improvements

The Town has a Water Appropriation and Use Permit for one additional well that is not currently constructed.

Well No. 4, located along Frenchtown Road, on the west side of the Augustine Herman Highway (MD 213), is permitted under Water Appropriation and Use Permit No. CE2006G024 (02) [May 1, 2014 – May 1, 2022] for a daily average withdrawal of 500,000 gallons and a daily average withdrawal for the month of maximum use (MMU) of 720,000 gallons; however the well house and necessary improvements for this well have not been constructed.

C. Water Service Area

The water service area maps in Appendix D show the various service area categories.

3.2.6 North East

A. Existing System

The Town of North East presently owns and operates two water treatment plants (WTP), the Rolling Mill WTP and the Leslie WTP. The combined maximum design treatment capacity is 2.83 million gallons per day. The water system presently provides potable water and fire protection

to a population of approximately 8,390 people and to the Maryland Transit Authority Rest Stop on Interstate 95. A combination of five elevated and three underground storage tanks provide a total reserve of approximately 2,325,000 gallons.

The Rolling Mill WTP is rated at 2.0 million gallons per day. The capacity was obtained with the intention of meeting the future water needs of the Town and the Town's Growth Area through the year 2030. The Rolling Mill WTP is a package surface water treatment plant with two separate filter trains and has provisions for a future third filter unit. As part of the Rolling Mill WTP, a raw water pumping station near the mouth of the North East River allows the Town to pump water from the river and discharge it into the raw water reservoir at the Rolling Mill WTP. This pumping station is used under severe drought conditions and other emergencies.

Using chlorine dioxide, flocculators, and ultraviolet disinfection, the Leslie WTP has a capacity to treat 830,000 gallons per day. During periods of significantly low flow in the North East River, and when the raw water pumping station is in use, the Leslie WTP will not operate. The design of the Rolling Mill WTP allows transfer of water to the higher pressure zones currently served by the Leslie WTP.

B. Proposed Improvements

The Town of North East's priorities for improvement of the water system include:

1) Rehabilitate the Irishtown Road water booster pump station;
2) Rehabilitate the Razor Strap Road water booster pump station;
3) Replace the Rolling Mill finished water booster pump station;
4) Install powder activated carbon additions at both water treatment plants;
5) Install tank mixers in finished water storage tanks;
6) Dredge the raw water pond at the Leslie water treatment plant;
7) Perform various SCADA upgrades;
8) Construct a new water storage tank and booster pumping station to serve Zone 3; and
9) Install a third filter unit at the Rolling Mill WTP to provide for future expansion.

C. Service Area Agreements

The Town and the County have entered into various agreements during the last four decades. In November 1972, the Town and County entered into an agreement outlining the scope of the Town's responsibility for the service area on the periphery of the Town. Subsequent agreements were entered into in June 1983, November 1986, February 1989, and March 2002. The 2002 agreement superseded the previous agreements. Cecil County Government has also permitted the Town to serve portions of the Candlelight Ridge and Bedrock Subdivisions.

In January 2018, the Town and Artesian Water Maryland Inc. finalized an interconnection agreement that would enable Artesian to purchase a minimum of 35,000 gallons a day from the town, with the option to eventually increase that amount to as much as 150,000 gallons. As of this writing (late 2018), the actual interconnection infrastructure (proposed to be located on Red Toad Rd) has yet to be constructed. According to the agreement, Artesian will pay all costs associated with construction of the interconnection infrastructure, but the Town will own and maintain the interconnection point.

D. Water Service Areas

The water service area maps in Appendix D show the various service area categories.

3.2.7 Perryville

A. Existing System

The Town owns a surface water treatment plant located on the Susquehanna River. Previously, the Town had a treatment plant on Mill Creek, which is no longer in operation. The Susquehanna WTP, which is located on Frenchtown Road, is permitted by MDE to withdraw an average daily flow of 1.0 mgd and a maximum daily withdrawal of 2.0 mgd. The Susquehanna WTP can produce only 1.0 mgd in a 24 hour period due to water quality standards required by MDE, the operational constraints of the facility, and a Susquehanna River Basin Commission Consumptive Use Permit. Under normal operational conditions, 18 hours at a normal pump rate allows the plant to produce 0.5 mgd. Current average daily demand is approximately 0.4 mgd. At the maximum pump rate during an 18 hour period, the plant can produce approximately 0.86 mgd. Storage is provided via a 0.5 mg tank at I-95 and a 1.0 mg tank adjacent to Hollywood Casino.

B. Proposed Improvements

The Town is currently extending water service to The Community Fire Company of Perryville's Station 16 located at 16 GR Dawson Drive.

The possibility exists that the Town may expand the Susquehanna WTP to a 2.0 mgd facility.

C. Water Service Area

The water service area maps in Appendix D show the various service area categories.

3.2.8 Rising Sun

A. Existing System

The Town currently utilizes five wells to provide water service to roughly 970 customers.

The Town's 2015 demand for water was an average day demand for existing customers of 181,000 GPD and an average daily demand of 200,600 GPD for the month of maximum use under its current water and sewer moratorium. After lifting the current moratorium, the average day demand is expected to be 200,000 GPD and an average daily demand of 220,000 GPD for the month of maximum use. It is believed that current water usage in the Town has been suppressed due to the water and sewer moratorium, in place since 2006.

The Town operates the system under two appropriation permits. Permit CE73G012 authorizes the Town to withdraw water from four wells and is limited to a daily average of 193,000 gpd on a yearly basis and a daily average of 240,000 gpd for the month of maximum use. Permit CE1973G112(01) authorizes the Town to withdraw water from one well and is limited to a daily average of 67,000 gpd on a yearly basis and a daily average of 80,000 gpd for the month of maximum use. The Town has a 500,000 gallon water storage tank on the south side of the Town which is capable of supplying roughly two days of water supply to the Town.

The Town commissioned a report for water system supply improvements in 2016 that estimated the annual average daily drought demand for the Town, based upon MDE WCMP guidelines to be roughly 220,000 gpd. Average daily demand during the month of maximum use was estimated at 280,000 gpd. The maximum day drought demand was estimated at 360,000 gpd. Assessing the system capacity using this methodology results in a current capacity shortfall when compared to the month of maximum use drought demand of 280,000 gpd estimated previously.

The Town successfully drilled and tested a well on lands owned by the American Legion Post 194. Although MDE issued preliminary flow rate approvals for this well system, they are only permitted to be used for reducing the supply deficit.

B. Proposed Improvements

In order to reduce and eliminate the drought demand estimates, provide for current growth demands as called for in the Town's Comprehensive Plan, and meet applicable water quality standards, the Town is proposing to take existing wells offline (for future emergency use only), and replace source water with a new interconnect piping providing water supply by the Chester Water Authority (CWA), operating out of Pennsylvania. CWA will construct a water line through Pennsylvania to a metered location along the Pennsylvania/Maryland border in the area of Freemont Road and Red Pump Road. The Town will then construct a water line from this point, down Red Pump Road and west along adjacent private property easements, running south towards Route 1, and crossing Route 1 to connect to the Town's existing water distribution system that currently dead ends at the edge of the incorporated limits of Rising Sun along Walnut Street. The Town is targeting a daily demand ranging from 250,000 gpd to 750,000 gpd.

CWA has completed the final design of this water line on the Pennsylvania side, and Rising Sun broke ground on the Maryland portion of the water line in May 2018. The proposed alignment between Ridge Road and Conowingo Road involves approximately 4,700 linear feet of 12 inch water main and appurtenances, with the majority of the main located behind the properties west of Red Pump Road. Estimated completion of the line is January 2019.

As the Town's water customers increase over the years from both expansion and infill, the updated water model results will trigger the need for construction of a second 500,000 gallon water storage tank on the north side of town to meet the system pressure demands and fire flow requirements. This tank is necessary in part due to the two large residential developments on the north side of town, and it will provide redundancy and increased storage needed to meet average daily flows plus fire flow reserves.

The Town has concluded a study to replace roughly 10,000 linear feet of 4 inch water lines throughout the water distribution system. The Town has had problems with breakage and leaks and in many circumstances is unable to isolate the existing mains. Furthermore the undersized lines are not conducive to future development. The project will cost roughly $1.9 million dollars to complete and will commence as soon as a funding source can be identified.

C. Water Service Area

The water service area maps in Appendix D show the various service area categories.

3.2.9 Artesian Water Maryland, Inc.

A. INTRODUCTION TO ARTESIAN WATER MARYLAND

Artesian Water Maryland is a wholly-owned subsidiary of Artesian Resources Corporation and a public utility subject to regulation by the Maryland Public Service Commission ("MdPSC").

Artesian Resources Corporation

Artesian Resources operates as the parent holding company of five regulated public utilities: Artesian Water Company, Inc., or Artesian Water, Artesian Water Pennsylvania, Inc., or Artesian Water Pennsylvania, Artesian Water Maryland, Inc., or Artesian Water Maryland, Artesian Wastewater Management, Inc., or Artesian Wastewater, Artesian Wastewater Maryland, Inc., or Artesian Wastewater Maryland, and four non-regulated subsidiaries: Artesian Utility Development, Inc., or Artesian Utility, Artesian Development Corporation, or Artesian Development, Artesian Storm Water Services, Inc., or Artesian Storm Water, and Artesian Consulting Engineers, Inc., or Artesian Consulting Engineers. The terms "we," "our" and the "Company" as used herein refer to Artesian Resources and its subsidiaries. The business activity conducted by each of our subsidiaries is discussed below under separate headings.

Artesian Resources Corporation ("Artesian Resources"), is a Delaware corporation incorporated in 1927. Artesian Resources' Class A Non-Voting Common Stock is listed on the NASDAQ Global Select Market and trades under the symbol "ARTNA." Artesian Resources is a member of the Russell 2000® Index. The aggregate market value of the Class A Non-Voting Common Stock held by non-affiliates of the registrant exceeds $300 million. Our Securities and Exchange Commission ("SEC") quarterly (Form 10-Q) and annual (Form 10-K) filings are available on our website at www.artesianresources.com, or at the SEC's website, www.sec.gov.

Artesian Resources' 2017 and 2016 operating revenues were $82.2 million and $79.1 million, respectively. Net income for 2017 and 2016 was $14.0 million and $13.0 million, respectively. In addition, as of December 31, 2017 it had $106.6 million in debt capital. The proceeds from debt issuances financed capital expenditures and in some cases refinanced higher interest long-term debt with lower interest debt.

As of December 31, 2017, Artesian Resources employed 233 full-time employees. Many of these employees have worked for the company for years and have maintained our Delaware water facilities up to, and in many instances above, the requirements of the Delaware Public Service Commission, the Delaware Department of Natural Resources and Environmental Control, the Delaware Fire Marshal's office and the Delaware Division of Public Health.

Artesian Water Company, Inc.

Artesian Water, our principal subsidiary, is the oldest and largest public water utility in the State of Delaware and has been providing water service within the state since 1905. Artesian Water distributes and sells water to residential, commercial, industrial, governmental, municipal and utility customers throughout the State of Delaware. We hold Certificates of Public Convenience and Necessity, ("CPCNs"), for approximately 284 square miles of exclusive water service territory, most of which is in Delaware and some in Maryland and Pennsylvania. In addition, Artesian Water provides services to other water utilities, including operations and billing functions, and has contract operation agreements with private and municipal water providers. We also provide water for public and private fire protection to customers in our service territories.

Artesian Water Maryland, Inc.

Artesian Water Maryland began operations in August 2007. Artesian Water Maryland distributes and sells water to residential, commercial, industrial and municipal customers in Cecil County, Maryland. Artesian Water Maryland owns and operates 8 public water systems including one in Port Deposit that has the ability to supply up to 1 million gallons per day

("mgd") of water through an intake in the Susquehanna River, located in Cecil County, Maryland. Our peak water supply capacity in Cecil County, Maryland is currently is approximately 2.0 mgd.

In Maryland, we have one interconnection that connects the Artesian Water system in Delaware to the Meadowview System, one interconnection with a neighboring utility, and three interconnections with the Town of Elkton. The interconnection with the Artesian Water Delaware system is capable of providing up to 3.0 mgd of water to our Maryland systems, of which 1.5 mgd is available to the Town of Elkton per our agreement with the Town. In January 2018, Artesian Water Maryland signed an interconnection agreement with the Town of North East that has a "take or pay" clause requiring us to purchase a minimum of 35,000 gallons per day that shall commence on the first day of the month following the date on which the interconnection is completed. The interconnection completion date is expected to occur during the third quarter of 2018. In Cecil County, Maryland we have 8 storage tanks capable of storing approximately 2.4 million gallons. The number of metered water customers in Maryland totaled approximately 2,300 as of December 31, 2017.

Artesian Water Maryland shares the financial, managerial, and technical resources of its sister subsidiaries including Artesian Water, which for more than 100 years has provided water services in Delaware. The corporate officers of Artesian Water Maryland will be the persons with the primary responsibility for assurance of compliance with the requirements of those bodies providing regulatory oversight in Maryland.

In summary, Artesian Resources and its subsidiaries are profitable, well capitalized companies with access to the short-term debt and long-term debt and equity capital markets. In Artesian Water Maryland's capacity as a public utility regulated by the Maryland Public Service Commission, it is required to maintain adequate financial, managerial, and technical abilities to ensure proper service to its customers.

B. ARTESIAN WATER'S SOURCES OF WATER SUPPLY

Artesian Water derives about 95% of its self-supplied groundwater from wells located in the Atlantic Coastal Plain. The remaining 5% comes from wells in the Piedmont Province. Artesian Water uses a variety of treatment methods, including aeration, pH adjustment, chlorination, fluoridation, arsenic removal, nitrate removal, and iron removal, to meet Federal, State and local water quality standards. Additionally, a corrosion inhibitor is added to all of Artesian Water's self-supplied groundwater and most of the supply from interconnections. Artesian Water has 54 different water treatment facilities in Delaware, 17 of which are located in its northern New Castle County system. All water supplies that Artesian Water purchases from neighboring utilities are potable.

Artesian Water's primary sources of water are Artesian Water's wells that pump groundwater from confined aquifers and other formations. To supplement Artesian Water's groundwater supply, Artesian Water purchases surface water through interconnections in Artesian Water's

New Castle County, Delaware system. The purchased surface water is blended with Artesian Water's groundwater supply for distribution to its customers. Nearly 84% of the overall 7.8 billion gallons of water that Artesian Water distributed in all of its Delaware systems during 2017 came from its groundwater wells, while the remaining 16% came from interconnections with other utilities and municipalities. During 2017, Artesian Water's average rate of water pumped was approximately 18.1 MGD from its groundwater wells and approximately 3.4 MGD was supplied from interconnections. Artesian Water's peak water supply capacity in Delaware is approximately 55 MGD.

Artesian Water has an Interconnection Agreement with the Chester Water Authority that contains a "take or pay" clause requiring Artesian Water to purchase 3 MGD. During the fiscal year ended December 31, 2017, Artesian Water used the minimum draw under this Agreement. The Chester Water Authority Agreement, which expires December 31, 2021, provides for the right to extend the term of this Agreement another 25 years through, and including, December 31, 2047, at Artesian Water's option, subject to the approval of the Susquehanna River Basin Commission. Under this Agreement, Artesian Water is authorized to increase its purchase to 9 MGD.

The sale of water authorized by this Interconnection Agreement was approved by the Susquehanna River Basin Commission (SRBC) in 1989. At that time, all water taken by Artesian Water constituted an out-of-basin transfer. As a condition of that approval, Artesian Water has been paying SRBC's consumptive use charge. Transfer of a portion of the water consumption authorized by the CWA Interconnection Agreement to Artesian Water Maryland and its Elkton West franchise area will result in the discharge of at least a portion of the Chester Water Authority consumption back into the Chesapeake drainage basin, albeit, below SRBC jurisdiction.

Under Delaware State laws and regulations, Artesian Water is required to file applications with DNREC for water allocation permits for each of its operating wells pumping greater than 50,000 gallons per day. In addition to the sources noted below, throughout the State of Delaware, Artesian Water has 117 operating and 59 observation and monitoring wells in its systems. As of December 2017, Artesian Water had allocation permits for 103 wells. Artesian Water's ability to supply the demands of its customers historically has not been affected by private usage of the aquifers by landowners or the limits imposed by the State of Delaware. Because of the extensive regulatory requirements relating to the withdrawal of any significant amounts of water from the aquifers, Artesian Water does not anticipate that third party usage of the aquifers within its service territory will interfere with its ability to meet the present and future demands of its customers.

Delaware Self-Sufficiency Review

As a result of the record drought of 2002, the Delaware General Assembly enacted the Water Supply Self-Sufficiency Act of 2003, which required each public water utility in northern New Castle County to demonstrate its ability to meet projected demands through a repeat of the 2002 drought of record using only its own sources of supply. Any contractual agreement

utilizing out-of-State supply existing on July 1, 2003 may be counted as part of a utility's self-supply only to the extent of required minimum takes under such contract. This law requires Artesian Water to file a certification of Water Supply Self-Sufficiency with the Delaware Public Service Commission ("DePSC") every three years. In July 2011, the Self Sufficiency Act was amended to transfer the authority to review/approve water conservation plans and certifications of adequate water supply from the Public Service Commission to the Water Supply Coordinating Council (WSCC).

Artesian Water filed its initial certification of self-sufficiency of supply with the DePSC on March 8, 2005. The review was completed on June 20, 2006. The DePSC concluded that Artesian Water demonstrated that it had sufficient water supply to meet the demands of its customers through 2006. On June 30, 2006, Artesian Water filed with the DePSC a new certification of self-sufficiency for the period through 2009. On July 24, 2007, the DePSC accepted Artesian Water's certification of sufficient water supply through 2009. Artesian Water filed a new certification of self-sufficiency with the DePSC in June 2009 for the period through 2012. On June 1, 2010, the DePSC accepted Artesian Water's self-sufficiency certification through 2012.

Subsequent to that filing, Delaware statute was changed to move jurisdiction for review and approval of future certifications of self-sufficiency of investor-owned water utilities in northern New Castle County to the Delaware Water Supply Coordinating Council (WSCC), which always had such jurisdiction for municipal water utilities. On June 20, 2012, Artesian Water filed a new certificate of self-sufficiency for the period through 2015. On September 26, 2012, the WSCC accepted Artesian's self-sufficiency certificate through 2015. On June 25, 2015, Artesian Water filed a new certificate of self-sufficiency for the period through 2018. On February 4, 2016, the WSCC accepted Artesian's self-sufficiency certificate through 2018.

Summary of Artesian Water's Supply and Demand

Artesian Water's water supply and demand balance projected through the year 2018 is summarized below. For purposes of reviewing water supply capacity for the drought-sensitive portion of its system (northern New Castle County, Delaware), Artesian Water has a total water supply capacity of 29.02 MGD (23.90 MGD from production wells, 1.42 MGD from an aquifer storage and recovery well (ASR), and 3.7 MGD through interconnections with Chester Water Authority and the City of New Castle) during a recurrence of the drought of record. This total does not consider other interconnections and water supply sources that are not considered by Delaware to be available during conditions comparable to the drought of record or an additional 6 MGD that is available from Chester Water Authority pursuant to the Interconnection Agreement (Appendix F). Accordingly, Artesian Water currently has supply in excess of its projected Delaware demand of 8.72 MGD, with the option for 6 MGD of additional supply available through its interconnection with the Chester Water Authority.

In the event of a drought or other conditions that cause the Chester Water Authority to curtail water delivery to other utilities, the Chester Water Authority may curtail water supply delivered to Artesian Water, "but only in the same proportion and to the same extent and in common with all other utilities purchasing water from Chester" (see Section 2.6 of the Interconnection Agreement). Artesian Water, nevertheless, remains contractually committed to Artesian Water Maryland to supply up to 3 MGD through its interconnection serving Cecil County. As described by Figure 3.1, Artesian Water has more than adequate available supply capacity under drought of record conditions to meet its supply commitment to Artesian Water Maryland, with a 8.72 MGD supply margin available from its northern New Castle County water system in addition to the 6.0 MGD available from the Chester Water Authority, subject to a potential proportional reduction (10% = 0.9 GPD).

This supply capacity is more than adequate, and with sufficient system redundancy to ensure that the projected demands within the Meadowview/Elkton West franchise area will be met when built out. For purposes of providing assurances of Artesian Water Maryland's capability to provide water supply to meet the needs of the Elkton West service area, several conclusions can be drawn from Artesian Water's Delaware self-sufficiency certification and Figure 3-1:

1. Artesian Water has documented and the WSCC has accepted that Artesian Water has adequate supply from its own well fields to meet the projected water supply need of its Delaware water system, leaving nearly 8.72MGD of excess Delaware capacity available for other beneficial use.

2. Only the minimum take required under the Chester Water Authority Interconnection Agreement (3 MGD) is considered by the Delaware self-sufficiency review. Thus, any additional water purchased from the Chester Water Authority (up to 6.0 MGD) is excess supply and available for transfer to Artesian Water Maryland. The term of the Chester Water Authority agreement extends through 2021, with Artesian Water having the option to extend the agreement for an additional 25 years through 2047.

3. In addition to the 6 MGD available to Artesian Water Maryland from Artesian Water, it is important to note that Artesian Water Maryland controls other water supplies, such as existing and proposed well fields in the Pine Hills, Harbor View, and Meadowview systems, and Artesian Water Maryland's Interconnection Agreement with United Water of Delaware.

For reference, the map in Appendix I depicts the Chester Water Authority main from Octoraro Reservoir to the Delaware State line, which is the means of conveyance for the 9.0 MGD available from the Chester Water authority, and the most direct transmission main components in New Castle County. The map in Appendix J depicts Artesian Water's extensive water distribution network in New Castle County that, collectively, provide water flow to the interconnection point with Artesian Water Maryland at the Maryland State line.

C. SUMMARY OF ARTESIAN WATER'S AND ARTESIAN WATER MARYLAND'S SYSTEM INFRASTRUCTURE

Most of Artesian Water's New Castle County, Delaware water system is interconnected. Artesian Water has 22 interconnections with two neighboring private water utilities and six municipalities that provide it with the ability to purchase or sell water. As of December 2017, Artesian Water served customers through approximately 1,244 miles of transmission and distribution mains throughout Delaware. Mains range in diameter from 2 inches to 24 inches, and most of the mains are made of ductile iron or cast iron. Artesian Water supplies public fire protection service through approximately 5,849 hydrants installed throughout its service territories. Artesian Water has 29 storage tanks, most of which are elevated, providing total system storage of 42 million gallons. Artesian Water has developed and is using an Aquifer Storage and Recovery or ASR system in northern Delaware. Artesian Water's ASR system provides approximately 130 million gallons of storage capacity, which can be withdrawn at a rate of up to approximately 1.5 MGD. At some locations, Artesian Water relies on hydropneumatic tanks to maintain adequate system pressures. Where possible, Artesian Water combines smaller satellite systems with systems having elevated storage facilities. The New Castle County system is depicted in Appendix J.

In Cecil County, Artesian Water Maryland has 8 water storage tanks with a total capacity of approximately 2.35 million gallons. Artesian has 13 wells in 6 well fields. Each well field has a Groundwater Appropriation Permit issued by the Maryland Department of the Environment. The well fields are permitted for a total average daily withdrawal of 747,000 gallons and a total average daily withdrawal of 1,082,000 gallons for the month of maximum use. Artesian has two interconnections capable of providing over 1.5 million gallons per day with commitments to provide over 3 million gallons per day. Artesian also has a permit for withdrawal from the Susquehanna River which is limited to a daily average withdrawal of 1,000,000 gallons on a yearly basis and a maximum daily withdrawal of 1,500,000 gallons. There is a combined total of approximately 48 miles of distribution main ranging in size from 2 to 20 inches in diameter in the Artesian Maryland systems

D. ARTESIAN WATER MARYLAND'S SUPPLY FROM ARTESIAN WATER AND CECIL COUNTY'S CONTINUING REGULATORY OVERSIGHT AND PROTECTIONS RELATED TO THE WATER SYSTEM

Throughout the duration of the Franchise Agreement, Artesian Water Maryland, as a public utility regulated by the MdPSC, will act to ensure that it meets its obligations to serve its customers.

Artesian Water is required under Delaware law to meet the water supply needs of its New Castle County, Delaware customers in periods of record drought without reliance upon purchases of water from the Chester Water Authority in excess of the 3 MGD "minimum take"

required by its Interconnection Agreement with the Chester Water Authority. That Interconnection Agreement permits draws of up to 6 MGD, and includes a provision that allows Artesian to increase the maximum draw to as much as 9 MGD.

Artesian Water entered into an Interconnection Agreement with Artesian Water Maryland dated November 23, 2009 (to provide up to 3 MGD of water supply through an interconnection at the Maryland/Delaware State line, which agreement is separate from the Interconnection Agreement with the Town of Elkton (see Appendix F). The Interconnection Agreement between Artesian Water Maryland and Artesian Water that takes up to 3 MGD, will ensure adequate water resources will be available to meet projected water demands in the Elkton West franchise area.

The Franchise for Water Services and Water Services Agreement clearly provides that Cecil County retains authority and regulatory control over the water systems acquired by Artesian Water Maryland. In the Agreement's Explanatory Statement, Paragraph D, the County and Artesian Water Maryland expressly acknowledge that:

(i) pursuant to §§67-1, 67-2 and 67-3 of the County Code, the [Franchise] Service Area forms part of the County sanitary district, under the jurisdiction and control of the Commissioners, subject to the administration and direction of the Director of Public Works of the County, acting in his capacity as the Director of Sanitary Facilities; (ii) pursuant to §67-16 of the County Code, no Water System may be constructed by Franchisee [, Artesian Water Maryland,] without the prior approval of the Director of Sanitary Facilities; (iii) pursuant to §5-204 of the PUC Article, a Person may not construct a Water System for public use without the prior authorization of the Commission; (iv) pursuant to §7-105(b) of the PUC Article, Franchisee is required to obtain the consent of the Commissioners before laying pipes or constructing water works within the Service Area, and the Commissioners may adopt reasonable regulations for the laying of pipes, construction of works and operations of a Water Company; and

(ii) pursuant to §5-201 of the PUC Article, Franchisee may not exercise a Franchise except upon a demonstration to the Commission that the Commissioners have provided the required consent for the exercise of the Franchise, and then only to the extent authorized by the Commission.

The Franchise Agreement further provides in Section 6, particularly Section 6.8, that Artesian Water Maryland must apply for and secure appropriate permits from the County before commencing construction of any facilities. Section 7 defines the standards of service which must be complied with in the delivery of services to the customers within the franchise area. Section 8 requires specific recordkeeping and reporting requirements of the County.

Figure 3-1: Artesian Water's Summary of Supply and Projected Demand for Northern New Castle County, Delaware and Cecil County, Maryland

Northern New Castle County, Delaware

Source of Supply

Self-Supply	23.90 MGD
ASR (Aquifer Storage and Recovery)	1.42 MGD
Interconnections	3.70 MGD
Chester Water Authority	3.0 MGD
City of New Castle	0.7 MGD
Total Available Supply	28.85 MGD
Projected Peak Demand[1]	20.30 MGD
Northern New Castle County Margin	*8.72 MGD*

Cecil County, Maryland

Source of Supply[2]

Northern New Castle County Margin	8.72 MGD
Supply from Chester Water Authority [3]	6.00 MGD
Contractually committed to Artesian Water Maryland	3.0 MGD
Contractually committed to the Town of Elkton	1.5 MGD
Additional available supply (not committed)	1.5 MGD
Total Available Supply	14.72 MGD
Projected Peak Demand (through 2020)	
Elkton West/Meadowview	3.00 MGD
Town of Elkton	1.50 MGD
Total Projected Peak Demand	4.50 MGD
Cecil County Margin	*10.22 MGD*

[1] Peak demand projections through 2018 as reported in the 2015 Self-Sufficiency analysis.

[2]This table only identifies water supplies available to Artesian Water for sale to Artesian Water Maryland. It does not consider other sources of supply controlled by Artesian Water Maryland, which include surface and groundwater supplies existing or proposed within the State of Maryland.

[3] This interconnection supply is in addition to supply accounted for in the New Castle County Interconnection total.

These provisions of the Franchise Agreement and County Code are in addition to the clear statutory authority of the County over Comprehensive Water and Sewerage Plans and Plan amendments, which are codified in Title 9, Subtitle 5, of the Environment Article of the Maryland Code. Pursuant to Section 9-511 of the Environment Article, a water supply system may not be constructed or extended except in conformity with the County Master Water and Sewer Plan.

The Franchise Agreement contemplates its own termination and, in that eventuality, it requires an orderly and coordinated transition of ownership and fully addresses the process that will occur upon termination (if it should ever occur). Sections 12.4 (Effect of Termination - Expiration of Term), 12.6 (Effect of Termination - Default) and 12.7 (Effect of Termination - Taking) all conclude by stating that "The County and Franchisee shall be bound to cooperate with one another and to exercise due diligence to effectuate the sale and transfer."

The sections describe or refer to the other sections within the Franchise Agreement that outline the process for (and financial aspects of) the County's assuming control of the water system, should the Franchise Agreement terminate.

In summary, upon termination of the franchise, the County obtains control of any sources of supply developed for, or within, the franchise. Artesian Water Maryland will develop sources of supply within Maryland as environmentally and financially viable and appropriate.

In addition, "Amendment 1" of the Artesian Water Maryland Interconnection Agreement designates the County as a third party beneficiary of the Agreement. Under these provisions, in the event of a breach under the Franchise Agreement that results in default and the County taking control of the Elkton West franchise area, the County will be able to continue to purchase water from Artesian Water in accordance with the terms of the Interconnection Agreement.

The Artesian Water Maryland Interconnection Agreement will continue in effect for a ten-year term following its assignment to the County, thus ensuring that the franchise area would continue to have a reliable source of supply and providing the County more than adequate time to develop alternative sources of supply.

Finally, by Maryland law, Artesian Water Maryland will not be permitted to cease the provision of water service within the franchise area without the prior approval of the MdPSC. As part of that process, the MdPSC is required to ensure that there are plans for an adequate, safe, and reliable water supply to be provided in the franchise area. Under the MdPSC's broad statutory charge, it is beyond any reasonable doubt that the MdPSC could impose a requirement upon Artesian Water Maryland to maintain supplies under pre-termination contractual relations which existed between the regulated franchisee and any other suppliers. It is these statutory and regulatory realities that provide the assurance that in the unlikely event of termination of the franchise, there will remain sources of water supply to serve the customers within the franchise.

E. WATER CAPACITY PLANNING AND ALLOCATION

Estimating Future Demand

Projections of future water supply demand should account for domestic, industrial, and commercial usage and a certain amount of system loss, especially in the older systems. Assuming that commercial and industrial growth is in relation to population growth, these consumption values can be added to estimated domestic per capita consumption to estimated total demand. The factors assumed by this plan for purposes of projecting total future demand using population projections are 2.5 persons per household and 250 gallons per day per household or 100 gallons/capita/day (gpcd).

Water demand is not constant throughout the day, nor is daily demand consistent throughout the year. The maximum day demand is called the peak flow and for planning purposes can be estimated to be the average factor of 1.7 times the average daily demand. It should be noted that the average factor varies and is affected by a variety of considerations, such as the size of the water system and the diversity within the water system, to name a few. Pipe and plant size are generally designed to meet the maximum day demand plus fire flow.

It should be noted that not all water used is processed through the sewerage system. Lawn watering, car washing, evaporation from cooling systems, and water included in processed products are all examples of how water demand can exceed sewage treatment demand. Consequently, sewage treatment demand may not identically match water demands.

Allocation of Capacity

Artesian Water Maryland allocates its system capacity of its water systems for its customers, including any new development within those systems. The purpose of this allocation tracking is to ensure that the available capacity of each water facility is not exceeded. Before demand on a particular system approaches 70% of its total permitted water appropriation(s) and contractual limit for water acquisition, additional planning is undertaken to ensure the system's capacity is not exceeded. Each community water supply system larger than 20,000 gpd will prepare and submit to MDE a Water Supply Capacity Management Plan before operating at 80% of its permitted and contractual water supply limits.

Artesian provides the County with quarterly reports that detail each water system's appropriated/contractual water supply limit, existing demand, existing capacity allocations, and water capacity allocations granted since the previous report. In addition, Artesian Water Maryland will provide the County and MDE with written notice when the actual demand plus

unused allocations in any water supply system reach 50%, 70%, and 75% of the system's appropriated/contractual water supply limit.

At the current time, no significant development is anticipated within the Pine Hills or Harbor View service territories. Although future growth is anticipated within the Elkton West service area, including the Meadowview system, this system is not currently approaching the 80% capacity threshold. Within the Meadowview system and the Elkton West area, current water supply capacity consists of the Meadowview well field and the existing interconnection with SUEZ Delaware, with up to 3.0 MGD of capacity committed (and as much as 4.5 MGD available) through interconnection with Artesian Water from Delaware sources. An additional 1.5 MGD has been committed to the Town of Elkton through this interconnection and is reserved for emergency use, resulting in a maximum transfer through the interconnection with Artesian Water of 6.0 MGD.

Both Cecil County and Artesian are committed to the continued accurate monitoring and allocation of available capacity within each of these systems. All allocations issued by Artesian Water Maryland will be reported to the County on a project-specific basis and accounted for in the quarterly allocation and capacity reports.

Consistent with State Law, Cecil County does not approve building permits or subdivision plats unless adequate water supply exists to serve the proposed project. Artesian Water Maryland sits on the Cecil County Technical Advisory Committee and provides an "Ability to Serve" letter for each new project as part of the County's development review process. The Cecil County Health Officer, or his/her designee, is responsible for confirming the adequacy of water and sewer systems to serve every proposed development project or subdivision before the County approves a building permit or subdivision plat.

F DESCRIPTION OF ARTESIAN WATER MARYLAND WATER SYSTEMS

3.2.10.1 Mountain Hill, Carpenters Point, and Chestnut Point

A. Existing System

In an effort to simplify the overall plan for these three systems, they are described together within this section. Artesian Water Maryland plans to combine all three systems, which, due to elevations, will create service breaks for multiple pressure zones. The combination of these systems is consistent with Artesian Water Maryland's plan to ultimately have an interconnected system from the Maryland/Delaware State line to Port Deposit.

On August 7, 2007, Artesian closed on the acquisition of the Carpenters Point water system, which serves the 130 lot subdivision of Carpenters Point, and provides sufficient groundwater

supply and elevated water storage to serve additional customers in the undeveloped portions of the surrounding area, including the community of Chestnut Point.

There are currently 143 customers on this system. The system consists of three wells, which are limited to a daily average withdrawal of 80,000 gallons for the month of maximum use, a treatment facility, and a 75,000 gallon elevated storage tank. The current peak usage is approximately 62,000 gpd which accounts for 77% of the peak system capacity.

On August 1, 2008, Artesian closed on the acquisition of the Mountain Hill water system, which serves the residential developments of Whitaker Woods and Charlestown Crossing, as well as the commercial and industrial uses in the Principio Industrial Park. The acquisition also provides Artesian the right to serve the entire 8,000 acres of surrounding area owned by Sunrise Holdings L.P., the sole member of the original owner of the Mountain Hill water system, up to included parcels that border Baron Road.

There are currently 189 customers on this system. The system consists of three wells capable of supplying up to 388,800 gpd, a treatment facility and a 500,000 gallon elevated storage tank. The current peak usage is approximately 196,000 gpd which accounts for 40% of the peak system capacity.

In March 2018, Artesian completed construction and start-up of the Chestnut Point water treatment plant. This facility will serve the age-restricted community of Chestnut Point Estates, which will include 86 manufactured homes at build-out. The system consists of one well with a daily average withdrawal of 12,000 gpd on a yearly average and 18,000 gpd average for the peak month. The treatment facility includes an 18,000 gallon water storage tank.

B. Proposed Improvements

Artesian executed an agreement with the Town of North East in January 2018 to provide an interconnection on Red Toad Road near the CSX rail line as an additional source of supply for the Mountain Hill system.

As demand on the Carpenters Point and Mountain Hill systems increases, Artesian Water Maryland will connect the two systems. The immediate plan for the Mountain Hill and Carpenters Point systems is to increase the amount of available water supply. At Carpenters Point, Artesian Water Maryland has completed a pumping test at Well #3 and is planning to submit a request to MDE for an increase in allocation limits. Artesian Water Maryland has also identified improvements to the Carpenters Point system that can add, at a minimum, an additional 0.5 MGD of supply. At Mountain Hill, Artesian Water Maryland has completed test drilling that has also identified 0.3 MGD of additional supply. Upgrades to the two existing treatment facilities for the increased supply would be evaluated when the systems combine and continue to expand.

The two systems will be integrated when either the Mountain Hill or Carpenters Point systems reach 80% of their capacity. Artesian Water Maryland will connect the two systems together via a looped 12-inch potable main extending from the Carpenters Point Treatment Facility to the Mountain Hill system as shown on the water service area map.

Chestnut Point will be integrated into this regional system at that time, or earlier if other communities are developed in the area and require a regional water system.

Once the three systems are tied together, multiple pressure zones would be created. These pressure zones are required due to the topography of the land and the overall plan for integrating with Port Deposit and Meadowview. The Meadowview system has a maximum hydraulic grade of 268 feet, which will be ideal for service territory on the south side of Route 40, while the Mountain Hill system requires a 403 feet hydraulic grade. The treatment facilities and supply for the Mountain Hill and Carpenters Point systems are on the south side of Route 40. Therefore, when the Meadowview system is connected along Route 40, a pressure break would be needed near the intersection of Route 40 and Route 7, going north towards Principio. At this location, the intersection of Route 40 and Route 7, Artesian Water Maryland proposes a booster station and tank site. The tank site would allow for increased storage on the lower pressure side of the system, while the booster station would pump into the newly created Principio pressure zone, which will have a hydraulic grade of about 403 feet.

To connect the Elkton West system with the Mountain Hill/Carpenter Point system, the water main on Red Toad Road would be extended east along the CSX railroad tracks to connect with a future main extension from the Meadowview system that ends on Baron Road. At this location, Artesian Water Maryland also proposes a booster station that would pump from the Meadowview system, hydraulic grade of 268 feet, into the Principio pressure zone of about 403 feet. This booster station would be a back-up, or work in sync with the proposed booster station at the intersection of Route 7 and Route 40. To loop the water system to create redundancy, the water main would then run south on Baron Road and tie into the proposed Meadowview main along Route 40. This main would continue going west along Route 40 until it tied into an existing main at the subdivision of Charlestown Crossing.

The Mountain Hill/Carpenters Point system would extend west along Route 40 to the intersection with Jackson Station Road. The water main would then run north along Jackson Station Road to just before where it intersects with Interstate 95. At this location, Artesian Water Maryland would install a pressure-reducing valve for a future tie-in point with the Port Deposit water system. This is because Port Deposit's hydraulic grade is about 506 feet and flow would go from the Port Deposit system into the Carpenters Point pressure zone with a hydraulic grade of 268 feet.

C. Service Area

Maps in Appendices D and H show the location of the service area.

3.2.10.2 Port Deposit Water System

A. Existing System

On November 2, 2010, Artesian closed on the agreement to buy the water assets of the Town of Port Deposit. Artesian has operated Port Deposit's water system since April 2009 and received approval from the Maryland Public Service Commission to purchase the assets in July 2010. The acquisition includes access to the Susquehanna River as a source of supply, giving Artesian another reliable water source for Cecil County. It includes the water service rights for the service area that encompasses Port Deposit's existing customers in addition to several adjacent tracts of land including the Bainbridge property, a 1,200-acre former U.S. Navy facility which has the potential to be developed into a mix of commercial, retail, residential, office, employment, warehouse, research and development, light industrial manufacturing, and flex space uses.

There are currently 258 customers on this system. The system consists of the Susquehanna intake, which is limited to a daily average withdrawal of 1,000,000 gallons on a yearly basis and a maximum daily withdrawal of 1,500,000 gallons, a treatment facility, a 500,000 gallon ground storage tank, and a booster station. The current average daily usage is approximately 89,000 gpd,which accounts for 6% of the peak system capacity.

Artesian has completed various upgrades to the Port Deposit treatment facility, including safety and security improvements. Artesian is currently undertaking an investigation of the Susquehanna intake structure and plans to perform maintenance and/or upgrades as necessary.

B. Proposed Improvements

Artesian Water Maryland is currently in the process of planning improvements to the water system to meet the future water needs of the former Naval Training Center Site at Bainbridge and the proposed development of neighboring parcels. Due to its location and access to water, the Bainbridge site is zoned for commercial and industrial facilities with large water requirements. The system will ultimately be connected to the planned larger Artesian Water Maryland system throughout Cecil County. It is anticipated that the improvements will have multiple phases of construction.

Phase 1 includes expansion of the existing water treatment facility to a treatment capacity of 1.1 MGD. This will be accomplished by retrofitting existing treatment equipment and replacing pumps. Downstream from the water treatment plant, new pumps will be installed at the existing Hillside pump station. This station will then pump to a new booster station and tank complex on the Bainbridge property. This new station will be responsible for pressuring the Bainbridge distribution system. This will require an evaluation and possible replacement of existing water lines on the property. In addition to these permanent installations, a portable package plant may be utilized to support construction and supplement treatment capacity.

Phase 2 includes an evaluation, permitting, and construction of the intake for an increased demand of up to 10.0 MGD. Additional treatment capacity will be installed at the Port Deposit water treatment plant and a new site as required to supply anticipated demands of the Bainbridge property. These facilities will require ancillary improvements such as the restoration of existing raw water mains, reconnecting supply pipelines and additional pumping / pressurization capacity. This phase will be constructed in sub-phases as the Bainbridge and surrounding area are built out.

Phase 3 consists of connecting the Port Deposit system to the larger proposed Artesian Water Maryland system described throughout this Plan. Artesian plans to install a sufficient diameter main starting from the southeast side of the Port Deposit territory to the proposed infrastructure from the other Artesian systems.

C. Service Territory

Maps in Appendices D and H show the location of the Port Deposit service area.

3.2.10.3 Elkton West / Meadowview Water System

A. Existing System

On December 21, 2011, Artesian completed the purchase of several Cecil County-owned water systems in the eastern portion of the County serving approximately 1,500 customers. Through the agreement, originally negotiated in 2008, Artesian acquired the Meadowview, Harbor View, Pine Hills, and Route 7 water systems as further described below.

On November 15, 2012, Artesian acquired the water assets of CECO Utilities, Inc. a small company serving approximately 160 customers in the communities of the Pines at Cherry Hill and Manchester Park. Artesian has expanded this system north to serve two public schools and the W.L. Gore facility. This area of Cherry Hill is now part of the Meadowview water system.

The Meadowview water system includes three hydraulic service levels referred to as Meadowview, Highlands, and Cherry Hill. There are currently 1,258 customers on this system.

The Meadowview service level consists of two wells, two interconnections, one storage tank, and a booster station. The Highlands service level consists of one booster station and a hydropneumatic tank. It is connected to the Meadowview service level by a 2.4 mile long water main. The Cherry Hill service level consists of two storage tanks and one booster station. It is connected to the Meadowview service level by a recently installed 2.7 mile-long water main. The two wells in the Meadowview system are limited to a daily average withdrawal of 275,000 gallons for the month of maximum use. The two interconnections (Artesian Water Delaware and United Water) are capable of providing up to 4,000,000 gpd. The system has over 1,000,000 gallons of elevated storage.

The current total peak usage (Meadowview, Highlands, and Cherry Hill) is approximately 870,000 gpd, which accounts for 21% of the peak system capacity (wells and interconnections).

Artesian has installed three major water mains interconnecting the Meadowview system as follows: the main connecting the Meadowview and Cherry Hill service levels, the main from the Cherry Hill booster station to the two Cherry Hill schools and the Gore facility, and the main connecting Meadowview to the Artesian Delaware-Artesian Maryland interconnection at the Delaware/Maryland State line. Artesian has completed various upgrades to the Meadowview treatment facility and the Cherry Hill booster station. An altitude valve has been installed at the Meadowview elevated storage tank. Additional hydrants have been installed in the Meadowview and Cherry Hill service levels.

B. Proposed Improvements

There have been various businesses, developers, and homeowners within Cecil County that have a growing need for a reliable source of water service. Some have production wells that are dropping in capacities, and others are looking to develop land due to the increasing interest in development within Cecil County. Artesian has plans to expand infrastructure throughout the County to prepare for this future growth, as well as to provide reliable water supply and fire protection to existing and future customers. Appendix H depicts the proposed major main extensions and facilities for the area known as "Elkton West," which extends from the Maryland/Delaware State line, to Bouchelle Road / Mechanics Valley Road. Artesian Water Maryland proposes to add another 12 inch diameter main on the north side of Interstate 95. A 12 inch main will extend north near Appleton Road, crossing under Interstate 95, and connect to the southern portion of the Meadowview system along Airport Road in the Appleton Business Park.

In order to have redundant supply and looped systems, Artesian Water Maryland also proposes a 12 inch diameter main on the northern side of Interstate 95 to connect the Route 213 main to the Meadowview system. This main would extend east along Johnstown Road, through the proposed subdivision of Baldwin Mills, along Fletchwood Road, crossing the Elk River, and eventually connecting to an existing 10-inch diameter main on the Meadowview system.

Continuing off of the extended 20 inch diameter main, Artesian Water Maryland would extend a 12-inch diameter main south from the Interstate 95/Route 213 intersection to the Elkton town limits where a flow control valve and meter would be placed in an underground concrete pit should the Town of Elkton desire an interconnection. An additional benefit to the interconnection would be availability of water service to property owners along Ricketts Mill Road.

Moving west of Elkton, Artesian Water Maryland would extend water service from the Route 213/Interstate 95 intersection parallel to Interstate 95 to Blue Ball Road. The main would then turn south along Blue Ball Road until intersecting with Route 279, where it would then continue south along Route 279 until it tied into an existing interconnection at Route 7. It is here that Artesian currently serves residents via an interconnection with the Town of Elkton. This area, being part of the Artesian Water Maryland franchise, would be connected to the system via this main extension.

The proposed main along Blue Ball Road will also serve future subdivisions. One such subdivision is known as Dogwood. In the vicinity of the Dogwood subdivision, Artesian Water Maryland proposes to add an elevated water storage tank on the system. The construction of a 1 MG water storage tank would provide for more consistent water pressure, continued service in the event of power outages, additional supply for peak demands, and fire protection.

There are several large proposed subdivisions that will be served from the main extension on Blue Ball Road. The largest of the proposed subdivisions is called Heron Lake. This subdivision received preliminary approval to have approximately 4,000 service connections. Another main is proposed to extend from the rear of the Heron Lake subdivision to Marley Road. This proposed main will run south along Marley Road to the intersection of Nottingham Road, and then continue north along Nottingham Road until it comes to the railroad crossing.

Near this railroad crossing, Artesian Water Maryland proposes to construct a 1 MG elevated storage tank. This tank is to support further residential, commercial, and industrial growth in the area. This proposed tank location is in the westernmost part of Artesian Water Maryland's Elkton West franchise territory. Artesian Water Maryland then proposes, via an easement with the CSX Railroad Company, to extend this water main parallel to the railroad and to connect to the existing Mountain Hill water system at Baron Road.

On the northernmost portion of the Meadowview system, there is a proposed subdivision called Aston Pointe. A main is proposed to extend from the Highlands to Aston Pointe. A 1 MG elevated storage tank is proposed for construction in the Aston Pointe area. This tank will stabilize water pressures and provide fire protection for the area. The County previously applied for a groundwater appropriation permit for the wells located in the Aston Pointe subdivision. MDE determined that a groundwater appropriation permit in the amount of 0.244 MGD average annual appropriation and 0.355 MGD for the month of maximum use would be issued provided a recharge easement is executed for the full golf course property in the subdivision. A Groundwater Allocation Permit (GAP) issued to the County (CE2005G005(01)) was transferred to Artesian Water Maryland concurrent with final transfer of other assets of the system.

Water supply capacity in this system has been substantially expanded by execution of the Interconnection Agreement with Artesian Water. Incremental water supply capacity increases will also be implemented through groundwater well permitting and development described

above. Artesian also anticipates executing an interconnection agreement with the Town of North East to provide an additional source of supply to the western portions of this service area at a location near the intersection of Routes 40 and 272.

C. Service Area

Maps in Appendices D and H show the location of the Meadowview/Elkton West service area.

3.2.10.4 Harbor View Water System

A. Existing System

The Harbor View water system serves the 218 lot subdivision of Harbor View. There are currently 124 customers on this system. The system consists of two wells that are limited to a daily average withdrawal of 83,000 gallons for the month of maximum use, a treatment facility, and two 5,000 gallon hydropneumatic tanks. The current peak usage is approximately 38,000 gpd, which accounts for 54% of the peak system capacity.

Artesian added green sand filters at this facility to reduce the manganese levels. Any individual lots within the W-1 service area that currently use wells may be connected to the water system in the future as a result of impacts from the Court House Point dredge disposal area.

B Proposed Improvements

There is no anticipated expansion within this service territory within the next five years.

C Service Area

Maps in Appendices D and H show the location of the Harbor View service area.

3.2.10.5 Pine Hills Water System

A. Existing System

The Pine Hills water system serves the residential developments of Arundel, Arundel Shores, Mariner's Cove, and Pine Hills. There are currently 348 customers on this system. The system consists of three wells, which are limited to a daily average withdrawal of 191,000 gallons for

the month of maximum use, a treatment facility, and a 200,000 gallon standpipe. The current peak usage is approximately 175,000 gpd, which accounts for 91% of the peak system capacity. Water treatment for this system includes sodium hydroxide to control the pH, sodium hypochlorite for disinfection, and a corrosion inhibitor.

B. Proposed Improvements

The Pine Hills system will be connected to another source of supply between the existing facility and Artesian's service territory in the Route 7 area, on Oldfield Point Road (Cooke property). This source of supply will also be connected to Artesian Water Maryland's Route 7 water system.

C. Service Area

Maps in Appendices D and H show the location of the Pine Hills service area.

3.2.10.6 Route 7 Water System

A. Existing System

The Route 7 water system is located in the vicinity of the Route 7-Route 40 intersection. There are approximately 24 customers on this system. Supply for this system is provided by the interconnection with the Town of Elkton on Route 279. At this interconnection, Artesian can purchase up to 8,000 gpd from the Town. The Route 7 system is for distribution only. Therefore, no treatment or storage is required or provided. The system presently utilizes an average of approximately 4,400 gallons per day, 55% of the allowable amount per the agreement with the Town of Elkton.

B. Proposed Improvements

The Route 7 system will be connected to another source of supply to the south of Artesian's service territory in the Route 7 area. This source of supply is anticipated to be located on a parcel owned by Artesian Water Maryland on Oldfield Point Road (Cooke parcel). This source of supply will also be connected to Artesian Water Maryland's Pine Hills' water system.

Artesian anticipates executing an interconnection agreement with the Town of North East to provide an additional source of supply to this service area at a location near the intersection of Routes 40 and 272.

C. Service Area

Maps in Appendices D and H show the location of the Route 7 service area on the Meadowview maps.

CHAPTER 4
SEWERAGE SYSTEMS

4. GENERAL DESCRIPTION

Almost half of the County's total population (102,603 persons per July 2016 population estimates from the Maryland Department of Planning) is served by public or private community sewage treatment plants. The remainder of the County's population utilizes subsurface disposal.

There are approximately 30 municipal and community wastewater treatment plants in the County, ranging from plants using subsurface disposal to tertiary treatment plants. The Susquehanna River, North East River, and Elk River are three major effluent receiving streams for the public wastewater treatment plants. The Meadowview wastewater treatment plant discharges its effluent into tributaries of the Christina River. The Chesapeake and Delaware Canal assimilates the discharge from the two Chesapeake City plants and the Corps of Engineers system while the Cecilton system discharges to a tributary of the Bohemia River.

Warwick has a fluctuating high water table into which many septic systems discharge directly during wet weather periods. Fredericktown has several septic systems near the Sassafras which also discharge to groundwater.

For all new septic systems in Cecil County, the Health Department requires at least four feet of unsaturated soil between the bottom of the subsurface disposal system and the groundwater table. This requirement is a part of COMAR 26.04.02.

The most suitable soils for subsurface disposal are found in the lower reaches of Cecil County and in the north central section. These areas, as is usually the case, are also best suited by soil association for agriculture. The coastal areas represent the greatest potential pollution areas in the County. Adequate collection systems, treatment plants, and monitored discharges are the means to protect Cecil County from gross pollution problems.

4.1 Major Community Sewerage Systems

The existing conditions and planned facilities for major community sewerage systems are described below. Appendix C shows the existing sewer facilities for the entire County and delineates service areas. The existing and proposed sewer service areas have been designated as follows (see Section 1.3.3 for Service Area policies):

S-1	Existing
S-2	0-2 years
S-3	2-3 years
S-4	3-6 years
S-5	6-10 years

4.1.1 Cecilton

A. Existing System

The Town operates a wastewater treatment plant and disposal system that utilizes an activated sludge process (using a sequencing batch reactor), polishing of the treated effluent in the sand filters that were part of the previous treatment plant, disinfection with sodium hypochlorite, de-chlorination with sodium bisulfate, followed by discharge to the Black Duck Creek. The wastewater treatment plant was completed in 2009 and is permitted for 0.100 MGD (NPDES Permit MD0020443, effective October 1, 2012). The 3-year average flow from 2011 – 2013 was 0.067 MGD.

B. Proposed Improvements

There are no proposed improvements to the Cecilton wastewater treatment plant.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.2 CECO Utilities

A. Existing System

The CECO Utilities wastewater system consists of an antiquated lagoon treatment and stream discharge into Dogwood Run. Serving 126 customers, the capacity of the system is approximately 0.080 mgd with an average daily flow of 0.040 mgd. The system cannot meet permit standards, and as such, CECO operates under a consent order issued by MDE.

B. Proposed Improvements

A $2.85 million dollar grant from the Maryland Department of the Environment will be used to construct a pump station and associated force main to convey the collection system's contents to the Cecil County Department of Public Works' Cherry Hill WWTP for treatment.

Once the new force main and pump station become operational, the lagoon treatment facility will be decommissioned.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.3 Crystal Beach – Port Herman – Elk Neck State Park

The Crystal Beach area does not have a community sewerage system at present, but due to a high concentration of small lots using subsurface disposal, the Cecil County Department of Public Works foresees possible construction of a wastewater treatment plant in the future. Although no funds for the project have been budgeted in the current Capital Improvement Plan, preliminary identification of a possible service area, encompassing the communities of Crystal Beach, Buttonwood Beach, Elk View Shores, Cabin John Heights, and Woodmour Manor, has been completed.

The Port Herman condominium development is served by a community system that utilizes subsurface disposal.

The Elk Neck State Park wastewater treatment plant (WWTP), which serves most of the Park and the North Bay Adventure Camp, is an extended aeration treatment plant rated for .108 mgd but permitted for .060 mgd. The Parks' sewer collection system includes five sewage pumping stations, 11,770 linear feet of force main and approximately 17,900 linear feet of gravity sewer. The treatment plant influent flow varies substantially throughout the year due to the seasonal nature of the Park. The North Bay facility operates year round except for a few holiday breaks. The daily average flow for the WWTP is .015 MGD and has peaks during the summer holidays of up to .044 MGD (2017 data). This plant is operated by the Maryland Environmental Service (MES) and the plant produces effluent that meets the requirements of the current discharge permit. MES is in the process of upgrading the facility to meet ENR (enhanced nutrient removal) effluent limits and the Maryland Department of the Environment has provided a grant to cover the cost of a Preliminary Engineering Report.

Maps in Appendix C show the locations of the various service area categories.

4.1.4 Chesapeake City

A. Existing Systems

The sewerage system for Chesapeake City is split by the Chesapeake and Delaware Canal, and two separate collection and treatment systems are maintained. The two plants treat a combined flow of 0.163 mgd from approximately 900 people. In 2013, the Bohemia Manor Middle School and High School was connected to the Town's south collection system with an allocated capacity of 8,000 gpd. The North side is served by a 0.075 mgd package activated sludge plant and the South side is served by a similar 0.088 mgd plant. Both plants include chlorination/dechlorination facilities. Effluent is discharged into the C&D Canal.

B. Proposed Improvements

Existing Service Area

The Town is in the process of upgrading the wastewater treatment facilities which includes the consolidation of the two existing WWTPs into a new single WWTP located on the north side of

the C&D canal. The new facility will have a total treatment capacity of 300,000 gpd and be capable of meeting Enhanced Nutrient Removal standards. The new facility will be constructed adjacent to the existing WWTP to allow the existing facilities to remain in service during construction. The new WWTP construction will include new headworks, sequencing batch reactors (SBRs), effluent filters, UV disinfection, and cascade aeration prior to discharge to the C&D Canal. Supporting processes will include chemical additional and monitoring equipment, utility water reuse, and sludge processing, storage, and dewatering.

As part of the improvements, the South WWTP will be demolished and replaced with an upgraded pumping station to convey flow under the canal to the new WWTP. The Town previously installed two parallel 8-inch conduits to allow for the installation of the proposed force main required to convey the flow under the canal. The majority of the existing North WWTP will be demolished with the exception of the control building which will be repurposed if possible.

The proposed capacity is in accordance with the Town and County comprehensive plans. Capacity will be allocated in accordance with the Town's allocation policies and capacity management policies.

Potential Service Area Expansion

There are several nearby communities that may have interest in connecting to the Town's collection and treatment system. Any such connection would be subject to approval by the County and must comply with MDE's Nutrient Cap Management and Trading Policy. The Town is in preliminary discussions with the mobile home community of Chesapeake Estates, which has a failing community onsite disposal system. Similar to the County's approach with the Seneca Point WWTP, the Town would seek to decommission the community onsite disposal system and connect the community to the Town's collection and treatment system. Conceptual plans include the construction of a new pump station at Chesapeake Estates along with approximately 6,100 linear feet of 4" force main to convey the flow to the collection system on the south side of the Canal. The flow would then be conveyed to the new pump station at the former South WWTP site and ultimately to the new WWTP on the north side of Town.

Other facilities will be considered as opportunities for decommission become available. In conjunction with these connections, the Town would realize additional nutrient discharge credits for their point source discharge.

C. Sewer Service Areas

Figure 4-1 shows the location of the various service area categories.

4.1.5 Elkton

A. Existing System

The Town provides sewer service to its residents, as well as to all commercial, industrial, institutional, and governmental facilities within the Town via a collection and conveyance system comprised of gravity mains, force mains, and thirteen pumping stations. Additionally, service is provided to customers outside the corporate limits, including Thomson Estates, Holly Hall, Elkwood Estates, and the Maryland State Highway Administration's maintenance facility on MD Route 7.

Wastewater treatment is provided at the Elkton Wastewater Treatment Plant (BNR/ENR), located at 200 West Pulaski Highway in Elkton. The plant has a current treatment capacity of 3.2 mgd, operating under State Discharge Permit No. 13-DP-0671 and NPDES Permit No. MD0020681 (November 1, 2013 – October 31, 2018 w/ permit renewal being processed). Elkton's treatment plant is operated by Inframark under an agreement expiring in 2023.

The Elkton Wastewater Treatment Plant processes approximately 1.8 million gallons of wastewater on a daily basis, treated wastewater is discharged to the Big Elk Creek and treated solids are distributed under Sewage Sludge Utilization Permit No. 2015-STF-5342 (August 29, 2016 – August 28, 2026).

B. Proposed Improvements

The Town plans to upgrade the treatment capacity of the WWTP from its current design capacity of 3.2 MGD to 5.0 MGD in the future, when the demand for wastewater treatment capacity is needed. Provisions for enlarging the reactor, adding a third clarifier, and adding the necessary equipment were included in the initial design of this plant. Significant capital improvements for adding treatment capacity to the WWTP are not anticipated within the next five years.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.6 Perryville

A. Existing System

The Town operates a WWTP which was recently upgraded for Enhanced Nutrient Removal. The treatment includes an SBR, disc filters, and UV disinfection, with discharge into Mill Creek. The WWTP serves a Town population of approximately 4,419 people and has a contractual allocated capacity of approximately 300,000 gallons per day to the Perry Point Veterans Administration

Hospital. The design and permitted capacity of the WWTP is 1.65 mgd with a current average flow of approximately 0.785 mgd (including the VA Hospital). The Town continues to identify and correct infiltration and inflow sources and has taken actions on some areas that were identified in the I/I report.

B. Proposed Improvements

No improvements are proposed at this time.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.7 Port Deposit

A. Existing System

Cecil County owns and operates the Port Deposit Wastewater Treatment Plant, two pump stations located in Town, and the collection system. The current WWTP is a 0.150 mgd packaged activated sludge wastewater treatment plant, and the system's two pump stations are packaged "can type"' stations. Originally constructed in 1971 and currently serving approximately 767 people, the WWTP meets discharge permit requirements with annual average flows of 0.06 mgd.

B. Proposed Improvements

The existing Port Deposit Wastewater Treatment Plant (WWTP) is 40+ years old, is located on the banks of the Susquehanna River within the 100 year floodplain, has reached the end of its useful life, and needs to be replaced. The County will construct an enhanced nutrient removal packaged WWTP at a new location either on the grounds of the former Bainbridge Naval Training Center or on the site of the existing WWTP or immediately adjacent thereto to the east of the railroad tracks.

The new WWTP will have an initial capacity to treat up to 150,000 gallons of wastewater per day but will be sited, designed, and built such that it can be readily expanded in steps over time as needed to accommodate increased flows. The new plant will require modifications to the collections system to convey sewage to the new WWTP and a connection to convey treated effluent to the existing outfall. The existing plant will be removed from service once the new plant is operational. The project will serve existing Port Deposit residents, provide wastewater treatment plant capacity needed to support the redevelopment of the Tome School and Bainbridge sites, and other users within its service area.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories. The S-1 area corresponds to the existing Town limits, not including the Bainbridge site. It is anticipated that sewer service will be provided to the Bainbridge site within the next two years; therefore, the area is designated as S-2.

D. Sewer Service Expansion

The County is working with the Bainbridge Development Corporation to extend sewer to the former Bainbridge Naval Base property. Once this extension is in place, developers can then extend sanitary sewer in support of development on this and neighboring sites.

The county is proposing a project to extend new sanitary sewerage facilities from the existing Port Deposit Collection System to the Rock Run Road area. This project will eliminate on lot systems and connect several homes in this area that have no wastewater treatment. The project will be conducted in accordance with the new Maryland Chesapeake Bay Watershed Implementation Plan, improve public health, improve water quality, and earn nutrient credits for NERAWWTP expansion.

4.1.8 Rising Sun

A. Existing System

In August 2015, the Town of Rising Sun's new $14 million wastewater treatment plant went online. Using orbal ditch treatment processes, the WWTP meets current biological nutrient removal and enhanced nutrient removal standards. Effluent from the plant is reaerated using cascade aeration and then discharged into the receiving stream (a main branch of Stone Run). The WWTP operates under authority granted by NPDES Discharge Permit Number MD0020265 and State Discharge Permit Number 08-DP-0107. It has a design capacity of 0.5 MGD, and an average daily flow of approximately 0.240 MGD,

B. Proposed Improvements

The collection system suffers from inflow and infiltration problems. Potential solutions to remedy the inflow and infiltration issues are currently being studied.

C. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.9 North East River Advanced WWTP

A. Existing Facilities

Owned and operated by Cecil County, the Northeast River Advanced WWTP (NERAWWTP) was originally a built-in-place concrete extended aeration system constructed in 1981 and subsequently upgraded to BNR level of treatment. In 2016 the plant was upgraded to Enhanced Nutrient Removal through modification to the 4 stage Bardenpho treatment process and addition of MBR and chemical systems. With the upgrade to ENR, landowners may potentially qualify for assistance connecting to the plant's collection system using the Bay Restoration Fund grants program. Located at Seneca Point on the Northeast River, the facility currently serves the Town of North East, Town of Charlestown, Principio Business Park, the I-95 Service Plaza, Cecil College, numerous surrounding communities in the County, including the Carpenters Point area, and the Cecil County Central Landfill leachate system.

The Northeast River Advanced WWTP is designed for an annual average flow of 2.0 mgd, and the WWTP operates under State Discharge Permit No. 09-DP-1082 and NPDES Permit No. MD0052027. Current annual average daily flow at the plant is 1.0 mgd. As part of the most recent discharge permit (dated October 1, 2010), MDE granted conditional authorization for a three step increase in the plant's design flow to 3.0 mgd, 3.17 mgd, and 3.7 mgd. Granting of the larger flows is predicated upon the County satisfactorily meeting numerous conditions as outlined in the discharge permit.

B. Proposed Improvements

The County recently completed upgrading the plant to ENR (2016). Future improvements to administrative and control spaces and sludge handling are proposed. Future ENR plant expansions, in which the physical infrastructure will be increased in 2.0 to 2.5 mgd increments, will increase the plant capacity to 9.1 mgd (this is the anticipated maximum probable capacity although the current comprehensive plan allows for a future, 30 years plus, ultimate capacity of 11.3 mgd). This total build-out flow of 9.1 mgd was determined based on a feasibility study prepared by George, Miles & Buhr (2007). The increase in capacity will be accomplished using a phased approach. The first phase will increase permitted capacity from the current levels to 3.7 mgd (although, as mentioned, the physical plant will be sized between 4.5 and 5 mgd). Subsequent phases will increase capacity to 7.5 mgd, and, finally, to 9.1 mgd. Each increase in capacity will be implemented as required by demand.

The NERAWWTP presently has an assigned nutrient allocation from MDE of 24,364 lbs/year of total nitrogen (TN) and 1,827 lbs/year total phosphorus (TP). These loading limits are equivalent to operation at 4.0 mg/L TN and 0.3 mg/L TP at the current design capacity of 2.0 mgd. In order to expand the capacity of the NERAWWTP beyond the currently permitted flow of 2.0 mgd, the County proposes to maintain the nutrient cap by transferring nitrogen and phosphorus credits

to the NERAWWTP under MDE's Nutrient Cap Management and Trading Policy by the following means:

1. Operate the NERAWWTP for enhanced performance with a target effluent TN of 3.0 mg/L and effluent TP of 0.12 mg/L at the future capacities. The plant has been upgraded to and operating at ENR level since June 2016. With the completion of the ENR upgrade, the total nitrogen allocation (TN) permitted increased to 27,038 lbs/year (and credits). It is anticipated that future upgrades to the NERAWWTP will be necessary to serve the projected growth in the central portion of the County's growth area. As the County's population increases to a projected 135,450 persons in 2040, the maximum expected expansion of the facility's capacity to approximately 9.1 mgd may need to occur.

2. Connect existing houses within the County currently served by septic systems to the NERAWWTP collection system and remove the septic systems from service. Areas of the County with failing septic systems near the Chesapeake Bay will be targeted, including Holloway Beach, Cara Cove, Red Point, and Hances Point. Additional septic systems will be connected in areas where sewer extension projects are planned. An important aspect of this scenario is the health benefit to be realized through the elimination of the failing septic systems.

3. Decommission minor WWTPs and community on-site disposal systems, and connect the service area to the NERAWWTP collection system. Facilities being considered for potential projects include those in the Hances Point area, such as Shelter Cove and Bay Boat Works. Other facilities will be considered as opportunities for decommissioning become available. Please refer to Section 4.1.9.C for additional detail regarding other projects.

4. Nutrient credits will also be transferred to the NERAWWTP as a result of the Elkton West collection system construction.

5. Nutrient credits will be generated by the connection of properties with existing septic systems that currently have access to existing sewer.

6. The removal from the Chesapeake Bay of the flow from the Cherry Hill WWTP and potentially the flow from the CECO Utilities WWTP will permit credits to be available to NERAWWTP.

7. The County will seek to use Development Rights Trading Credits as opportunities become available.

8. The County will seek to utilize water reuse opportunities at the NERAWWTP to reduce the quantity of water (and nutrients) discharged from the facility through beneficial reuse.

C. Collection System Expansion Projects

The following collection system expansion projects are proposed in the NERAWWTP service area:

1. *Elkton West and Route 40 Business Corridor* - This project consists of the area generally from the western boundary of the Town of Elkton to just west of Marley Road along the Route 40 corridor. Construction will start on the collection system, pump station, and force main in late 2018. The initial service area shall be located in the vicinity of Nottingham Road and Route 40 and provide a backbone for expansion into surrounding areas in this business corridor. Potential connection of the ATK Orbital site and possibly Triumph Industrial Park are being considered. The sewer will be extended in phases to meet future demand within the service area.

2. *East Old Philadelphia Road Collection System* - This project will construct gravity sewer, force main, and one pump station in the vicinity of Whispering Pines Mobile Home Park. It will decommission on-lot septic systems in accordance with the Maryland Chesapeake Bay Watershed Implementation Plan, improve water quality, eliminate potential public health concerns, earn nutrient credits for NERAWWTP expansion, and help meet the nutrient TMDL (total maximum daily load) for the Northeast River.

3. *West Old Philadelphia Road Collection System* - This project will construct a sewer collection system consisting of gravity sewer, force main and one pump station south of Route 40 from Wells Camp Road to the west of Red Toad Road. It will decommission on-lot septic systems in accordance with the Maryland Chesapeake Bay Watershed Implementation Plan, improve water quality, eliminate potential public health concerns, earn nutrient credits for NERAWWTP expansion, and help meet the nutrient TMDL (total maximum daily load) for the Northeast River.

4. *Hances Point Sewer Collection System* - This project will construct pump stations, force main, gravity sewer, and pressure sewer to service the Hances Point Road community. It will decommission on-lot septic systems in accordance with the Maryland Chesapeake Bay Watershed Implementation Plan, improve water quality, eliminate potential public health concerns, earn nutrient credits for NERAWWTP expansion, and help meet the nutrient TMDL (total maximum daily load) for the Northeast River.

5. *Route 40 Principio West Sanitary Sewer Collection System* - This project will construct sewer pump stations, force mains and gravity and pressure sewers to service the area along Route 40 to serve the area west of Belvidere Road to approximately Jackson Station Road. Conveyance will be to the Northeast River Advanced WWTP. This project will provide sewage collection facilities for future economic development in the Route 40 business corridor.

6. *Route 40 West Sanitary Sewer Collection System* - This project will construct gravity sewers to provide sewer service for future development in the Route 40 business corridor from

Route 272 to east of Cool Spring Road. This project will be completed in three phases. Phase 1 involves construction of a gravity sewer from the high point west of Red Toad Road to the Stoney Run Sewer Interceptor on Wells Camp Road. Phase 2 consists of a pump station, force main, and gravity sewer to connect to the terminus of Phase 1. Phase 3 involves construction of gravity sewer from Cool Springs Road to the pump station constructed in Phase 2.

6. *Holloway Beach Sewer* - This project will provide sewer service to Holloway Beach. It will decommission on-lot septic systems in accordance with the Maryland Chesapeake Bay Watershed Implementation Plan, improve water quality, eliminate potential public health concerns, earn nutrient credits for NERAWWTP expansion, and help meet the nutrient TMDL (total maximum daily load) for the Northeast River.

D. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

4.1.10 Harbor View, Red Point Beach

A. *Harbor View* - Owned and operated by Cecil County, the Harbor View WWTP has a design flow of 0.065 mgd and is intended to serve all recorded lots within the Harbor View subdivision (including undeveloped lots with no dwellings erected on them) and the Harbor North Marina. The treatment plant is a packaged, extended aeration plant with chlorination, dechlorination, and post aeration, with a 2,200 linear foot discharge pipe into the Elk River. The WWTP will be upgraded to ENR with construction expected to start in the summer of 2018.

B. *Red Point Beach* - The Department of Public Works proposes, as part of the Capital Improvement Program, construction of a sewer collection system and ENR WWTP in the Red Point Beach area of the County. This project will construct pump stations, force mains, and pressure and gravity sewers along with a packaged treatment facility (with an approximate capacity of 50,000 gpd) for the Red Point community. This will decommission on-lot septic systems in accordance with the Maryland Chesapeake Bay Watershed Implementation Plan, improve water quality, eliminate potential public health concerns, earn nutrient credits for NERAWWTP expansion, and help meet the nutrient TMDL (total maximum daily load) for the Northeast River.

4.1.11 Cherry Hill, Highlands, Meadowview

A. *Cherry Hill* – Owned and operated by Cecil County, the Cherry Hill WWTP lies within the Little Elk Creek Drainage Basin and presently serves the Cherry Hill Sanitary Subdistrict. The WWTP was upgraded in 2003 to increase its capacity from 0.080 mgd to 0.250 mgd.

MDE and the County have entered into an agreement to connect the CECO Utilities service area to the Cherry Hill WWTP collection system via pump station and force main. This will eliminate MDE's concerns regarding the poor level of treatment at the current CECO Utilities WWTP and take advantage of available capacity of the Cherry Hill WWTP.

Pursuant to the available capacity at the Cherry Hill WWTP being consumed and the proposed expansion at the Meadowview WWTP, the Cherry Hill WWTP will be converted to a pump station and the sewage effluent will be conveyed via force main for treatment at the Meadowview WWTP. The force main will also serve parcels 90, 102, 244, and 559 on tax map 21, the Cecil Manor Elementary School, and other lots adjoining the proposed force main alignment.

The proposed wastewater conveyance to the Meadowview WWTP will result in the removal of the Cherry Hill and CECO nutrient loads from the Chesapeake Bay, thereby further enhancing water quality.

B. Highlands – Wastewater from this service area is conveyed via gravity sewer to the Meadowview WWTP for treatment.

C. *Meadowview* - Owned and operated by Cecil County, the Meadowview WWTP has a permitted capacity of 1.0 mgd conditioned on the elimination of possible biological and chemical hazards from aerosols from the oxidation ditch adjoining properties to the west and south.

The facility is contemplated to be upgraded to approximately 4.8 mgd to serve as the wastewater treatment facility for the Elkton West Franchise Area. The Meadowview WWTP discharges into the Christina River which in turn ultimately flows into the Delaware Bay. Maximizing treatment capabilities at this facility will eliminate nutrient discharge into the Chesapeake Bay.

D. Collection System Expansion Projects

The Elkton West service area has been identified as a growth area in the County. The first phase of the project proposes to provide preliminary engineering, design engineering, and construction of initial facilities to provide a sewer backbone allowing for expansion of the sewer service for this area. It will consist of the construction of a pump station in the vicinity of Belle Hill Road, Appleton Road, and/or the Big Elk Creek to convey sewer via force main under I-95 and on to the Meadowview WWTP.

Subsequent phases will build a network of gravity sewer, pump stations, and force mains to extend out from the backbone into the service area. It is expected that the parts of the service area currently treated by private onsite package treatment plants will eventually connect to the County sewer backbone.

E. Sewer Service Areas

Maps in Appendix C show the locations of the various service area categories.

APPENDIX A

GENERAL REFERENCES

GENERAL REFERENCES

1. Comprehensive Water and Sewerage Plan (1 970) by Buchart-Horn.

2. Comprehensive Water and Sewerage Plan; 1971, 1972 and 1973 Amendments by Frederick Ward Associates, Inc.

3. Comprehensive Water and Sewerage Plan; 1977 and 1981 Amendments by Frederick Ward Associates, Inc.

4. Master Plan - Solid Waste Management dated December, 1973 by Rummel-Klepper and Kahl.

5. Comprehensive Plan for Cecil County, Maryland; 1990 by RGH and Redman/Johnston Associates.

6. Soil Survey of Cecil County, Maryland by United States Department of Agriculture; Soil Conservation Service, December 1973.

7. Water Resources Report by James A. Humphreville, Consulting Geologist. Included as part of Buchart-Horn Report.

8. Cecil County Chesapeake Bay Critical Area Program (1987) by Rogers, Golden & Halpern and Redman/Johnston and Associates.

9. Department of State Planning; Maryland's Land: A Portrait of Changing Uses 1973-1985 (Nov. 1987).

10. Water Resources Administration Report, Volume II, Number 2 (1988).

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C. Overbeck, R.M. and Slaughter, T.H., 1985. The Water Resources of Cecil, Kent, and Queen Anne Counties, Maryland Geological Survey, Bull. 21.

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E. Maryland Geological Survey, 1968. Geologic Map of Maryland.

F. Maryland State Planning Department, Publication No. 152, 1969. Ground Water Aquifers and Minerals Commodities of Maryland.

G. Maryland Department of Natural Resources, Water Resources Administration. Water Supply Resources Planning Concept Document, Northeastern Cecil County, 1986.

APPENDIX B

TABLES

Cecil County 2018 Master Water & Sewer Plan
Appendix B – Table of Contents

KEY FOR ACRONYMS, ABBREVIATIONS, AND SYMBOLS IN TABLES AND TEXT

ASR	Aquifer storage and recovery
BNR/ENR	Biological Nutrient Removal /Enhanced Nutrient Removal
coag	Coagulation
COMAR	Code of Maryland regulations
char	Activated charcoal treatment
cl	Chlorination (disinfection)
CWA	Chester Water Authority
DePSC	Delaware Public Service Commission
DNREC	Delaware Department of Natural Resources and Environmental Control
DNR-WRA	Maryland Department of Natural Resources Water Resources Administration
DRBC	Delaware River Basin Commission
ENR	Enhanced nutrient reduction
fil	Filtration
GAP	Groundwater Appropriation and Use Permit
gpd	Gallons per day
ion	Ion exchange softening
MDE	Maryland Department of the Environment
MDP	Maryland Department of Planning
MdPSC	Maryland Public Service Commission
mgd	Million gallons per day
MHS	Mobile homes
NERAWWTP	Northeast River Advanced Wastewater Treatment Plant
NPDES	National Pollutant Discharge Elimination System

ph	PH adjustment
PDR	Preliminary Design Report
PFA	Priority Funding Area
PWA	Public Works Agreement
s	Season
SBR	Sequencing Batch Reactor
SEC	Federal Securities and Exchange Commission
sed	Sedimentation
SRBC	Susquehanna River Basin Commission
TAZ	Transportation Analysis Zone
TN	Total nitrogen allocation
TP	Total phosphorus
uv	Ultraviolet light treatment
WCMP	Water Supply Capacity Management Plan
WCPFA	Water Conservation Plumbing Fixtures Act
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
*	Maximum from water appropriations permit

Table 1 - 2018 Master Water & Sewer Plan - Population Projections

	2010 (census)	2016 (estimate)	2020	2025	2030	2035	2040	2045
Cecil County (entirety)	101,108	102,603	104,600	111,600	119,550	127,200	135,450	142,550

Notes

1) Cecil County (entirety) projections for the years 2020 through 2045 are taken from August 2017 projections by the Maryland Dept. of Planning. For details please see: http://www.mdp.state.md.us/msdc/S3_Projection.shtml

2) The 2016 population estimate is derived from US Census Bureau data released on May 25, 2017 and available on MDP's website at: http://www.mdp.state.md.us/msdc/Pop_estimate/Estimates/popest_md.shtml

Region	2016 Population Estimate	TAZs	Average % change (2010-2020)	2020 est. Population	Average % change (2020-2030)	2030 est. Population	Average % change (2030-2040)	2040 est. Population
Town of Cecilton (water & sewer)	675	parts of 950, 960, 970, and 980	12.88%	762	13.46%	864	10.90%	959
Town of Chesapeake City (water & sewer)	700	parts of 900, 910, 920, 930, and 940	5.19%	736	15.24%	849	10.95%	941
Town of Elkton (water & sewer)	15,744	All of 400, 410, 420, 430, and 480. Parts of 465, 470, 475, 490, 495, 500, 510, 511, 513, 515, 519, & 520	16.59%	18,356	17.16%	21,506	11.19%	23,912
Town of North East (water only, see Note #6)	3,650	Parts of 540, 545, 550, 551, 552, and 553	26.08%	4,602	26.91%	5,840	17.67%	6,872
Town of Charlestown (water only)	1,196	Parts of 565 & 570	5.37%	1,260	25.62%	1,583	16.50%	1,844
Town of Rising Sun (water & sewer)	2,799	Parts of 770 & 780	10.55%	3,094	16.15%	3,594	18.89%	4,273
Town of Perryville (water & sewer)	4,419	Parts of 695, 700, 705, & 720	18.48%	5,236	17.03%	6,127	7.36%	6,578

Town of Port Deposit (water & sewer)	767	Parts of 720, 730, and 740	7.60%	825	26.67%	1,045	9.92%	1,149
Cherry Hill (sewer only)	648	Parts of 585, 590, 591, and 630	12.10%	726	10.86%	805	9.71%	883
Harborview (sewer only)	329	Part of 940	-2.20%	322	4.13%	335	3.67%	347
Meadowview (sewer only) (includes Highlands as of 2015)	2,946	Parts of 503, 505, 600, and 610	7.88%	3,178	12.44%	3,574	9.94%	3,929
North East River Adv. WWTP (sewer only)	13,430	Parts of 535, 540, 543, 545, 551, 552, 553, 555, 560, 565, 570, & 680	33.29%	17,901	25.89%	22,535	16.65%	26,288

Notes:

1) The 2016 population estimates for the eight incorported towns are derived from US Census Bureau data released on May 25, 2017 and available on MDP's website at: http://www.mdp.state.md.us/msdc/Pop_estimate/Estimates/popest_md.shtml

2) The following methodology was used to determine the estimated population for the eight incorporated towns:
   a) The Transportation Analysis Zones (TAZ) within the service areas were identified;
   b) The percentage population change for each TAZ was derived from the Wilmapco source data;
   c) For service areas having more than one TAZ, the average percentage population change was determined;
   d) The previous year's population was then adjusted using the average percentage population change.

3) The current population for Meadowview (1,091 accounts), Cherry Hill (240 accounts), Harborview (122 accounts), and the NERA WWTP (4,974 accounts) represent the number of customer accounts (based on billing data) multiplied by the average household size (2.70 persons) from the 2010 US Census.

4) The same methodology used to estimate population for the incorporated towns was also used for the four sanitary sewer service areas.

5) Data source = Wilmapco population projections by TAZ dated May 11, 2017.

6) The Town of North East projections contained within this table pertain solely to the incorporated town boundary.

7) The May 11, 2017 Wilmapco population projections do not go beyond the year 2040. As such, the town and sewer service area projections that rely on population projections by TAZ also stop at the year 2040. To estimate population for these areas using the County wide average change projected for 2040-2045 would do a disservice, as it would ignore unique population drivers in these smaller areas.

Table 2 - Land in County

Cecil County's total acreage is approximately 223,700 acres

Breakdown of Total Acreage by Land Use Categories from the Comprehensive Plan

Land Use Category	*Total Acreage*	*% of total*
Employment Mixed Use	795	0.36
Residential Mixed Use	655	0.29
Low Density Growth Area	15,125	6.76
Medium Density Growth Area	12,281	5.49
Medium High Density Growth Area	3,310	1.48
High Density Growth Area	4,084	1.83
Employment	5,659	2.53
Mineral Extraction District	8,442	3.77
Rural Conservation District	95,819	42.83
Resource Protection District	63,469	28.37
Villages	1,641	0.73
Incorporated Town	12,423	5.55

source: Table 3.5, 2010 Cecil County Comprehensive Plan

Note: Due to annexations, the Incorporated Towns total 12,971 acres as of April 2018

Breakdown of Total Acreage by Zoning Districts

Land Use Category	*Total Acreage per 2011 calcs*	*% of total*
BG (Business General)	1,420.52	0.64
BI (Business Intensive)	312.77	0.14
BL (Business Local)	141.39	0.06
EMU (Employment Mixed Use)	576.72	0.26
LDR (Low Density Residential)	14,762.91	6.60
M1 (Light Industrial)	1,819.74	0.81
M2 (Heavy Industrial)	3,902.92	1.74
MB (Maritime Business)	365.86	0.16
MEA (Mineral Extraction A)	5,496.17	2.46
MH (Manufactured Home)	2,272.67	1.02
NAR (Northern Agricultural Residential)	64,035.58	28.63
OS (Open Space)	17,444.68	7.80
RM (High Density Residential)	3,712.42	1.66
RMU (Residential Mixed Use)	418.93	0.19
RR (Rural Residential)	19,871.90	8.88

SAR (Southern Agricultural Residential)	53,839.88	24.07
ST (Suburban Transition Residential)	10,476.01	4.68
UR (Urbanized Residential)	2,057.61	0.92
VR (Village Residential)	653.16	0.29
Incorporated Towns	12,971.00	5.80
Open Water	7,150.16	3.20

Table 3 - Projected Water Supply Demands and Planned Capacity

Municipally-Owned Community Water Supply Systems

System ID	Name	Plant Name	2017			2020		
			Population Served	ADF (MGD)	Capacity (MGD)	Population Served	ADF (MGD)	Planned Capacity (MGD)
007004	Town of Cecilton *(all numbers include the Pearce Creek service area)*	WTP Well 2, 3A	1,375	0.042	0.098	1,462	0.136	0.183
0070006	Chesapeake City	Service provided by Artesian via interconnect along Biddle St at Delaware state border	700	0.090	0.400	736	0.119	0.400
0070011	Town of Elkton	Big Elk Creek Filter Plant Holly Hall (Wells 1R & 3) Holly Hall (Well 2R) Holly Hall (Well 4) Well 5 (200 W Pulaski Hwy)	15,744	1.533	1.500 0.650 0.100 0.500 0.100	18,356	1.82	2.850
0070016	Town of North East (includes areas beyond town borders)	Rolling Mill WTP & Leslie WTP	8,390	0.644	0.325 1.383	11,122	1.12	2.267
0070018	Town of Perryville	Susquehanna FILT PLT	4,419	0.439	1.000	5,236	0.53	2.000
0070021	Town of Rising Sun	Pumphouse Well 1,2,3,5,11 Pumphouse Well 6	2,799	0.171	0.193 0.067	3,094	0.31	0.750
0070029	Town of Charlestown	Pumphouse Well 1,2,3	1,196	0.089	0.207	1,260	0.132	0.207
0070032	Route 7 Distribution System	Service provided by Artesian through a purchase agreement with Elkton and a future interconnection with North East	23	0.0044	-	24	0.0044	0.010

Table 3 - Projected Water Supply Demands and Planned Capacity

Municipally-Owned Community Water Supply Systems

System ID	Name	Plant Name	2030			2040		
			Population Served	ADF (MGD)	Capacity (MGD)	Population Served	ADF (MGD)	Planned Capacity (MGD)
007004	Town of Cecilton (including Pearce Creek service area)	WTP Well 2, 3A	1,564	0.148	0.183	1,659	0.16	0.183
0070006	Chesapeake City	Service provided by Artesian via interconnect along Biddle St at Delaware state border	849	0.137	0.400	941	0.152	0.400
0070011	Town of Elkton	Big Elk Creek Filter Plant Holly Hall (Wells 1R & 3) Holly Hall (Well 2R) Holly Hall (Well 4) Well 5 (200 W Pulaski Hwy)	21,506	2.130	2.850	23,912	2.361	2.850
0070016	Town of North East	Rolling Mill WTP & Leslie WTP	14,141	1.420	2.267	16,688	1.669	2.267
0070018	Town of Perryville	Susquehanna FILT PLT	6,127	0.637	2.000	6,578	0.698	2.000
0070021	Town of Rising Sun	Pumphouse Well 1,2,3,5,11 Pumphouse Well 6	3,594	0.350	0.750	4,273	0.383	0.75
0070029	Town of Charlestown	Pumphouse Well 1,2,3	1,583	0.167	0.207	1,844	0.195	0.207
0070032	Route 7 Distribution System	Service provided by Artesian through a purchase agreement with Elkton and a future interconnection with North East	26	0.0044	0.010	28	0.0044	0.010

Notes

1) Cecil County (entirety) projections for the years 2020 through 2045 are taken from August 2017 projections by the Maryland Dept. of Planning. For details please see: http://www.mdp.state.md.us/msdc/S3_Projection.shtml

2) The 2016 population estimate is derived from US Census Bureau data released on May 25, 2017 and available on MDP's website at: http://www.mdp.state.md.us/msdc/Pop_estimate/Estimates/popest_md.shtml

Table 4 - Inventory of Existing Community System Wells

Well Name or Number	Owner	Permit Number	Aquifer	Location (coordinates)	Depth (Feet)	Diameter (Inches)	Max Safe Yield (gpm)	Pumping Capacity (gpm)	Water Quality
Pine Hills Well #1	Artesian	CE-81-2915	Lower Patapsco	N691043.46 E1626436.1	268	6	120	120	Good
Pine Hills Well #2	Artesian	CE-73-3908	Lower Patapsco	N691020.1 E1626511.5	265	6	120	120	Good
Pine Hills Well #3	Artesian	CE-95-0349	Lower Potomac	N691844.4 E1625397.5	298	8	350	350	Good
Harbor View Well #1	Artesian	CE-73-2410	Lower Patapsco	N673057.78 E1630163.89	90	4	50	55	Good
Harbor View Well #2	Artesian	CE-94-0110	Lower Patapsco	N673057.78 E1630163.89	92	6	50	60	Good
Harbor View Well #3	Artesian	CE-95-1690	Lower Potomac	N673232.16 E1630039.91	625	4	50	50	Good
Meadowview Fletchwood Well	Artesian	CE-73-6885	Lower Patapsco	N726005.6 E1651144.05	68	6	240	240	Good
Meadowview Sycamore Well	Artesian	CE-73-1690	Lower Patapsco	N725709.92 E1650802.6	68	12	140	140	Good
Mountain Hill Well #1	Artesian	CE-95-0945	Lower Patapsco	N 696248.0743 E 1592572.6082	132	8	90	85	Good
Mountain Hill Well #2	Artesian	CE-95-1453	Lower Patapsco	N 696123.3910 E 1591024.0392	152	8	200	180	Good
Mountain Hill Well #3	Artesian	CE-95-3375	Lower Patapsco	N 696010.001 E 1590009.562	115	8	105	100	Good
Carpenters Point Well #1	Artesian	CE-81-0339	Lower Potomac	N685675.85 E1592115.972	90	6	85	60	Good
Carpenters Point Well #2R	Artesian	CE-16-0136	Lower Potomac	N685546.197 E1591994.155	123	6	200	50	Good
Carpenters Point Well #3	Artesian	CE-94-2653	Lower Potomac	N685464.986 E1591842.419	120	6	275	60	Good
Chestnut Point Estates	Artesian	CE1968 G010(04)	Lower Potomac	N 689799 E 1591167	117	4	35	35	Good

Table 4 - Inventory of Existing Community System Wells (page 2)

Well Name or Number	Owner	Permit Number	Aquifer	Location (coordinates)	Depth (Feet)	Diameter (Inches)	Max Safe Yield (gpm)	Pumping Capacity (gpm)	Water Quality
Elkton - Well 3	Town of Elkton	CE-04-5556	Potomac	39.603255 N 75.792923 W	156	12	550	550	Good
Elkton - Well 2R	Town of Elkton	CE-10-0297	Potomac	39.597688 N 75.823868 W	171	8	160	160	Good
Elkton - Well 5	Town of Elkton	CE-13-0053	Potomac	39.599478 N 75.835812 W	148	8	120	120	Good
Cecilton - Well #1	Town of Cecilton	CE-95-0476	Magothy	39.4012252 N 75.8717853 W	300	8	250	250	Good
Cecilton - Well #2	Town of Cecilton	CE-95-0477	Magothy	39.4014234 N 75.8715516 W	300	8	250	250	Good
Charlestown - Well #1	Town of Charlestown	CE-88-2612	Lower Potomac	39 34' 25.47"N 75 58' 46.92"W	137	6"	100	100 gpm	Good
Charlestown - Well #2	Town of Charlestown	CE-88-1910	Lower Potomac	39 34' 31.76"N 75 58' 46.98" W	132'	6"	100	100 gpm	Good
Charlestown - Well #3	Town of Charlestown	CE-88-2017	Lower Potomac	39 34' 37.95"N 75 58' 53.70" W	99'	6"	Not Used (no pump in well)	Not Used (no pump in well)	Undetermined
Rising Sun - Well #1	Town of Rising Sun	Will be taken offline following CWA interconnect completion in January 2019.			85-400 ft	Will be taken offline following CWA interconnect completion in January 2019.			Good
Rising Sun - Well #3	Town of Rising Sun				85-400 ft				Good
Rising Sun - Well #5	Town of Rising Sun				85-400 ft				Good
Rising Sun - Well #8	Town of Rising Sun				85-400 ft				Good
Rising Sun - Well #12	Town of Rising Sun				85-400 ft				Good

Note: The Town of Perryville (Susquehanna River) and Town of North East (North East Creek) do not use wells as a water source.
The Town of Port Deposit receives its water from the Susquehanna River. No wells are involved.
The Town of Chesapeake City receives its water from an Artesian Water pipeline.

Table 5
INVENTORY OF EXISTING RAW WATER IMPOUNDED SUPPLIES

Location	Dam Location	Crest Elevation (FT)	Spillway Length	Total Length of Dam (FT)	Height of Crest Above Stream Bed (FT)	Flood Area of Crest Elevation (Acres)	Length of Shore Line (Linear Feet)	Area of Land Owned (Acres)	Reservoir Capacity (MG)	Safe Yield (MG)	Average Daily Withdrawal (MGD)
Elkton	Big Elk Creek	12.75	--	105	6.75	--	--	--	*	--	1.5
North East	WTP site	--	5	30	8.9	1.7	830	17.5	2	-	1.2

* = Raceway 1.0 MG, plus 2 reservoirs 1.8 MG (Combined), (Red Hill Rd. - Rt. 281)
-- Data not available

Table 6 - Inventory of Existing Water Treatment Facilities

ARTESIAN WATER MARYLAND - COMMUNITY WATER SYSTEMS - EXISTING TREATMENT FACILITIES

System	Owner	Water Source	Type Treatment	Plant Location	Rated Plant Capacity (MGD)	Average Plant Capacity (MGD)	Max Peak Flow (MGD)	Storage Capacity	Planned Expansion (MGD) Dates	Method of Sludge Disposal	Operating Agency
Pine Hills	Artesian Water Maryland	Three Wells	Disinfection, pH adjustment, and corrosion inhibitor	94 Arbutus St, Elkton, MD	0.191	0.110	0.191	200,000 gallon standpipe	n/a	n/a	Artesian Water Maryland
Harbor View	Artesian Water Maryland	Three Wells	Disinfection, pH adjustment, and corrosion inhibitor	84 Basin Rd, Chesapeake City, Md	0.07	0.05	0.07	2 -5,000 gallon hydropneumatic tanks	n/a	n/a	Artesian Water Maryland
Meadowview	Artesian Water Maryland	Two Wells with AWC (3.0 MGD) and United (back-up) interconnections	Disinfection, pH adjustment, and corrosion inhibitor	235 Fletchwood Rd, Elkton, MD	0.185	0.185	0.275	800,000 gallon tank	2019	n/a	Artesian Water Maryland
Mountain Hill	Artesian Water Maryland	Three Wells	Disinfection, pH adjustment, and corrosion inhibitor	1875 W Old Philadelphia Rd, North East, MD	0.4	0.4	0.4	500,000 gallon elevated tank	1.0 (2019)	n/a	Artesian Water Maryland
Carpenters Point	Artesian Water Maryland	Three Wells	Disinfection, pH adjustment, and corrosion inhibitor	1595 Carpenters Point Rd, Perryville, MD	0.25	0.25	0.25	75,000 gallon elevated tank	1.0 (2019)	n/a	Artesian Water Maryland
Port Deposit	Artesian Water Maryland	Susquehanna River	Disinfection, pH adjustment, and corrosion inhibitor	401 N Main St, Port Deposit, MD	0.86	0.1	0.86	500,000 gallon elevated tank	See Note #1	n/a	Artesian Water Maryland
Chestnut Point Estates	Artesian Water Maryland	One well	Disinfection, pH adjustment, and corrosion inhibitor	35 White Oak Dr, Perryville, MD	0.012	TBD	0.018	18,000 gallon elevated tank	n/a	n/a	Artesian Water Maryland

Note #1 1.1 MGD Treatment = 2018-2020
10 MG Storage = 2018-2020
1.0 + MGD Treatment = 2018-2020

Table 6 - Inventory of Existing Water Treatment Facilities (page 2)

MUNICIPAL COMMUNITY WATER SYSTEMS - EXISTING TREATMENT FACILITIES

System	Owner	Water Source	Type Treatment	Plant Location	Rated Plant Capacity (MGD)	Average Plant Capacity (MGD)	Max Peak Flow (MGD)	Storage Capacity	Planned Expansion (MGD) Dates	Method of Sludge Disposal	Operating Agency
Cecilton	Town of Cecilton	Two wells	Catalytic sand media in two pressure filters.	233 S Bohemia Ave, Cecilton, MD	0.176	0.098	0.163	400,000 gallon elevated storage tank.	n/a	n/a	John Neddo
Elkton	Town of Elkton	Big Elk Creek Filter Plant	Coagulation, flocculation, tube settlers, mixed media filtration	109 Delaware Ave, Elkton, MD	2	1.5	2	See Section 3.2.6 of text for details	n/a	n/a	Inframark
Fair Hill State Park	State of Maryland	Wells	TBD	4493 Telegraph Rd, Elkton, MD	TBD	0.012	0.062	150,000 gallon elevated storage tank.	n/a	n/a	Maryland Environmental Service
North East	Town of North East	Rolling Mill Water Treatment Plant	two filter trains (provision for third)	39 Rolling Mill Ln, North East, MD	2	0.644	1.383	See Section 3.2.7 of text for details	n/a	n/a	EnTech Engineering
North East	Town of North East	Leslie Water Treatment Plant	chlorine dioxide, flocculators, and ultraviolet disinfection	39 N Leslie Rd, North East, MD	0.83	0.325	0.644	See Section 3.2.7 of text for details	n/a	n/a	EnTech Engineering
Charlestown	Town of Charlestown	Three wells	iron removal, pH adjustment, and disinfection	481 Frederick St, Charlestown MD	0.18	0.207	0.3	500,000 gallon elevated storage tank.	None	n/a	Miller Environmental
Perryville	Town of Perryville	Susquehanna Filtration Plant	Flocculation, membrane filtration, chlorine disinfection	1 Water Plant Dr, Perryville, MD	2	0.5	1	500,000 gallon tank at I-95 and a 1 million gallong tank adjacent to Hollywood Casino	Unknown	n/a	Town of Perryville
Rising Sun	Town of Rising Sun	Five wells	Water is purchased from Chester Water Authority	100 Dairy St, Rising Sun, MD	0.24	0.181	0.22	500,000 gallon elevated storage tank.	n/a	n/a	Town of Rising Sun

Table 6A - Private Community and Non-Community Water Supply Systems

Well Name	Well number(s)	Aquifer	Depth of well (feet)	Diameter of well (inches)	*Public water supply inventory number*	*Allocated average*	*Map*	*Parcel*	*Water use*
Alliant Techsystems Operations		Patuxent Formation			*1070052*	*40,000*	*26*	*127,482*	*Institutional Drinking/Sanitary*
Arrowhead Acres	CE945746	Nonmarine Cretaceous Aquifer	400	6	*70001*	*2,200*	*29*		*Trailer Park/Apartment Bldg/Condo*
Arrowhead Acres	CE660512	Nonmarine Cretaceous Aquifer	40	6					
Bay Country Estates	CE660196	James Run Formation	49	6	*70207*	*25,000*	*18*	*82,155,255*	*Trailer Park/Apartment Bldg/Condo*
Bay Country Estates	CE690306	James Run Formation	61	6					
Bay Country Estates	CE810212	James Run Formation	200	6					
Bay Country Estates	CE810015	James Run Formation	200	6					
Benjamin's Village/Homestead MHP	CE730335	Port Deposit Gneiss	90	15	*70209*	*20,900*	*23*	*240*	*Trailer Park/Apartment Bldg/Condo*
Benjamin's Village/Homestead MHP	CE660444	Port Deposit Gneiss	50	30	*70209*	*20,900*	*23*	*240*	*Trailer Park/Apartment Bldg/Condo*
Benjamin's Village/Homestead MHP	CE700157	Port Deposit Gneiss	96	10	*70209*	*20,900*	*23*	*240*	*Trailer Park/Apartment Bldg/Condo*
Benjamin's Village/Homestead MHP	CE730225	Port Deposit Gneiss	90	40	*70209*	*20,900*	*23*	*240*	*Trailer Park/Apartment Bldg/Condo*
Benjamin's Village/Homestead MHP	CE942983	Port Deposit Gneiss	80	50	*70209*	*20,900*	*23*	*240*	*Trailer Park/Apartment Bldg/Condo*
Brantwood Court MHP	CE952027	Lower Patapsco Aquifer	318	6		*2,000*	*38*	*197,317*	*Trailer Park/Apartment Bldg/Condo*
Brantwood Court MHP	CE881133	Lower Patapsco Aquifer	312	4					
Bright Tower Properties,LLC Apartments	CE882295	Patuxent Formation	105	6		*2,100*	*26*	*58*	*Trailer Park/Apartment Bldg/Condo*
Buttonwood Beach RV Resort	CE730885	Upper Patapsco Aquifer	120	8	*1071025*	*30,000*	*51*	*31*	*Recreational Drinking/Sanitary*
Buttonwood Beach RV Resort	CE730774	Upper Patapsco Aquifer	120	8					
Calvert Manor Healthcare Center	CE660030	Baltimore Gabbro Complex	158	6	*70206*	*10,700*	*11*	*139,140,*	*Institutional Drinking/Sanitary*

Calvert Manor Healthcare Center	CE812044	Baltimore Gabbro Complex	275	6					
Camp Shadowbrook Girl Scout Camp		Ultramafic And Gabbroic Rocks			1071015	5,000	8	54,179,55	Recreational Drinking/Sanitary
Cecil Manor Elementary Scool		James Run Formation			1070007	4,000	21	173	Institutional Drinking/Sanitary
Cecil Woods MHP	CE812944	Port Deposit Gneiss	200	50	70244	30,200	25	731,110	Trailer Park/Apartment Bldg/Condo
Cecil Woods MHP	CE880594	Port Deposit Gneiss	240	50					
Cecil Woods MHP	CE950646	Port Deposit Gneiss	300	30					
Cecil Woods MHP	CE950647	Port Deposit Gneiss	300	30					
Cecil Woods MHP	CE100074	Port Deposit Gneiss	300	UNK					
Cecil Woods MHP	CE100075	Port Deposit Gneiss	260	UNK					
Cecilton MHP	CE811703	Magothy Formation	325	4	70236	4,000	63	49	Trailer Park/Apartment Bldg/Condo
Cherry Hill Plaza	CE811134	Port Deposit Gneiss	160	6	1071229	4,500	20	52	Commercial Drinking/Sanitary
Cherry Hill Plaza	CE811747	Port Deposit Gneiss	225	6					
Cherry Hill Plaza	CE812286	Port Deposit Gneiss	175	6					
Cherry Wood Apartments		Port Deposit Gneiss				9,600	20	821	Trailer Park/Apartment Bldg/Condo
Chesapeake Estates MHP	CE952025	Upper Patapsco Aquifer	260	4	70211	11,200	43	26	Trailer Park/Apartment Bldg/Condo
Christopher Diebold Apartment	CE943012	Volcanic Complex Of Cecil County	500	10		2,800	19	468	Trailer Park/Apartment Bldg/Condo
Cinnamon Woods MHP	CE881737	Baltimore Gabbro Complex	250	6	70246	31,600	8	87	Trailer Park/Apartment Bldg/Condo
Cinnamon Woods MHP	CE881199	Baltimore Gabbro Complex	250	6					
College Crossing Shopping Center	CE946533	James Run Formation	200	6		2,000	19	612	Commercial Drinking/Sanitary
Conowingo MHP	CE710047	Baltimore Gabbro Complex	90	6	70214	20,000	8	8	Private Water Supplier
Conowingo MHP	CE732978	Baltimore Gabbro Complex	136	6					
Conowingo MHP	CE710046	Baltimore Gabbro Complex	120	6					
Conowingo Veteran's Center		Ultramafic And Gabbroic Rocks			1071358	2,400	8	41	Trailer Park/Apartment Bldg/Condo
Crab Shack		Potomac Group-Deposits			1071069	2,000	43	90	Commercial Drinking/Sanitary
Craft Haven	CE732605	Patuxent Formation	79	4	1071070	7,300	35	421	Commercial Drinking/Sanitary

Craft Haven	CE690089	Patuxent Formation	67	unk					
Craft Haven	CE882600	Patuxent Formation	77	4					
Crystal Beach Manor	CE941759	Upper Patapsco Aquifer	215	4	70008	32,000	56	109	Private Water Supplier
Crystal Beach Manor	CE880737	Upper Patapsco Aquifer	220	6					
Elk Neck State Park Rogues Harbor/Wirstins		Nonmarine Cretaceous Aquifer			1071167	21,000	45,46, 50		Recreational Drinking/Sanitary
Elk View	CE027841	Lower Patapsco Aquifer	173	4	70012	2,800	46	97	Private Water Supplier
Elkside	CE710012	Lower Patapsco Aquifer	281	6	70010	4,300	38	56	Private Water Supplier
Elkton Christian School	CE810604	Baltimore Gabbro Complex	250	25	1070014	3,300	27	855,713	Institutional Drinking/Sanitary
Fair Hill State Park	CE945191	Port Deposit Gneiss	300	6	1071278	12,000	13	385	Recreational Drinking/Sanitary
Fair Hill State Park	CE944454	Port Deposit Gneiss	137	4					
Forest Green Court MHP	CE945911	Port Deposit Gneiss	520	6	70217	23,300	26	12,535,293	Trailer Park/Apartment Bldg/Condo
Golden Kay Apartments	CE810499	Patuxent Formation	101	6	70202	5,600	26	62	Trailer Park/Apartment Bldg/Condo
Graymount Apartments	CE945022	Potomac Group Deposits	112	4	70203	3,500	26	63	Trailer Park/Apartment Bldg/Condo
Highlands MHP	CE943377	Port Deposit Gneiss	400	20	70247	21,000	23	153,165,89	Trailer Park/Apartment Bldg/Condo
Highlands MHP	CE943437	Port Deposit Gneiss	400	15					
Highlands MHP	CE946364	Port Deposit Gneiss	UNK	UNK					
Highlands MHP	CE731763	Port Deposit Gneiss	200	6					
Highlands MHP	CE051217	Port Deposit Gneiss	UNK	UNK					
Highlands MHP	CE670179	Port Deposit Gneiss	80	6					
Indian Acres	CE880041	Magothy Formation	278	6	1071115	90,000	62	9	Trailer Park/Apartment Bldg/Condo
Indian Acres	CE946192	Magothy Formation	275	100					
Indian Acres	CE733504	Magothy Formation	278	6					
ISE America		Magothy Formation			1070058	43,000	63	4	Food Processing (Onsite)
Leeds Elementary School	CE670312	Port Deposit Gneiss	162	6	1070020	2,700	20	418	Institutional Drinking/Sanitary
Leeds Singerly, LLC Apartment complex		Port Deposit Gneiss				2,400	20	763	Trailer Park/Apartment Bldg/Condo

Maple Hill MHP	CE720222	Port Deposit Gneiss	56	50	70223	18,100	23	344	Trailer Park/Apartment Bldg/Condo
Maybelle Manor MHP	CE920286	Baltimore Gabbro Complex	500	15	70248	7,500	8	82,109,144	Trailer Park/Apartment Bldg/Condo
Maybelle Manor MHP	CE920287	Baltimore Gabbro Complex	500	13					
Misty Meadows 2	CE943438	Port Deposit Gneiss	500	12	70249	9,000	23	617,465	Trailer Park/Apartment Bldg/Condo
Mount Aviat Academy		Port Deposit Gneiss			1070024	4,500	20	165	Educational Drinking/Sanitary
North Bay Adventure Camp		Nonmarine Cretaceous Aquifer			1071018	40,000	46	12	Institutional Drinking/Sanitary
Oak Lane MHP	CE680096	Port Deposit Gneiss	200	6	70226	6,500	23	301	Trailer Park/Apartment Bldg/Condo
Oblates of St Francis-Blue Ball Rd	CE940582	James Run Formation	320	6	1071359	4,000	26	9	Institutional Drinking/Sanitary
Octoraro MHP	CE010616	Conowingo Diamictite	25	6	70227	1,800	9	129	Trailer Park/Apartment Bldg/Condo
Octoraro MHP	CE941959	Conowingo Diamictite	220	6					
Pleasant Hill MHP	CE670002	Port Deposit Gneiss	225	UNK	70230	2,200	13	199	Trailer Park/Apartment Bldg/Condo
Pleasant Hill MHP	CE650034	Port Deposit Gneiss	74	UNK	70230	2,200	13	199	Trailer Park/Apartment Bldg/Condo
Pleasant Hill MHP	CE882363	Port Deposit Gneiss	300	20	70230	2,200	13	199	Trailer Park/Apartment Bldg/Condo
Pleasant View Baptist Church	CE732374	Port Deposit Gneiss	125	6	1070021	1,500	23	18,172,173	Institutional Drinking/Sanitary
Port Herman Beach Condominium, Inc.	CE811191	Upper Patapsco Aquifer	386	6	70027	7,600	37	313	Trailer Park/Apartment Bldg/Condo
Port Herman Beach Condominium, Inc.	CE943495	Upper Patapsco Aquifer	70	6					
Prost German Restaurant	CE733737	Port Deposit Gneiss	300	6	1071010	2,000	23	95,613	Commercial Drinking/Sanitary
Recovery Centers of America	CE150194	Magothy Formation			1070065	15,700	61	12	Institutional Drinking/Sanitary
Recovery Centers of America	CE150195	Magothy Formation							
Rising Sun Elementary School	CE881478	Lower Pelitic Schist Of Wissahickon Formation	575	6	1070027	5,400	10	360	Institutional Drinking/Sanitary

Rising Sun Elementary School	CE029199	Lower Pelitic Schist Of Wissahickon Formation	162	8					
Rising Sun High School	CE880687	Wissahickon Formation	140	6	*1070044*	*9,300*	*12*	*357*	*Institutional Drinking/Sanitary*
Rock Creek MHP	CE700253	James Run Formation	168	6	*70233*	*20,000*	*19*	*280, 313*	*Trailer Park/Apartment Bldg/Condo*
Rock Creek MHP	CE881135	James Run Formation	148	6					
Rock Creek MHP	CE690035	James Run Formation	63	6					
Rock Creek MHP	CE690326	James Run Formation	207	6					
Rock Creek MHP	CE710229	James Run Formation	150	8					
Rock Creek MHP	CE731009	James Run Formation	UNK	UNK					
Rock Creek MHP	CE733059	James Run Formation	UNK	UNK					
Rock Creek MHP	CE813647	James Run Formation	380	6					
Rock Creek MHP	CE710111	James Run Formation	145	6					
Rock Creek MHP	CE710157	James Run Formation	105	6					
Rock Creek MHP	CE882380	James Run Formation	450	6					
Rodney Scout Camp	CE690267	Lower Patapsco Aquifer	130	8	*1071123*	*8,300*	*41*	*89*	*Recreational Drinking/Sanitary*
Rodney Scout Camp	CE002124	Lower Patapsco Aquifer							
Rodney Scout Camp	CE950982	Lower Patapsco Aquifer	174	6					
Rodney Scout Camp	CE812235	Lower Patapsco Aquifer	174	8					
S And Y Properties, LLC Apartments & store		Nonmarine Cretaceous Aquifer				*1,800*	*25*	*225*	*Trailer Park/Apartment Bldg/Condo*
Sandy Cove		Nonmarine Cretaceous Aquifer			*1070053*	*46,000*	*36*	*148,381*	*Institutional Drinking/Sanitary*
Sandy Hill Camp	CE940609	Lower Patapsco Aquifer	300	6	*1071141*	*9,900*	*46*	*15*	*Institutional Drinking/Sanitary*
Shelter Cove Marina	CE943119	Patuxent Formation	not drilled		*1071238*	*3,900*	*36*	*349*	*Private Water Supplier*
Shelter Cove Marina	CE732771	Patuxent Formation	92	6					
Sherwood Forest/Forest View Village MHP	CE813025	Potomac Group Deposits	120	4	*70250*	*25,400*	*32*	*23*	*Private Water Supplier*
Sherwood Forest/Forest View Village MHP	CE813024	Potomac Group Deposits	120	4					
Skipjack Cove Marina	CE881048	Magothy Formation	289	6	*1071239*	*8,500*	*67*	*3*	*Commercial Drinking/Sanitary*
Skipjack Cove Marina	CE881084	Magothy Formation	267	6					
Skipjack Cove Marina	CE881085	Magothy Formation	330	4					
Timber Grove MHP	CE880238	Baltimore Gabbro Complex	160	6	*70245*	*7,800*	*3*	*29*	*Private Water Supplier*
Town & Country MHP	CE660547	Patuxent Formation	71	UNK	*70235*	*36,000*	*25*	*486*	*Trailer Park/Apartment Bldg/Condo*
Town & Country MHP	CE731092	Patuxent Formation	50	6					

Triton Marina	CE952503	Lower Patapsco Aquifer	145	4	1071343	6,100	37	368	Commercial Drinking/Sanitary
Triton Marina	CE733064	Lower Patapsco Aquifer	127	4					
Union Hotel Restaurant	CE881574	Port Deposit Gneiss	149	6	1071194	1,700	22	55	Commercial Drinking/Sanitary
Villages of North East		Nonmarine Cretaceous Aquifer	not built		70033	170,000	36	76	Private Water Supplier
Walter Cleveland Clark III Mobile home park		Baltimore Gabbro Complex				1,500	23	28	Trailer Park/Apartment Bldg/Condo
Warwick Mushroom Farm	CE952677	Magothy Formation	340	4	1070062	139,000	58	16	Institutional Drinking/Sanitary
Weaver's Apartments	CE670277	Potomac Group Deposits	102	15	70242	3,300	25	571,557,	Trailer Park/Apartment Bldg/Condo
Weaver's Apartments	CE690309	Potomac Group Deposits	57	6					
Weaver's Apartments	CE730615	Potomac Group Deposits	85	6					
Weaver's Apartments	CE011227	Potomac Group Deposits	UNK	UNK					
West Nottingham Academy	CE053998	Port Deposit Gneiss	92	10	70204	10,000	17	3	Institutional Drinking/Sanitary
West Nottingham Academy	CE930222	Port Deposit Gneiss	200	12	70204	10,000	17	3	Institutional Drinking/Sanitary
West Nottingham Academy	CE054001	Port Deposit Gneiss	40	20	70204	10,000	17	3	Institutional Drinking/Sanitary
West Nottingham Academy	CE942513	Port Deposit Gneiss	200	150	70204	10,000	17	3	Institutional Drinking/Sanitary
West Nottingham Academy	CE032198	Port Deposit Gneiss	88	25	70204	10,000	17	3	Institutional Drinking/Sanitary
West Nottingham Academy	CE880873	Port Deposit Gneiss	270	32	70204	10,000	17	3	Institutional Drinking/Sanitary
Whispering Pines MHP	CE730101	Patuxent Formation	125	30	70213	13,000	32	172	Trailer Park/Apartment Bldg/Condo
Whispering Pines MHP	CE730323	Patuxent Formation	129	6					
Whispering Pines MHP	CE700084	Patuxent Formation	136	4					
Whispering Pines MHP	CE731638	Patuxent Formation							
Williams MHP	CE680162	James Run Formation	122	6	70238	6,000	29	76	Trailer Park/Apartment Bldg/Condo
Williams MHP	CE710242	James Run Formation	72	4					
Williams MHP	CE943439	James Run Formation	600	2					
Williams MHP	CE943483	James Run Formation	450	2.5					
Williams MHP	CE946502	James Run Formation	600	3					
Williams MHP	CE950759	James Run Formation	540	5					
WL Gore at Fair Hill	CE733228	Sykesville Formation	280	6	1070047	5,000	6	33	Institutional Drinking/Sanitary

Woodlands Camping Resort	CE880357	Nonmarine Cretaceous Aquifer	232	6	1071208	4,800	32	94	Recreational Drinking/Sanitary
Woodlands Camping Resort	CE710290	Nonmarine Cretaceous Aquifer	159	6					
Woodlawn MHP-new	CE670286	Port Deposit Gneiss	113	UNK	70239	18,000	23	250,12,291	Trailer Park/Apartment Bldg/Condo
Woodlawn MHP-new	CE733840	Port Deposit Gneiss	300	UNK	70239	18,000	23	250,12,291	Trailer Park/Apartment Bldg/Condo
Woodlawn MHP-old	CE732988	Port Deposit Gneiss	137	6	70241	7,000	23	P/O12,466	Trailer Park/Apartment Bldg/Condo
Woodlawn MHP-old	CE730731	Port Deposit Gneiss	165	6					
Woodlawn MHP-old	CE008498	Port Deposit Gneiss	84	6					

Table 7 - Inventory of Water Problem Areas

Location	Population	Nature of Problem	Planned Correction
Benjamin's and Homestead Manufactued Home Parks	300	Inadequate water availability, Low Pressure, Lack of Storage Capacity	Unknown
William's Manufactured Home Park (Jackson Station Road, 1.5 miles from Rt 40)	90	Low Pressure, Lack of Storage Capacity, Also Dry Summers Reduce Water Supply	New Wells or Connect to Perryville Water Supply
Harbor View	300	Low Fire Flow Available	Unknown
Whispering Pines Manufactured Home Park (Rt. 7 between North East and Elkton)	300	Long-term Drought Might Require Third Well	Unknown
Rising Sun	2,781	Inadequate Reserve	Connect to Chester Water Authority water distribution system
Elkton (Maloney Road*)	80	Private Shallow Wells Becoming Dry	Unknown
Port Deposit (Granite Road Area)	-	Low Fire Flow Available	Unknown
Elkton (Dogwood Road area)	180	Failing septic systems	Unknown
Elkton (Farr Creek)	65	Inadequate wells	Unknown
Elkton (Red Hill Road)	70	Failing septic systems	Unknown
Courthouse Point	-	Well water contamination due to dredge containment areas.	Unknown
Area southeast of the Telegraph Rd / Wilson Rd intersection	-	Known groundwater contamination (nitrates)	6-10 years (W-5 service category)

* = Maloney Road is not in the Town of Elkton service area at the present time

-- Data not available

Table 8 - Immediate, 5 and 10 Year Priorities for Water Development

Artesian Water Maryland System

				Estimated Costs*			Project Status Construction Start	
Fiscal Year and Project Number	County Priority Assigned	Coordinate Location	Description	Total	Federal and/or State	Local	Immediate Priority Projects	5 and 10 Year Period Projects
Elkton West/Meadowview								
2019	n/a	n/a	Water main extension to Belle Hill Area - includes MDTA crossing under Rt. 95	n/a	$0.00	$0.00	2019	
2020	n/a	n/a	Water main extension and associated infrastructure from Highlands to Aston Point area	n/a	$0.00	$0.00	2020	
2022	n/a	n/a	Water Main Extension and associated infrastructure from Cherry Hill booster station to Heron Lake area	n/a	$0.00	$0.00		2022
Pine Hills								
2023	n/a	n/a	Develop well site on Old Field Road (Cooke parcel) and add water main extension from Rte 7/40 to well site and to Pine Hills WTP					2023
Harbor View								
2018	n/a	n/a	Add manganese-removal treatment equipment				2018	
Mountain Hill & Carpenters Point								
2021	n/a	N685464.986 E1591842.419	Redrill/replace Well #3 at Carpenters Point	n/a	$0.00	$0.00	2021	
2021	n/a	N697722.3646 E1594640.7406	Drill additional wells at Mountain Hill	n/a	$0.00	$0.00	2021	
2022	n/a	N691911.922 E1592485.477	Interconnect Carpenters Point and Mt. Hill Systems	n/a	$0.00	$0.00		2022
2028	n/a	Carpenters Point Road	Interconnect Carpenters Point/Mt. Hill System with Meadowview System	n/a	$0.00	$0.00		2028
2028	n/a	N710374.034 E1558324.812	Interconnect system with Port Deposit System	n/a	$0.00	$0.00		2028

Port Deposit								
2019	n/a	Port Deposit	Expansion of Existing WTP to 1.1 MGD	n/a	$0.00	$0.00	2019-2020	
2019	n/a	Bainbridge	Construct new pump station and tank complex at Bainbridge	n/a	$0.00	$0.00	2019-2020	
2020	n/a	Bainbridge	Construct Bainbridge WTP	n/a	$0.00	$0.00	2020-2021	
2021	n/a	Port Deposit	Upgrade intake from Susquehanna	n/a	$0.00	$0.00	2021-2022	
2021	n/a	Port Deposit	Convert existing treatment plant to pump station	n/a	$0.00	$0.00	2021-2022	
2021	n/a	Port Deposit	20" Raw water main rehabilitation and/or replacement	n/a	$0.00	$0.00	2021-2022	

Incorporated Towns

				Estimated Costs*			Project Status Construction Start	
Fiscal Year and Project Number	**County Priority Assigned**	**Location**	**Description**	**Total**	**Federal and/or State**	**Local**	**Immediate Priority Projects**	**5 and 10 Year Period Projects**
Cecilton								
2019	n/a	Town of Cecilton	Complete service to the Pearce Creek Service Area by finallzing increase to groundwater appropration permit of approximately 85,000 gpd	n/a	n/a	n/a	2019	
Charlestown								
2022	n/a	Cool Springs Rd	Additional facilities (i.e. elevated storage tank) upon the build-out of the Cool Springs subdivision	n/a	n/a	n/a	2022	
2023-2028	n/a	Carpenters Point Rd	Interconnection with Artesian's Carpenters Point water system	n/a	n/a	n/a		2023-2028
Chesapeake City								

2019	n/a	Augustine Herman Hwy	Construction of 300,000 gallon elevated storage tank on Bohemia Manor High School property	n/a	n/a	n/a	2019	
2022	n/a	Bethel Rd	Extend service to Chesapeake Estates MHP	n/a	n/a	n/a	2022	
Elkton								
2019	n/a	Town of Elkton	Improvements associated with Wells 2R, 4, and 5 (see text for details)	n/a	n/a	n/a	2019	
North East								
2019-2022	n/a	96 Irishtown Rd	Irishtown Road booster pump station rehabilitation	n/a	n/a	n/a	2019-2022	
2019-2022	n/a	39 Rolling Mill Ln and 39 N Leslie Rd	Powder activated carbon additions at both water treatment plants	n/a	n/a	n/a	2019-2022	
2019-2023	n/a	various locations	Install tank mixers in finished water storage tanks	n/a	n/a	n/a	2019-2022	
2019-2024	n/a	various locations	SCADA upgrades	n/a	n/a	n/a	2019-2022	
2019-2025	n/a	39 Rolling Mill Ln	Replace Rolling Mill finished water booster pump station	n/a	n/a	n/a	2019-2022	
2019-2026	n/a	39 N Leslie Rd	Dredge raw water pond at Leslie water treatment plant	n/a	n/a	n/a	2019-2022	
2019-2027	n/a	463 Razor Strap Rd	Razor Strap Road booster pump station rehabilitation	n/a	n/a	n/a	2019-2022	
Perryville								
2020	n/a	1 Water Plant Dr	Expand the Susquehanna WTP to a 2.0 mgd facility	n/a	n/a	n/a	2020	
Rising Sun								
2019	n/a	Town of Rising Sun	Construct water line along Red Pump Road (and surrounding vicinity) to connect to Chester Water Authority at PA state line	$10.5 million	$1.5 million	$9 million	2019	

Table 9 - Projected Sewerage Demands and Planned Capacity

Name	Treatment	2017			2020		
		Population Served	ADF (MGD)	Capacity (MGD)	Population Served	ADF (MGD)	Planned Capacity (MGD)
Cecilton	SBR	675	0.068	0.100	762	0.08	0.100
Cherry Hill	ext. aer., fil., chem	648	0.070	0.250	726	0.073	0.250
Chesapeake City	activated sludge	700	0.109	0.163	736	0.119	0.3
Elk Neck State Park	biol. & UV disinfection	Seasonal	0.015	Permit 0.060 Design 0.108	Seasonal	0.015	Permit 0.060 Design 0.108
Elkton	oxidation ditch reactor	15,744	1.906	3.200	18,356	2.04	3.2
Harborview	ext. aer.	329	0.033	0.065	322	0.033	0.10
Meadowview *(includes Highlands as of 2015)*	orbital w/disk filter, UV	2,946	0.327	1.000	3,178	0.4576	1.00
North East River Adv. WWTP *(capacity includes prop. Elkton West for 2020)*	oxidation ditch - 4 stage bandenpho, UV	13,430	1.143	2.000	17,901	2.6	3.7
Perryville	SBR	4,419	0.810	1.650	5,236	0.81	1.650
Port Deposit	biol., chem.	767	0.077	0.150	825	0.082 MGD (residential); 0.160 MGD (comm/industrial); 0.242 MGD total	0.25
Rising Sun	orbital disk	2,799	0.240	0.500	3,094	0.31	0.50

Table 9 - Projected Sewerage Demands and Planned Capacity

Name	Treatment	2030			2040		
		Population Served	ADF (MGD)	Planned Capacity (MGD)	Population Served	ADF (MGD)	Planned Capacity (MGD)
Cecilton	SBR	864	0.09	0.20	959	0.10	0.20
Cherry Hill	ext. aer., fil., chem	Conveyed to Meadowview			Conveyed to Meadowview		
Chesapeake City	SBR / ENR	849	0.137	0.3	941	0.152	0.3
Elk Neck State Park	biol. & UV disinfection	Seasonal	0.015	Permit 0.060 Design 0.108	Seasonal	0.015	Permit 0.060 Design 0.108
Elkton	oxidation ditch reactor	21,506	2.35	3.2	23,912	2.59	3.2
Harborview	ext. aer.	335	0.034	0.10	347	0.036	0.10
Meadowview *(capacity includes ex. Highlands and Cherry Hill WWTP, and prop. Elkton West for 2030 & 2040)*	orbital w/disk filter, UV	4,379	0.4877	1.00	4,812	0.5174	1.00
North East River Adv. WWTP *(capacity includes prop. Elkton West for 2030 & 2040)*	oxidation ditch - 4 stage bandenpho, UV	22,535	3.4	3.7	26,288	3.4	3.7
Perryville	SBR	6,127	0.81	1.650	6,578	0.81	1.650
Port Deposit	biol., chem.	1,045	0.11 MGD (residential); 0.180 MGD (comm/industrial) 0.29 MGD total	0.4	1,149	0.12 MGD (residential); 0.2 MGD (comm/industrial) 0.32 MGD total	0.4
Rising Sun	orbital disk	3,594	0.36	0.50	4,273	0.42	0.50

Table 9 Notes:

1) Port Deposit's 2020 planned capacity is based on the 250,000 gpd figure for the new Port Deposit WWTP under construction at the Bainbridge site.

2) Port Deposit's 2020 average daily flow was calculated by taking the estimated amount of residential use (0.082 MGD) and adding the estimated amount of commercial/industrial use (160,000 gpd). The .16 MGD gpd commercial/industrial estimate includes the potential location of a large commercial facility on the Bainbridge site. The resulting estimated average flow is the combination of residential (0.082) and commercial (0.16 MGD) use. 0.082 MGD + 0.16 MGD = 0.242 MGD

3) For the 2030 and 2040 Port Deposit population and ADF estimates, the projections assume that development in Bainbridge begins to happen. The figures assume that residential growth happens in accordance with the projections in Table 1. Commercial growth, after an initial surge, is expected to happen at a slower pace.

4) In 2030, the planned capacity (MGD) of the Port Deposit WWTP will need to increase to accommodate projected flows. Module expansions of the plant happen in 0.15 MGD capacity increments.

5) Please see Table 1 for details regarding how the population served for each wastewater treatment plant was calculated.

Table 10 - Inventory of Existing Sewage Treatment Plants

Facility Name	*State Discharge Permit #*	*NDPES #*	*Owner*	*Treatment type*	*Coordinates*	*Point of discharge*	*Existing Capacity (MGD)*	*Average flow (MGD)*	*Peak Flow (MGD)*	*Abandonment Date*	*Operating Agency*
Army Corps of Engineers, Chesapeake City Project Office	14-DP-2524	MD0020206	US Army Corps of Engineers	tank, sand filter, UV disinfection	39°31'36" (N), 75°48'30" (W)	Back Creek	0.002	0.001	Unknown	None	US Army Corps of Engineers
Bohemia Bay	12-DP-3528	MD3528H05	Bohemia Bay Yacht Harbour Condominium Association, Inc.	aerobic treatment	39°29'17" (N), 75°53'46" (W)	Subsurface drainfield	0.004032	Unknown	Unknown	None	Yacht Harbour Condominium Association, Inc.
Camp Shadowbrook	07-DP-1237	MD0053139	Girl Scouts of Central Maryland	tank, sand filter, UV disinfection	39°41'51" (N), 76°11'36" (W)	Conowingo Creek	0.004	0.0031	Unknown	None	Unknown
Cecilton	12-DP-0111	MD0020443	Town of Cecilton	SBR, screen, sand filter, chlorination, dechlorination	39°24'45" (N), 75°51'31" (W)	Black Duck Creek	0.1	0.067	Unknown	None	Unknown
CECO Utilities	08-DP-0783	MD0023108	CECO Utilities, Inc	Secondary stabilization, lagoon	39.651388 (N) 75.845875 (W)	Dogwood Run	0.035	0.034	0.136	2019	Unknown
Cherry Hill	11-DP-1206	MD0052825	Cecil County DPW	screen, flow splitter tank, two package activated sludge, sand filter, UV unit	39° 39.74' (N) 75° 51.47 ' (W)	Tributary to Little Elk Creek	0.25	0.063	0.25	None	Cecil County DPW
Chesapeake City-North	13-DP-0155	MD0020401	Town of Chesapeake City	packaged activated sludge w/ aerobic digestion & sludge drying beds	39°31'46" (N), 75°48'45.5" (W)	C&D Canal	0.075	Unknown	Unknown	None	Unknown
Chesapeake City-South	13-DP-0143	MD0020397	Town of Chesapeake City	packaged activated sludge w/ aerobic sludge digestion & sludge drying beds	39°31'42.9"(N), 75°48'52.9" (W)	C&D Canal	0.088	Unknown	Unknown	None	Unknown
Cinnamon Woods	12-DP-2599	MD0069949	Catalyst Group L.P.	MBR followed by microfiltration & UV disinfection	39° 40' 49" (N) 76° 10' 29" (W)	Tributary through Funk's Pond to Susquehanna River	0.022	Unknown	Unknown	None	Unknown

Conowingo Mobile Home Court	12-DP-3762	MD0071374	Mobile Realty 2 LLC	MBR, UV disinfection	39° 40' 38.8" (N) 76° 11' 17.2" (W)	Tributary to Susquehanna River	0.022265	Unknown	Unknown	None	Unknown
Donaldson Brown Center (previously "Mount Ararat Farm")	13-DP-0251	MD0054950	University of Maryland, Baltimore	Imhoff tank, sand filter, & UV disinfection	39° 35' 39" (N) 76° 06' 08" (W)	Happy Valley Branch to Susquehanna River	0.005	Unknown	Unknown	None	Unknown
Elk Neck State Park	10-DP-0749	MD0023833	Elk Neck State Park	membrane bioreactor, sequencing batch reactor, denitrification filters, multi-staged activated sludge processes, Bardenpho	39° 28' 27.18" (N) 75° 58' 15.78" (W)	Elk River	0.06	0.02	0.044	None	MES
Elkton	13-DP-0671	MD0020681	Town of Elkton	oxidation ditch followed by post-anoxic & reaeration tanks, clarifiers, upflow filters, UV disinfection	39° 36' 04" (N) 75° 50' 03" (W)	Big Elk Creek	3.2	1.8	Unknown	None	Unknown
Forest Green Court MHP	12-DP-1252	MD0053279	Garden Homes Management Corporation	Lagoon treatment with aeration, chlorination, & de-chlorination	39° 37' 45" (N) 75° 53' 43" (W)	Laurel Run	0.027	0.0075	Unknown	None	Unknown
Harbor View	14-DP-0496	MD0024023	Cecil County DPW	Activated sludge package plant, screen, aeration tank, secondary clarifier, chlorination and dechlorination	39° 37' 45" (N) 75° 53' 43" (W)	Elk River	0.065	0.017	0.065	None	Cecil County DPW
Homestead Mobile Estates	06-DP-1033	MD0024961	Pinkard Properties, LLC	activated sludge, aeration, secondary clarifier, filter, chlorine & dechlorination, and digesters.	39° 37' 05" (N) 76° 03' 15" (W)	Rock Run	0.04	Unknown	Unknown	None	Unknown
Maybelle Manor MHP	12-DP-3259	MD3259H98	Maybelle Manor, LLC	septic tank	39°41'8"N, 76°10'33"W	Subsurface drainfield	0.007265	Unknown	Unknown	None	Maybelle Manor, LLC
Maple Hill MHP	15-DP-1241	MD0053171	Homestead MHP, LLC	SBR, septic tank & fill tank	39° 37' 55" (N) 76° 05' 06" (W)	Tributary of Nesbitt Run	0.025	0.025	Unknown	None	Unknown
Meadowview	14-DP-0643	MD0022641	Cecil County DPW	BNR , orbital oxidation ditch, clarifiers, filters, UV disinfection, post aeration.	39° 39' 14.4" (N) 75° 47' 52.8" (W)	W Branch Christina River	0.7	0.337	1.34	None	Cecil County DPW

North East (NERAWWTP)	15-DP-1082	MD0052027	Cecil County DPW	mechanical screen, tank, oxidation ditch, ENR & membrane filtration, UV disinfection.	39° 33' 51.32" (N) 75° 59' 11.012" (W)	North East River	2	1.1	4.4	None	Cecil County DPW
Perryville	11-DP-0572	MD0020613	The Mayor & Commissioners of Perryville	SBR, screen, compactor unit, aeration blowers, alum feeder, tank, filter, UV disinfection, cloth disk filters, denitrification filters	39° 33' 28" (N) 76° 03' 51" (W)	Mill Creek into Furnace Bay	1.65	0.785	Unknown	None	Unknown
Port Deposit	12-DP-0114	MD0020796	Cecil County DPW	Activated sludge; screening, aeration, clarification, chlorination and de-chlorination.	39° 35' 52" (N) 75° 06' 32" (W)	Susquehanna River	0.15	0.031	0.12	None	Cecil County DPW
Recovery Centers of America	16-DP-3835	MD3835H16	Recovery Centers of America	MBR	39° 23' 37" (N) 75° 55' 56" (W)	Subsurface drainfield	0.02	Unknown	Unknown	None	RCA
Rising Sun	15-DP-0107	MD0020265	Town of Rising Sun	lagoon, UV disinfection, ENR: mechanical screen, orbital reactor, clarifier, filter, post aeration	39° 42' 29.6" (N) 76° 4' 46.15" (W)	Stone Run	0.5	0.24	Unknown	None	Unknown
Sandy Cove/ Morning Cheer	13-DP-1108	MD0052299	Morning Cheer Inc/ Sandy Cove Ministries	Screen, tanks, membrane filters, permeate control/backwash system & two UV disinfection systems	39° 32' 26.4" (N) 75° 58' 5.8" (W)	North East River	0.1	Unknown	Unknown	None	Unknown
Sandy Hill Camp	14-DP-3426	MD3426H07	Sandy Hill Holdings, LLC	aerobic treatment	39°29'50"N, 75°57'00"W	Subsurface drainfield	0.0063	Unknown	Unknown	None	Sandy Hill Holdings, LLC
Triumph Industrial Park	08-DP-0233	MD0024929	Triumph Industrial Park, Inc.	aerated lagoon system with disinfection by ozone, UV disinfection	39.615° (N) 75.856° (W)	Little Elk Creek	0.625	Unknown	Unknown	None	Unknown
West Nottingham Academy	09-DP-2359	MD0062359	West Nottingham Academy	SBR	39.666912 (N) 76.081381 (W)	Subsurface drainfield	0.009121	Unknown	Unknown	None	WNA
Woodlawn Mobile Home Estates	12-DP-0629	MD0023337	Woodlawn Estates, LLC	septic system, aerated lagoon, filter, wet well, UV disinfection	39° 37.811" (N) 76° 3.945' (W)	Tributary to Principio Creek	0.054	0.02	Unknown	None	Unknown

Table 10A - Inventory of Select Single Lot Large Flow Sewerage Systems

Name/Location	Facility type	Number of Sites Served	Treatment	Average Daily flow (MGD)	Treatment Capacity (MGD)	Point of discharge	Acct #	Community(C)/ Multiuse(M) / Mobile Home Park (P) (see Note #1)
Bay Country Estates (Ebenezer Church Rd)	Mobile Home Park	117	septic tank	0.02	0.04	Subsurface drainfield	0805013100	C, M, P
Beacon Hill Heights MD Rte 7	Mobile Home Park	6	septic tank	0.00132	0.0018	Subsurface drainfield	0805026466	P
Brantwood Court MHP MD Rte 213	Mobile Home Park	10	septic tank	0.0022	0.003	Subsurface drainfield	0802009684	P
Cecilton Manor MHP MD Rte282	Mobile Home Park	20	septic tank	0.002	0.005	Subsurface drainfield	0801033018	M, P
Chesapeake Estates MHP Buddy Blvd	Mobile Home Park	58	septic tank	0.05	0.08	Subsurface drainfield	0802008548	M, P
Clark's Mobile Home Village Cokesbury Rd	Mobile Home Park	7	septic tank	0.00154	0.0021	Subsurface drainfield	0807002750	P
Coklash MHP Mountain Rd	Mobile Home Park	3	septic tank	0.00066	0.0009	Subsurface drainfield	0806004636	P
Crystal Beach Manor Sect. E Earleville	Mobile Home Park	58	septic tank	0.0075	0.01	Subsurface drainfield	0801024221	M, P
Elkview Shores MHP & Camp Elkview Shores Rd	Mobile Home Park and Camp	255	septic tank	0.0561	0.0615	Subsurface drainfield	0801008730	C, M, P
Forest View Village MD Rte 7	Mobile Home Park	58	septic tank	0.01	0.02	Subsurface drainfield	0803009475	C, M, P
Graybeal's Trailer Park Craigtown Rd	Mobile Home Park	3	septic tank	0.00066	0.0009	Subsurface drainfield	0807005059	P
H&A Trailer Park Cokesbury Rd	Mobile Home Park	3	septic tank	0.00066	0.0009	Subsurface drainfield	0807027923	P
Highlands MHP Craigtown Rd	Mobile Home Park	60	Septic tank	0.008	0.01	Subsurface drainfield	0807009704	M, P
Jenifer & Son MHP Cokesbury Rd	Mobile Home Park	2	septic tank	0.00044	0.0006	Subsurface drainfield	0807006624	P
Knowles MHP Arbour Dr	Mobile Home Park	12	septic tank	0.00264	0.0036	Subsurface drainfield	0805034744	P
Misty Meadows MHP (I & II) MD Rte 275 & Craigtown Rd	Mobile Home Park	72	septic tank	0.0158	0.0216	Subsurface drainfield	0807035705	C, M, P
Oak Lane MHP Doctor Jack Rd	Mobile Home Park	40	septic tank	0.002	0.01	Subsurface drainfield	0806019056	C, M, P
Oakwood MHP Oakwood Rd	Mobile Home Park	11	septic tank	0.00242	0.0033	Subsurface drainfield	0808005567	P
Octoraro MHP US Rte 1	Mobile Home Park	11	septic tank	0.00242	0.0033	Subsurface drainfield	0808006423	P
Pauline Cash MHP Cokesbury Rd	Mobile Home Park	4	septic tank	0.00088	0.0012	Subsurface drainfield	0807002475	P

Pleasant Hill Mobile Manor Kirk Rd	Mobile Home Park	24	septic tank	0.0053	0.0072	Subsurface drainfield	0804018796	M, P
Peyton Place Park Surrey Ln (Chesapeake City)	Mobile Home Park	6	septic tank	0.00132	0.0018	Subsurface drainfield	0802007940	P
Pine Bluff Terrace MHP MD Rte 7	Mobile Home Park	4	septic tank	0.00088	0.0012	Subsurface drainfield	0805074932	P
Rock Creek MHP Stoney Chase Drive	Mobile Home Park	20	septic tank	0.0044	0.0060	Subsurface drainfield	0805055768	M, P
Running Brook MHP MD Rte 275	Mobile Home Park	24	septic tank	0.0053	0.0072	Subsurface drainfield	0807009690	C, M, P
Sherwood Forest MHP MD Rte 7	Mobile Home Park	70	septic tank, fixed activated sludge	0.0154	0.0210	Subsurface drainfield	0803020193	M, P
Stoney Chase MHP Stoney Chase Dr	Mobile Home Park	85	septic tank	0.0187	0.0255	Subsurface drainfield	0805035449	M, P
Timber Grove MHP Red Pump Rd	Mobile Home Park	38	septic tank	0.0084	0.0114	Subsurface drainfield	0806016200	M, P
Whispering Pines MHP Circle Ave	Mobile Home Park	106	septic tanks	0.0233	0.0318	Subsurface drainfield	0805044685	M, P
White Crystal Beach MHP and Camp White Crystal Beach Rd	Mobile Home Park and Camp	86	septic tank	0.0189	0.0258	Subsurface drainfield	0801010751	C, M, P
Williams MHP Jackson Station Rd	Mobile Home Park	29	septic tank	0.0064	0.0087	Subsurface drainfield	0807044259	M, P
Bainbridge Elementary 41 Preston Drive	School	410	septic tank		0.00615	Subsurface drainfield	0807026846	C
Conowingo Elementary 471 Rowlandsville Rd	School	567	septic tank		0.009	Subsurface drainfield	0808009597	C
Elk Neck Elementary 41 Racine School Rd	School	430	septic tank		0.011	Subsurface drainfield	0805092442	C
Leeds Elementary 615 Deaver Rd	School	411	septic tank		0.00625	Subsurface drainfield	0803056872	C
Rising Sun Elementary 500 Hopewell Rd	School	669	septic tank		0.0132	Subsurface drainfield	0806025544	C
Rising Sun High 100 Tiger Dr	School	1177	septic tank		0.03	Subsurface drainfield	0809014551	C
Buttonwood Beach RV Resort Earleville	Camp	537	septic tank		0.093975	Subsurface drainfield (see Note #2)	0801020714	C
Grove Point Girl Scout Camp Grove Point Rd	Camp	250	septic tank		0.04375	Subsurface drainfield	0801027689	C, M
Indian Acres campground Knights Island Rd	Camp	2161	septic tank		0.378175	Subsurface drainfield	0801012894	C, M
Rodney Scout Camp Boy Scout Camp Rd	Camp	160	septic tank		0.028	Subsurface drainfield	0805060656	C, M
Woodlands Campground 265 Starkey Ln	Camp	158	septic tank		0.02765	Subsurface drainfield	0803029034	M
Calvert Manor 1881 Telegraph Rd	Nursing Home	144 beds	aerobic tank		0.028	Subsurface drainfield	0809001077	C, M

Graymount Apartments 718 W Pulaski Hwy	Housing	17 units	septic tank		0.0051	Subsurface drainfield	*0803030180*	*M*
Golden Kay Apartments 728 W Pulaski Hwy	Housing	20 units	septic tank		0.006	Subsurface drainfield	*0803030172*	*M*
Oblates of St Francis 1120 Blue Ball Rd	Housing	62 beds	septic tank		0.00774	Subsurface drainfield	*0803023664*	*M*
Port Herman Condos Port Herman Dr	Housing	40 units	septic tank		0.0099	Subsurface drainfield	*0802028786*	*C, M*
Villas at Port Herman	Housing	5 units	septic tank		0.00225	Subsurface drainfield	*0802038528*	*C*
Blair Shore	Housing	37 units	septic tank		0.0111	Subsurface drainfield	*0802004879*	*M*
Pleasure Shores	Housing	39 units	septic tank		0.0117	Subsurface drainfield	*0802016192*	*M*
Lewis Shores	Housing	22 units	septic tank		0.0066	Subsurface drainfield	*0802012391*	*M*
Fair Hill NRMA Telegraph Rd	Mixed	condos, houses, offices, other	septic tank		over 0.01 (see Note #3)	Subsurface drainfield	*0804021266*	*C,M*
Wesley's Restaurant 3700 Telegraph Rd	Mixed	restaurant & apartments	septic tank		0.0101	Subsurface drainfield	*0804008448*	*C, M*
Granary Restaurant	Mixed	restaurant, marina, store	septic tank		0.0096	Subsurface drainfield	*0801012444*	*M*

Notes:

1) Community = more than 1 parcel, Multi-use = over 5,000 gpd

2) 76 separate sewage systems

3) Not possible to quantify, but it includes over 26 condos, several offices, over 12 homes, and the Fairgrounds and race track.

Cecil County, Maryland - 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas

#	Location (Service Area)	Problem description	# of residences	# of businesses and/or institutional uses	Population	Acres	Treatment Capacity	Treatment Demand	Planned correction
1	Boat Yard Rd, Chesapeake City, MD	Failing septics, high water, clay	7	0	19	7.67	NA	NA	Extend public sewer from Chesapeake City WWTP
2	South of Chesapeake City, MD (Augustine Herman Hwy, Basil Ave, Randalia Rd, Chestnut Springs Rd, etc)	Failing septics: high water, clay	149	39	402	1280.17	NA	NA	Extend public sewer from Chesapeake City WWTP
3	Reserved for future use								
4	Dogwood Rd & Blueball Rd, Elkton, MD	Failing septics: high water, clay	128	10	346	396.73	NA	NA	Provide sanitary sewer service via Elkton West franchise area
5	Reserved for future use								
6	Eastwoods (Maloney Rd, Elkton, MD)	Failing septics: high water	89	2	240	256.00	NA	NA	None (at this time)
7	Farr Creek (Elkton, MD)	Failing septics: high water	47	1	127	150.32	NA	NA	Public sewer extension (Elkton)
8	Frenchtown Rd & Lewis Shore Rd (east of Route 213, Elkton, MD)	Failing septics: high water	153	9	413	986.42	NA	NA	None (at this time)
9	Harrisville, Rising Sun, MD	Failing septics: high water, clay	42	4	113	40.47	NA	NA	None (at this time)
10	Holloway Beach, Charlestown, MD	Failing septics: high water	66	0	178	28.72	NA	NA	Public sewer extension (NERA WWTP)
11	Johnstown Rd & vicinity (Elkton, MD)	Failing septics: high water, clay	53	3	143	188.61	NA	NA	Public sewer extension (Cherry Hill WWTP)
12	Locust Point (Blair Shore Rd, Borens Shore, Elkside Rd, etc), Elkton, MD	Failing septics: high water	105	0	284	161.94	NA	NA	None (at this time)
13	Red Hill Road & Delancy Rd, Elkton, MD	Failing septics: high water, clay	23	0	62	100.26	NA	NA	Public sewer extension (Elkton)
14	Blythedale Rd and vicinity, Perryville, MD	Failing septics: high water, clay	78	5	211	196.97	NA	NA	Public sewer extension (Perryville)
15	Rock Run Rd, Port Deposit, MD	Failing septics: rock, stream	14	0	38	5.80	NA	NA	Public sewer extension (Port Deposit)
16	Union Church Rd and vicinity, Elkton, MD	Failing septics: high water, clay	204	13	551	1029.85	NA	NA	None (at this time)
17	Red Point, North East, MD	Failing septics: high water, clay	147	0	397	90.98	NA	NA	See Section 4.1.108 of plan
18	Reserved for future use								

Cecil County, Maryland - 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas (page 2)

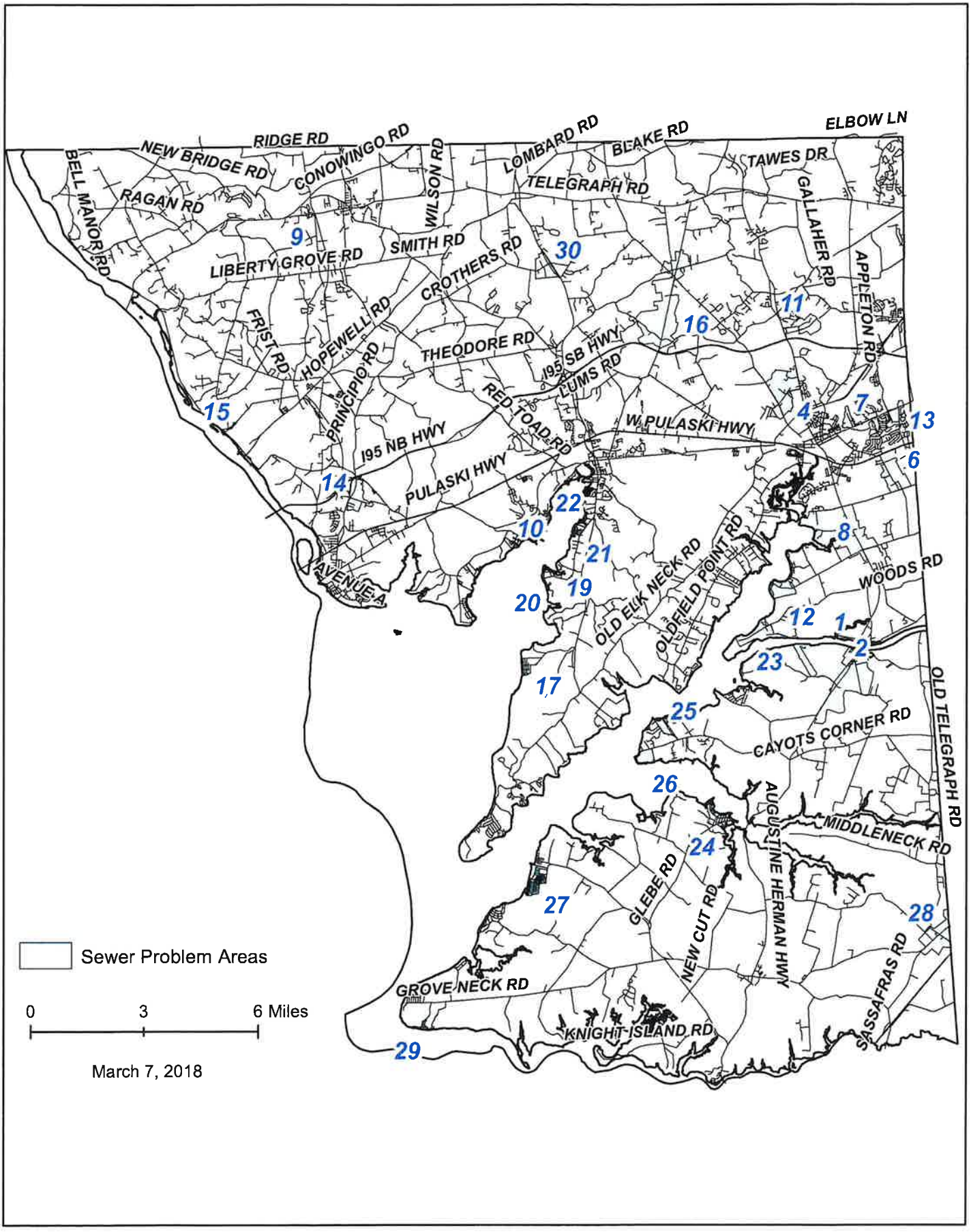
#	Location (Service Area)	Problem description	# of residences	# of businesses and/or institutional uses	Population	Acres	Treatment Capacity	Treatment Demand	Planned correction
19	Plum Shore, North East, MD	Failing septics: high water	17	0	46	16.09	NA	NA	None (at this time)
20	Hances Point, North East, MD	Failing septics: high water	47	0	127	18.65	NA	NA	None (at this time)
21	North East Heights, North East, MD	Failing septics: high water, clay	61	1	165	42.66	NA	NA	None (at this time)
22	West Shady Beach RD, North East, MD	Failing septics: high water	19	0	51	9.00	NA	NA	Public sewer extension (NERA WWTP)
23	Elk Forest Rd, Elkton, MD	Failing septics: high water, clay	89	0	240	218.97	NA	NA	None (at this time)
24	Hacks Point, Earleville, MD	Failing septics: high water, clay	298	5	805	161.93	NA	NA	None (at this time)
25	Pleasure Shores, Chesapeake City, MD	Failing septics: high water	39	0	105	56.99	NA	NA	None (at this time)
26	Town Point, Chesapeake City, MD	Failing septics: high water	35	0	95	94.88	NA	NA	None (at this time)
27	Crystal Beach, Earleville, MD	Failing septics: small lots, clay	518	2	1,399	187.60	NA	NA	None (at this time)
28	Village of Warwick, Warwick, MD	Failing septics: high water	114	7	308	321.80	NA	NA	None (at this time)
29	Cheshaven, Earleville, MD	Failing septics: high water	44	0	119	27.71	NA	NA	None (at this time)
30	Village of Zion, North East, MD	Failing septics: high water, clay	88	9	238	167.11	NA	NA	None (at this time)

Notes:

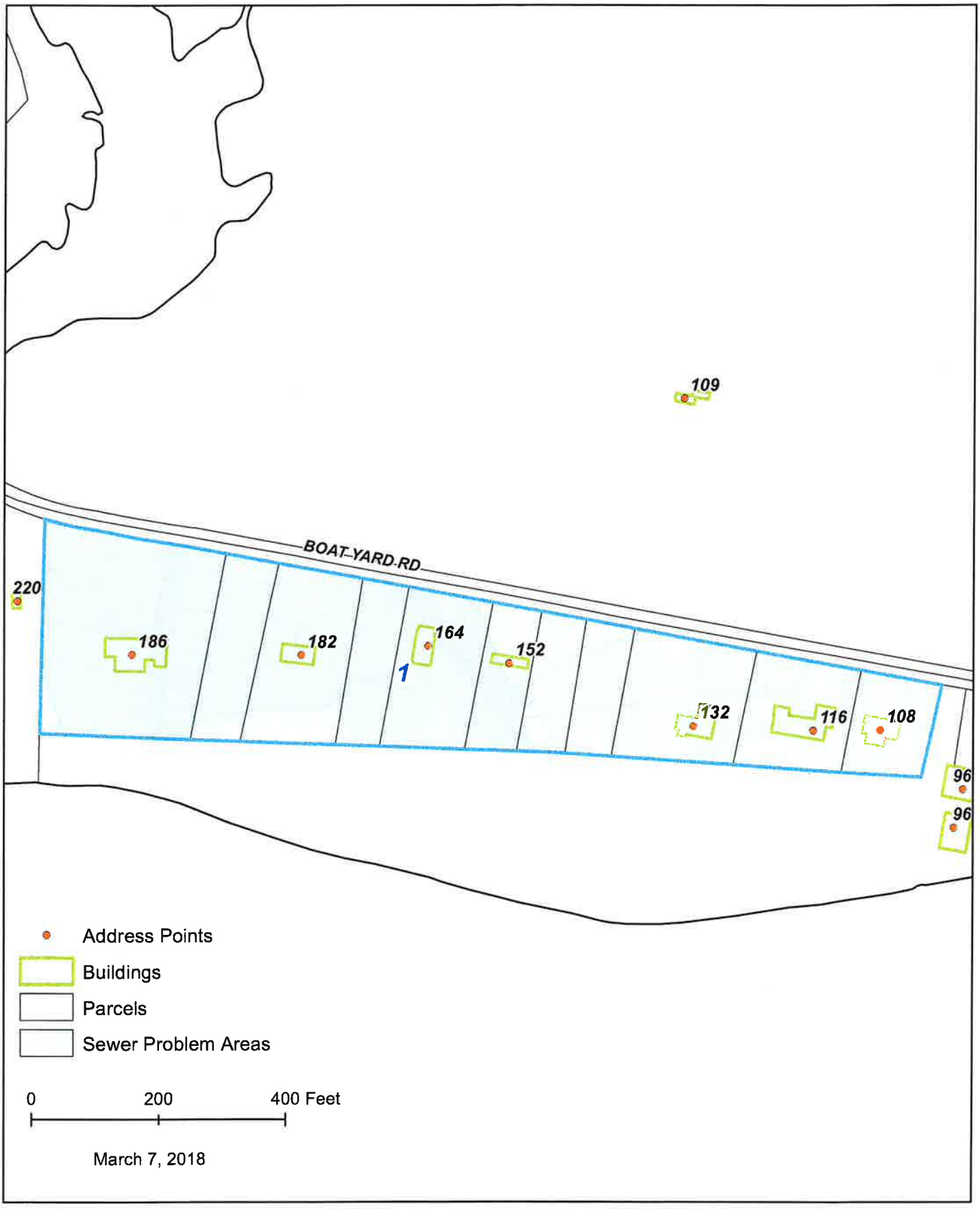
1) Population figures are based on the 2.7 persons per household average listed in the 2010 U.S. Census.

2) Treatment capacity and treatment demand are specific to problems associated with inadequate portions of community systems.
An example would be an undersized sanitary sewer trunk line collecting sewage in a specific area.
Since this table lists areas experiencing problems with individual onsite septic systems, both items are listed as "Not Applicable" (NA) in both columns.

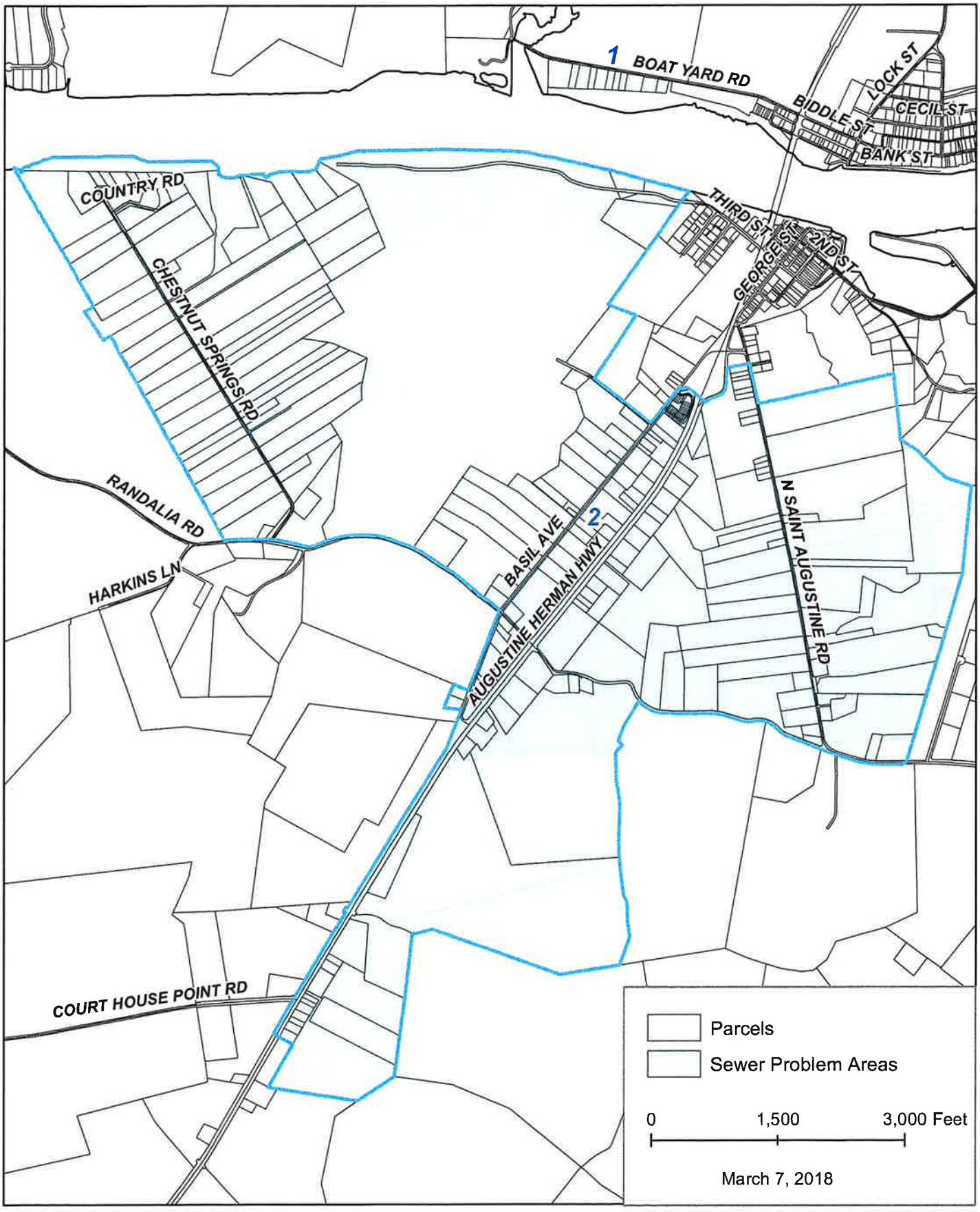
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas



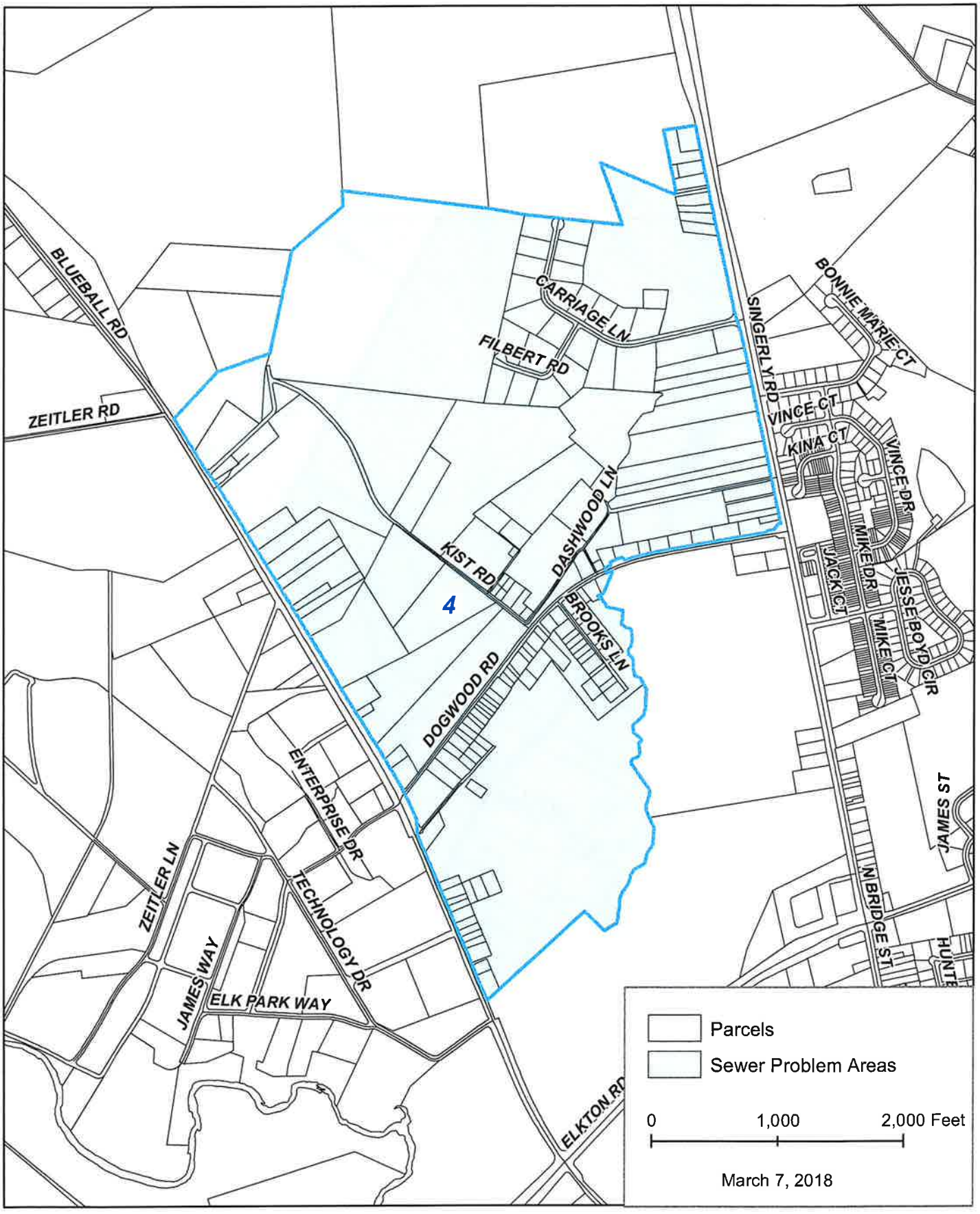
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #1 - Boat Yard Rd, Chesapeake City, MD



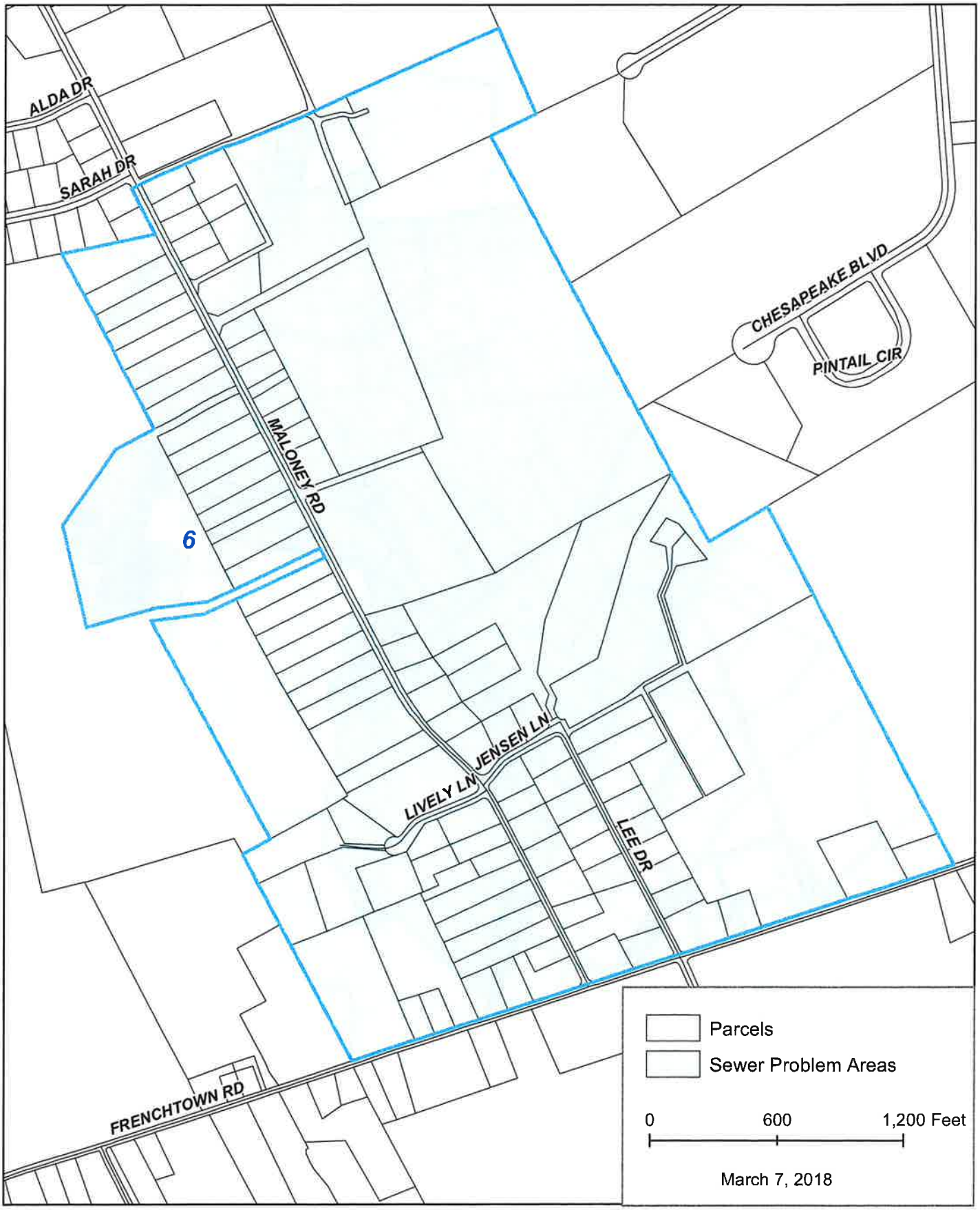
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #2 - South of Chesapeake City, MD



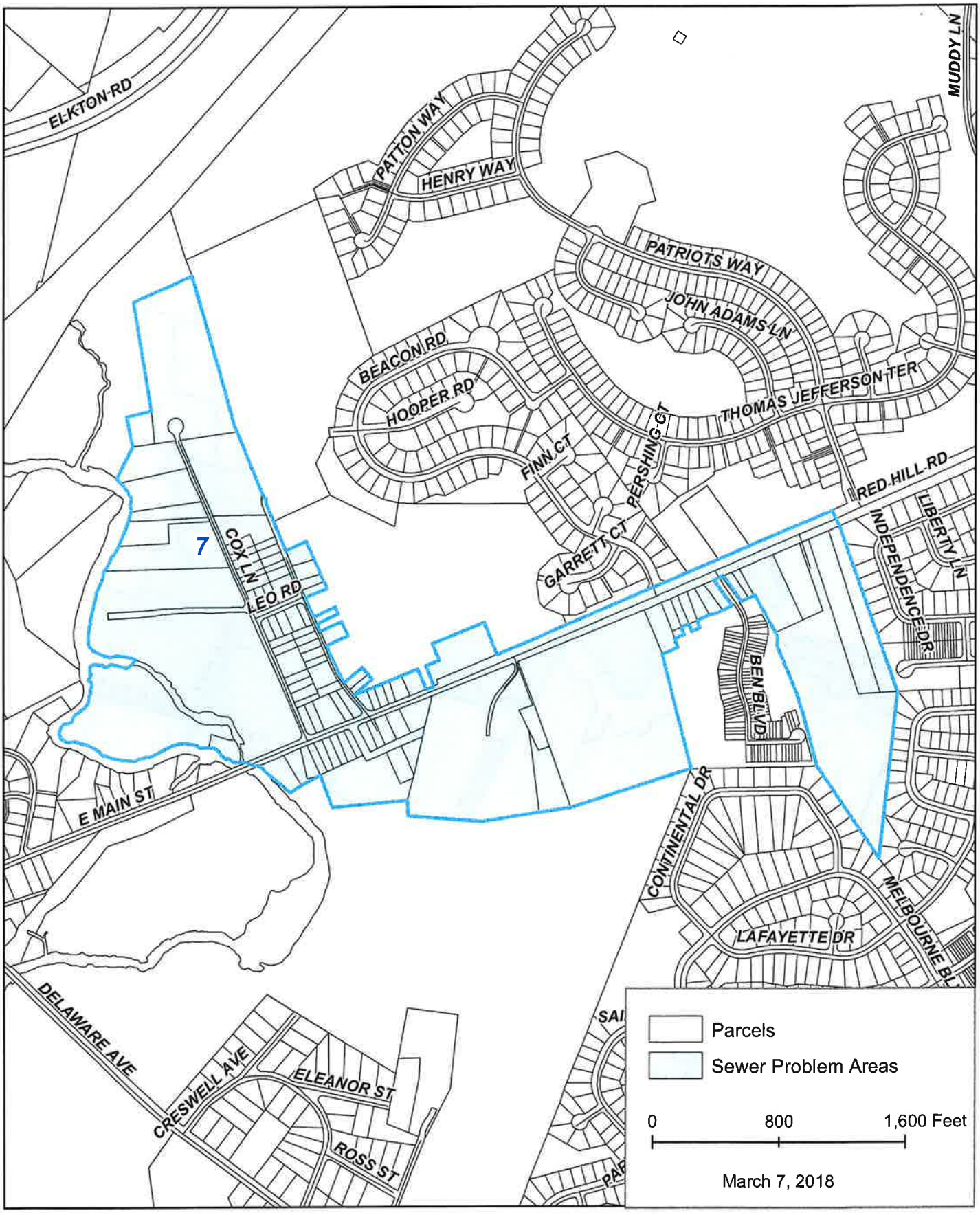
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #4 - Dogwood Rd & Blueball Rd, Elkton, MD



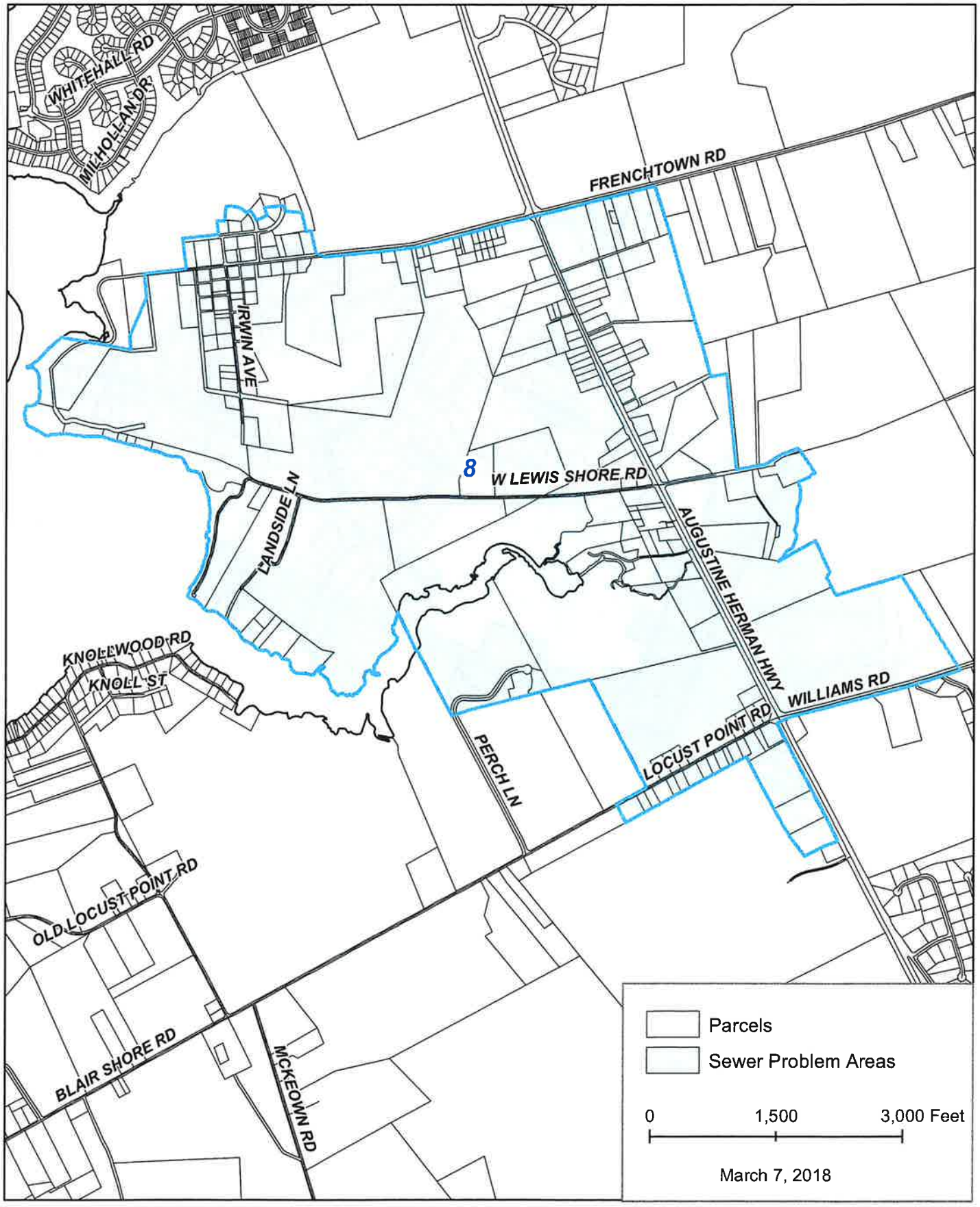
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #6 - Eastwoods (Maloney Rd, Elkton, MD)



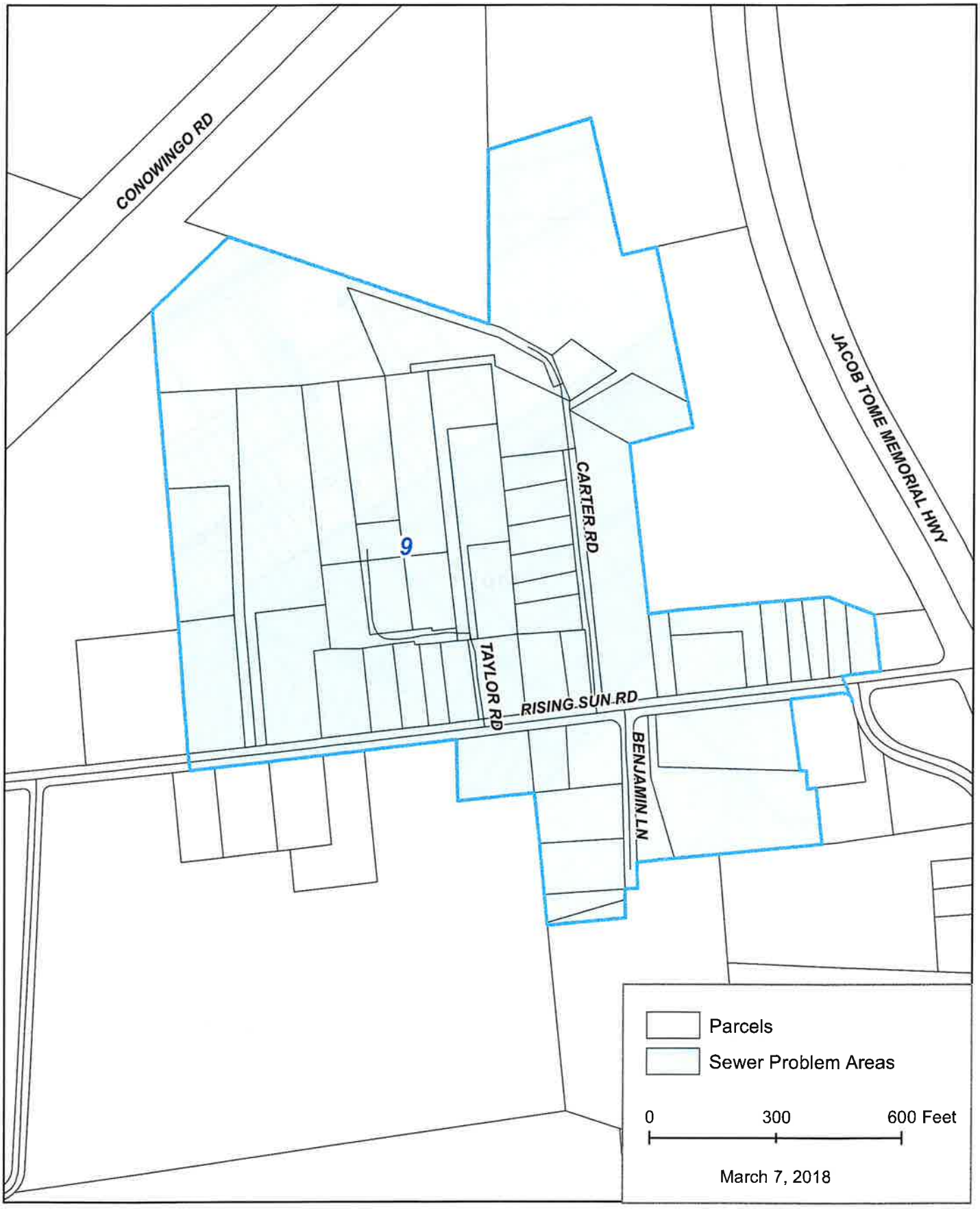
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #7 - Farr Creek (Elkton, MD)



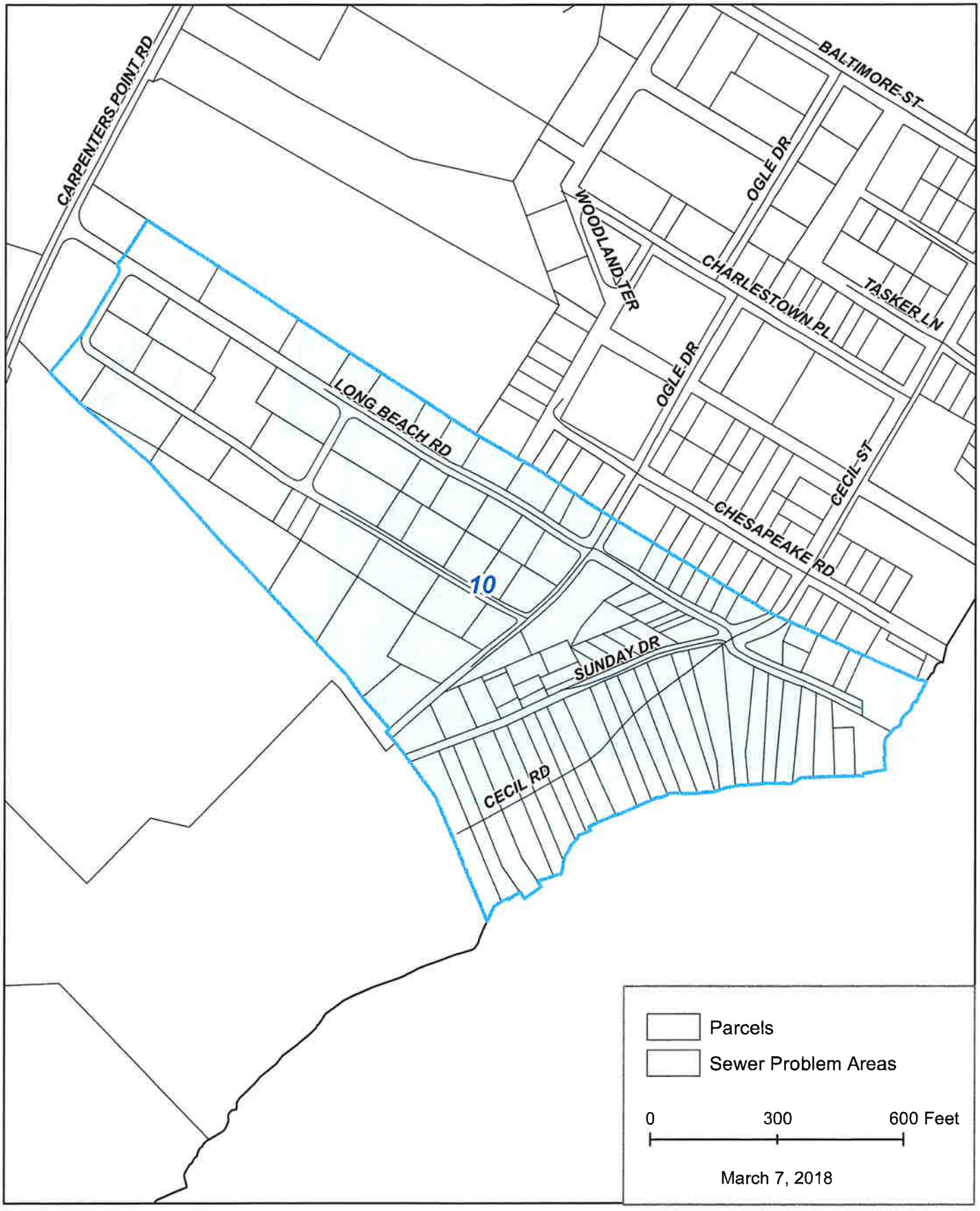
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #8 - Frenchtown Rd & Lewis Shore Rd (Elkton, MD)



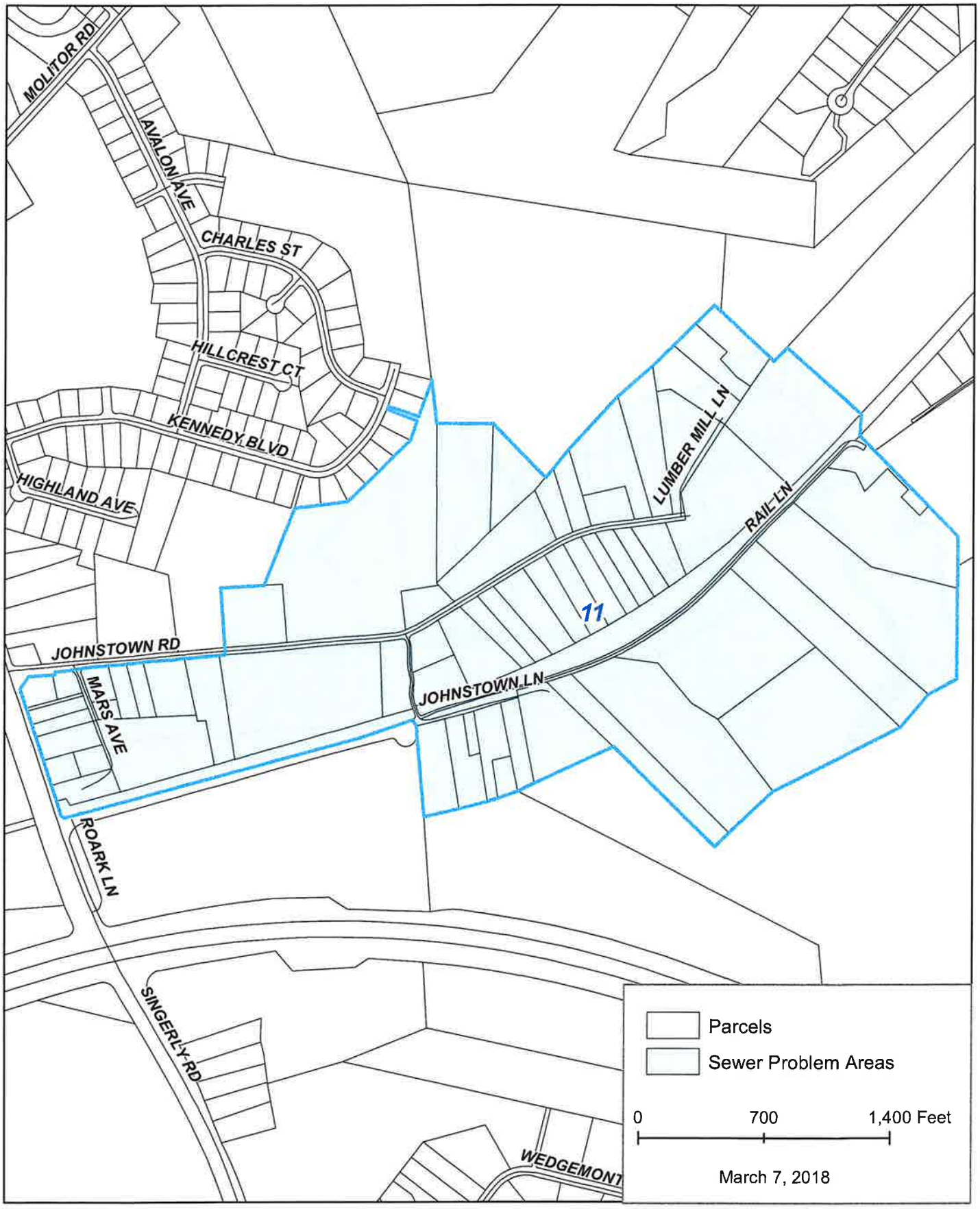
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #9 - Harrisville, Rising Sun, MD



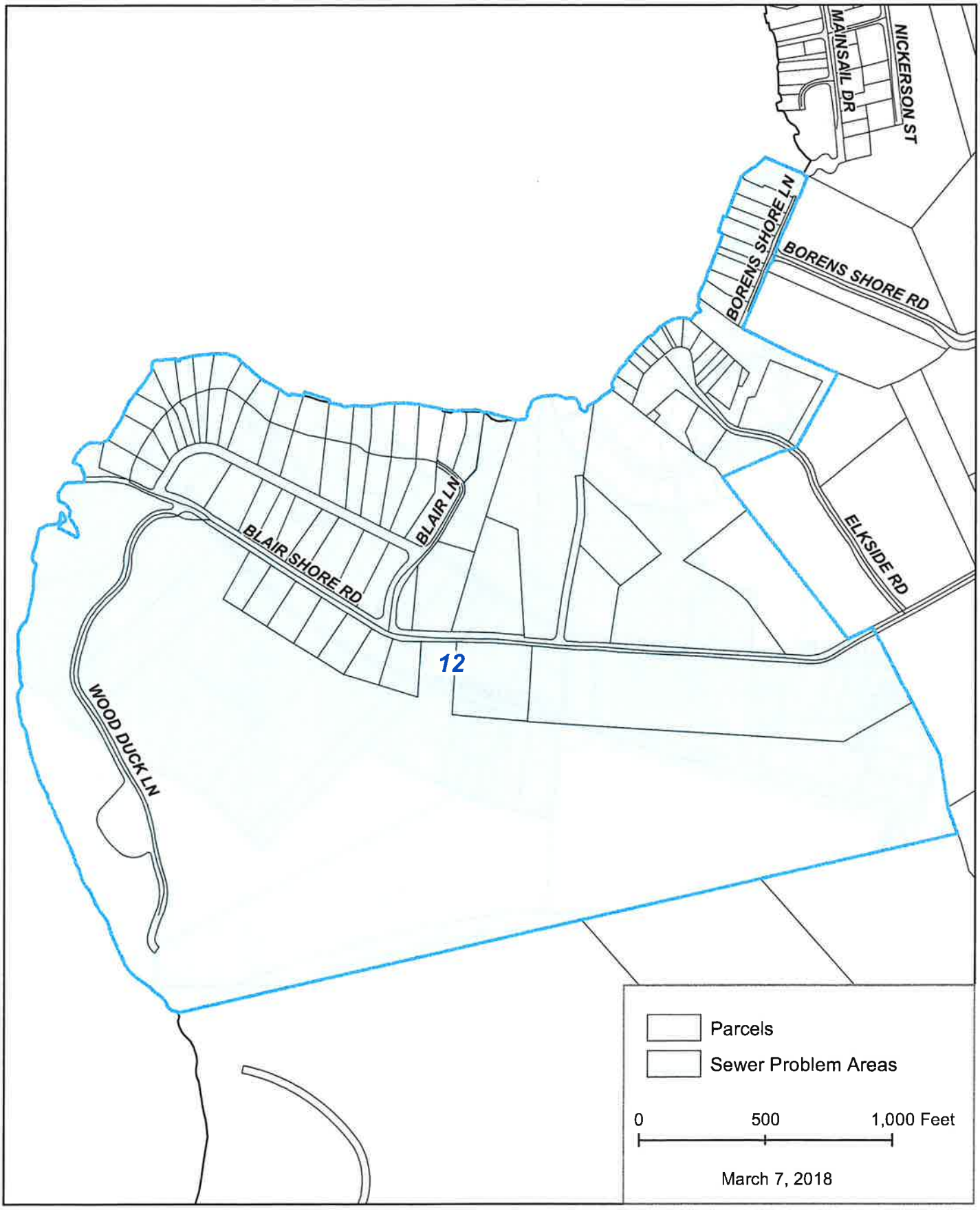
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #10 - Holloway Beach, Charlestown, MD



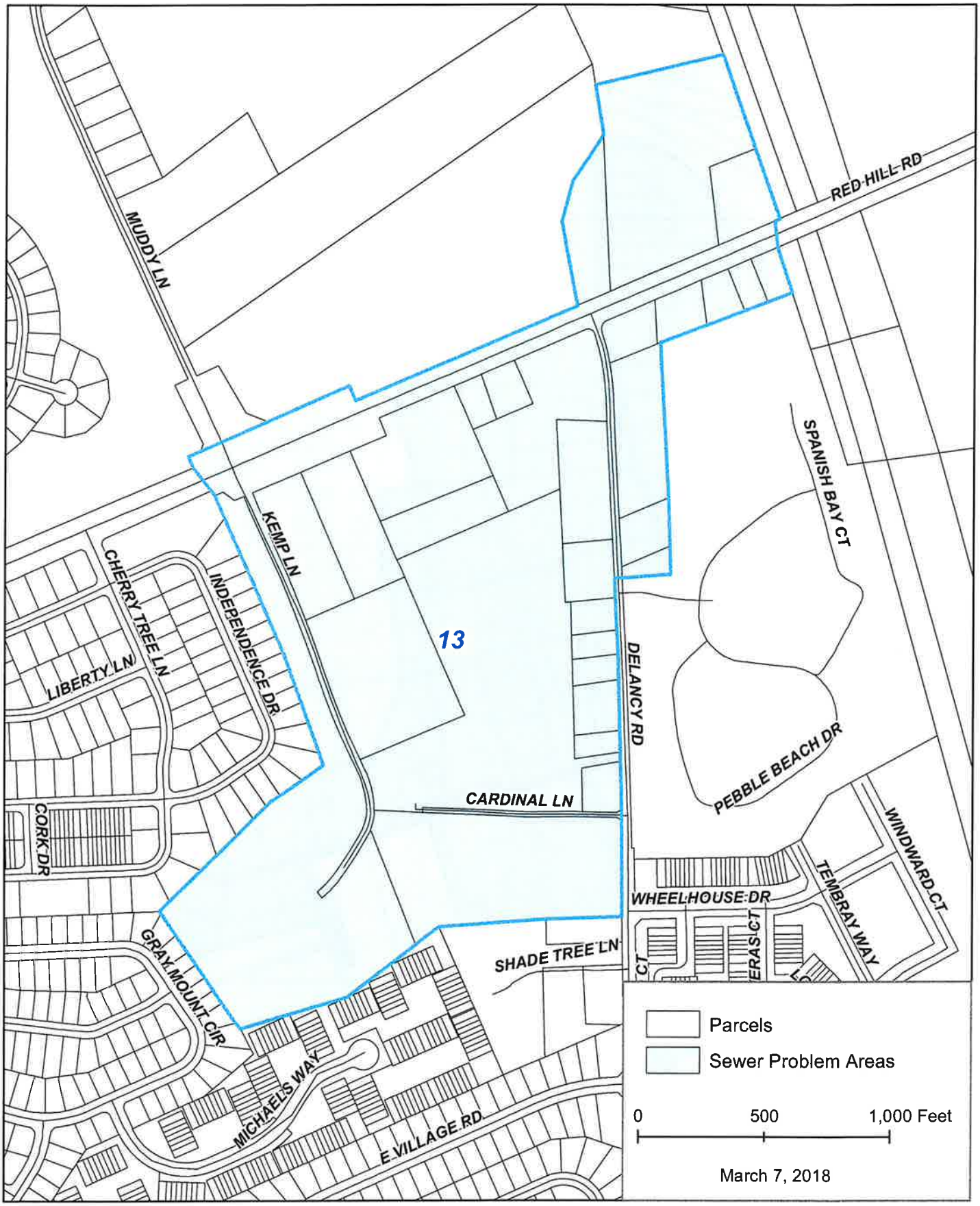
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #11 - Johnstown Rd & vicinity, Elkton, MD



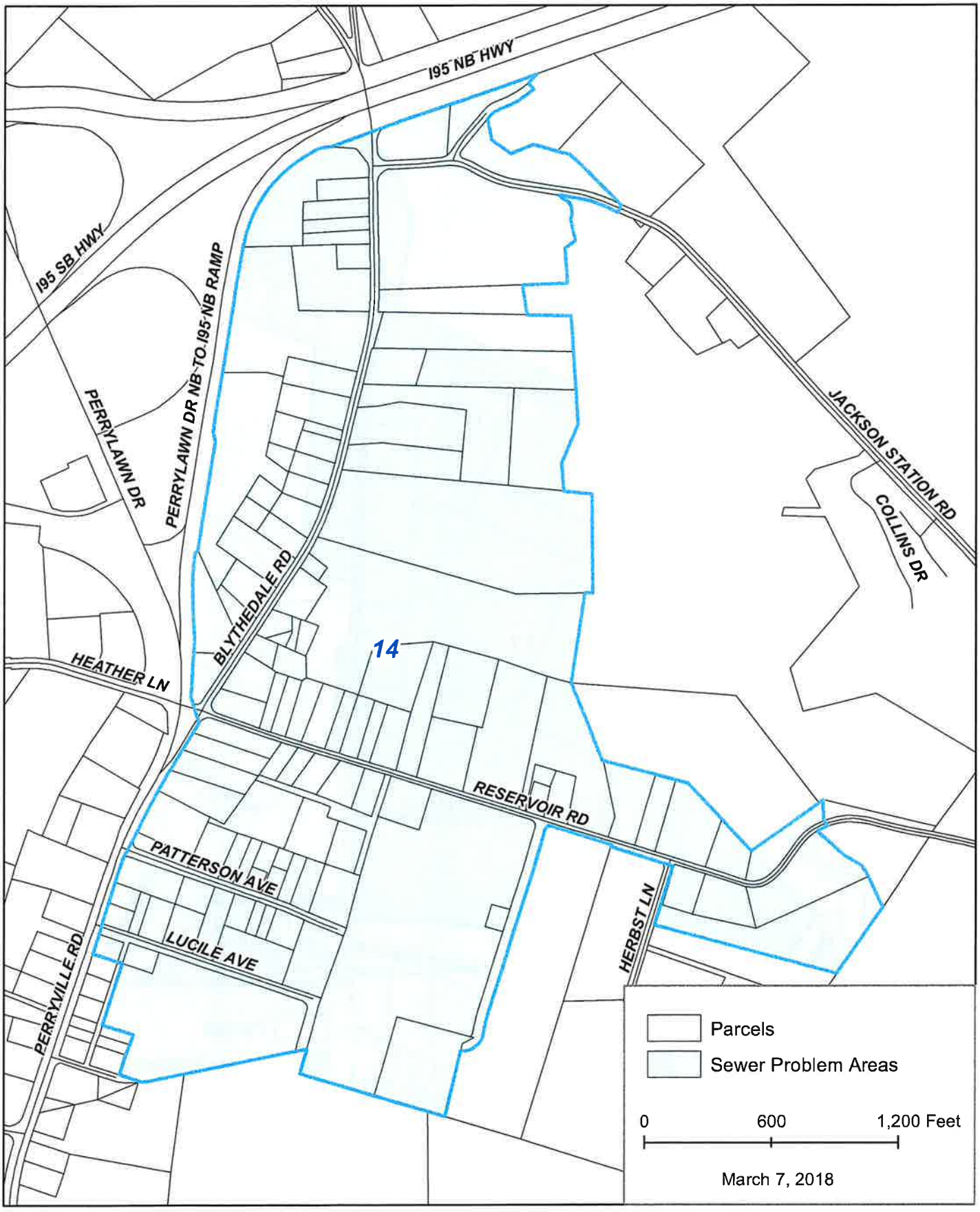
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #12 - Locust Point, Elkton, MD



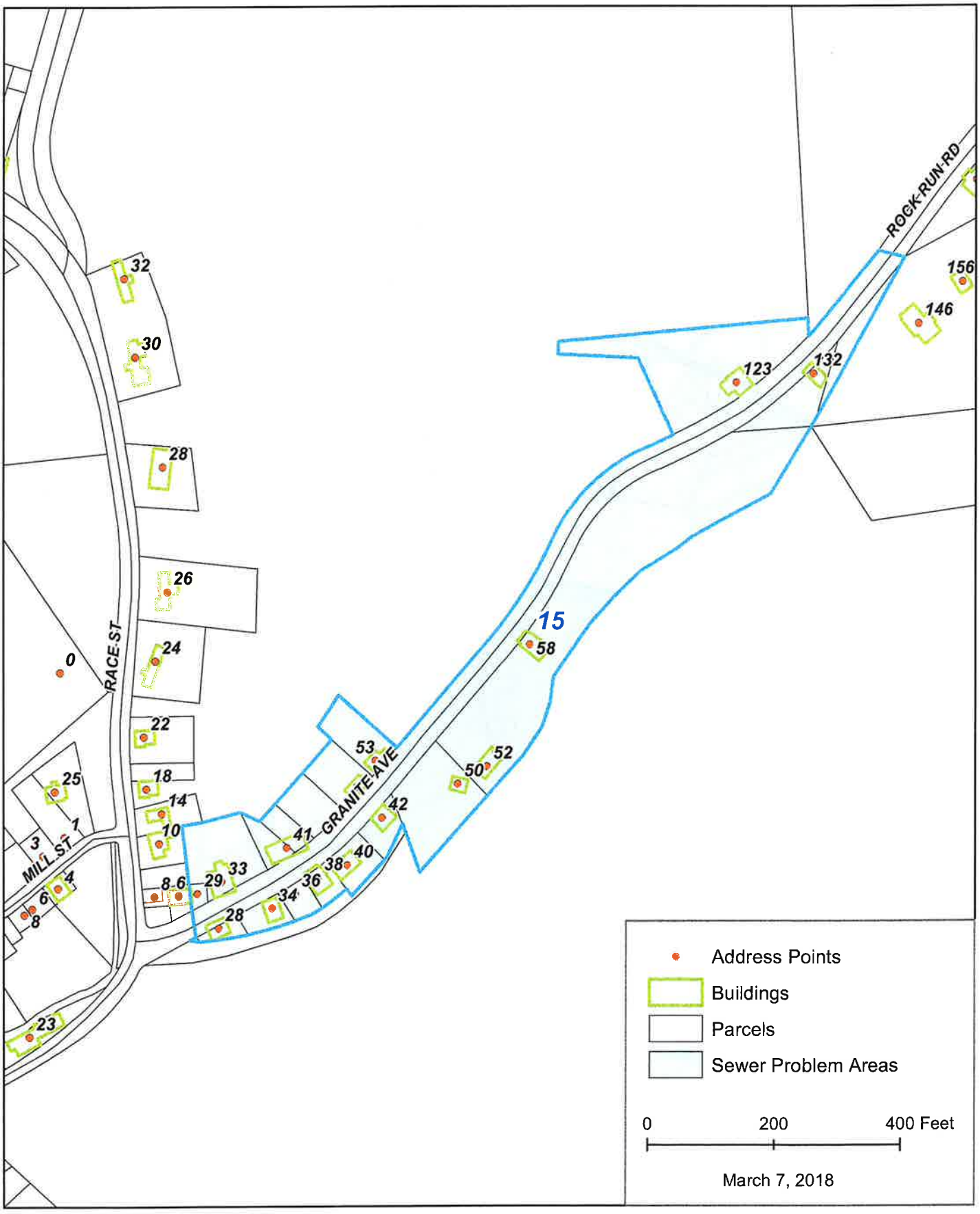
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #13 - Red Hill Rd & Delancy Rd, Elkton, MD



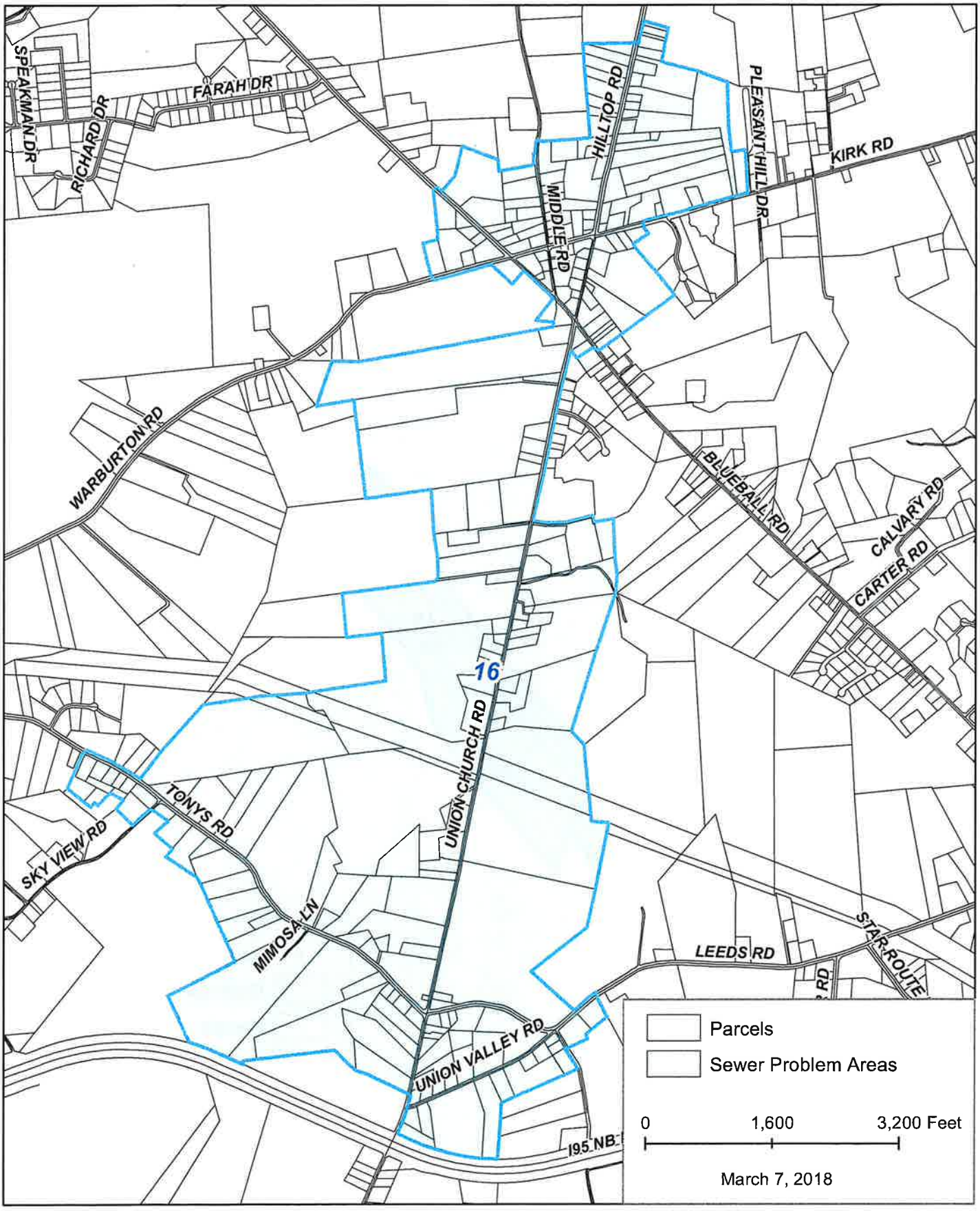
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #14 - Blythedale Rd & vicinity, Perryville, MD



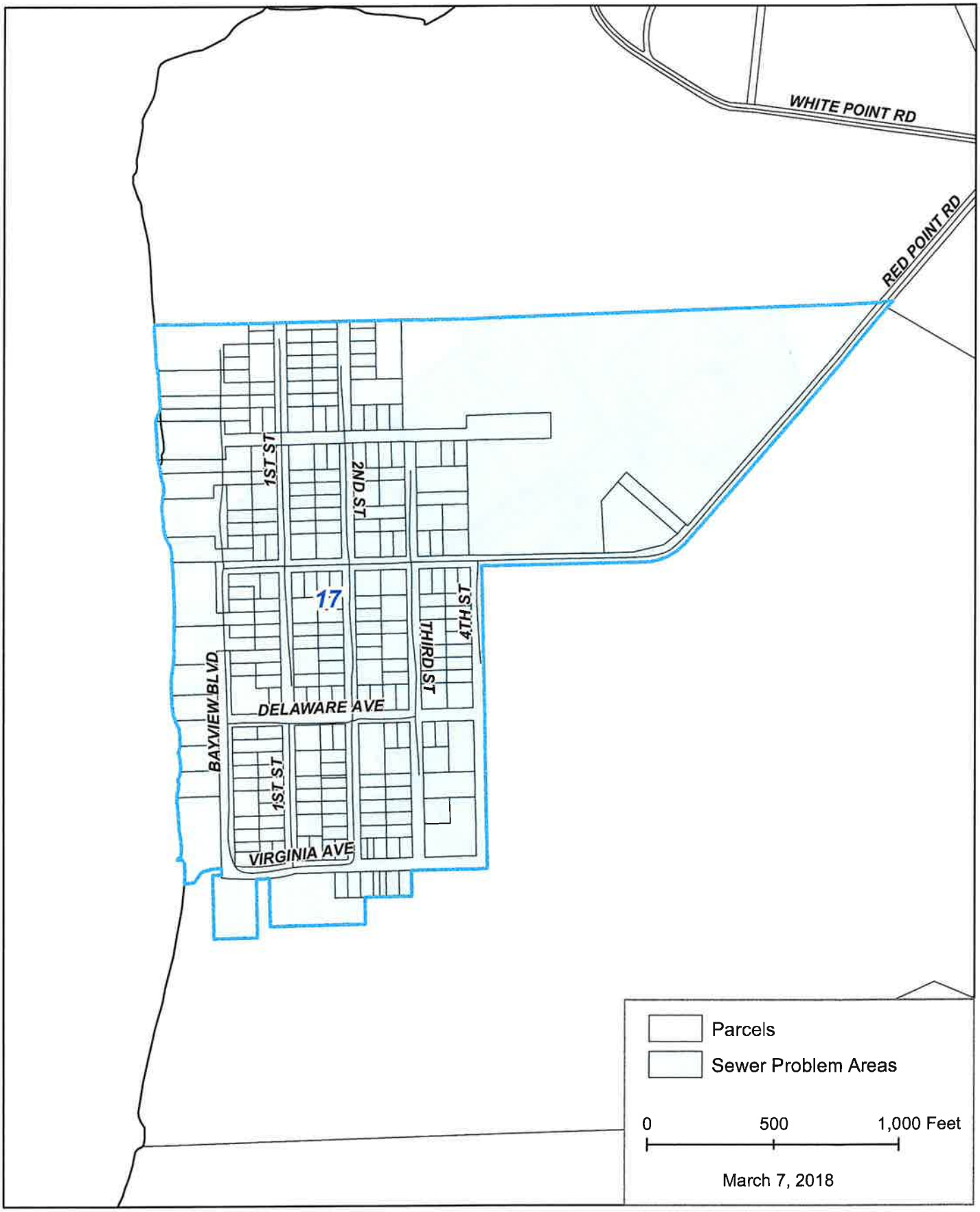
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #15 - Rock Run Rd, Port Deposit, MD



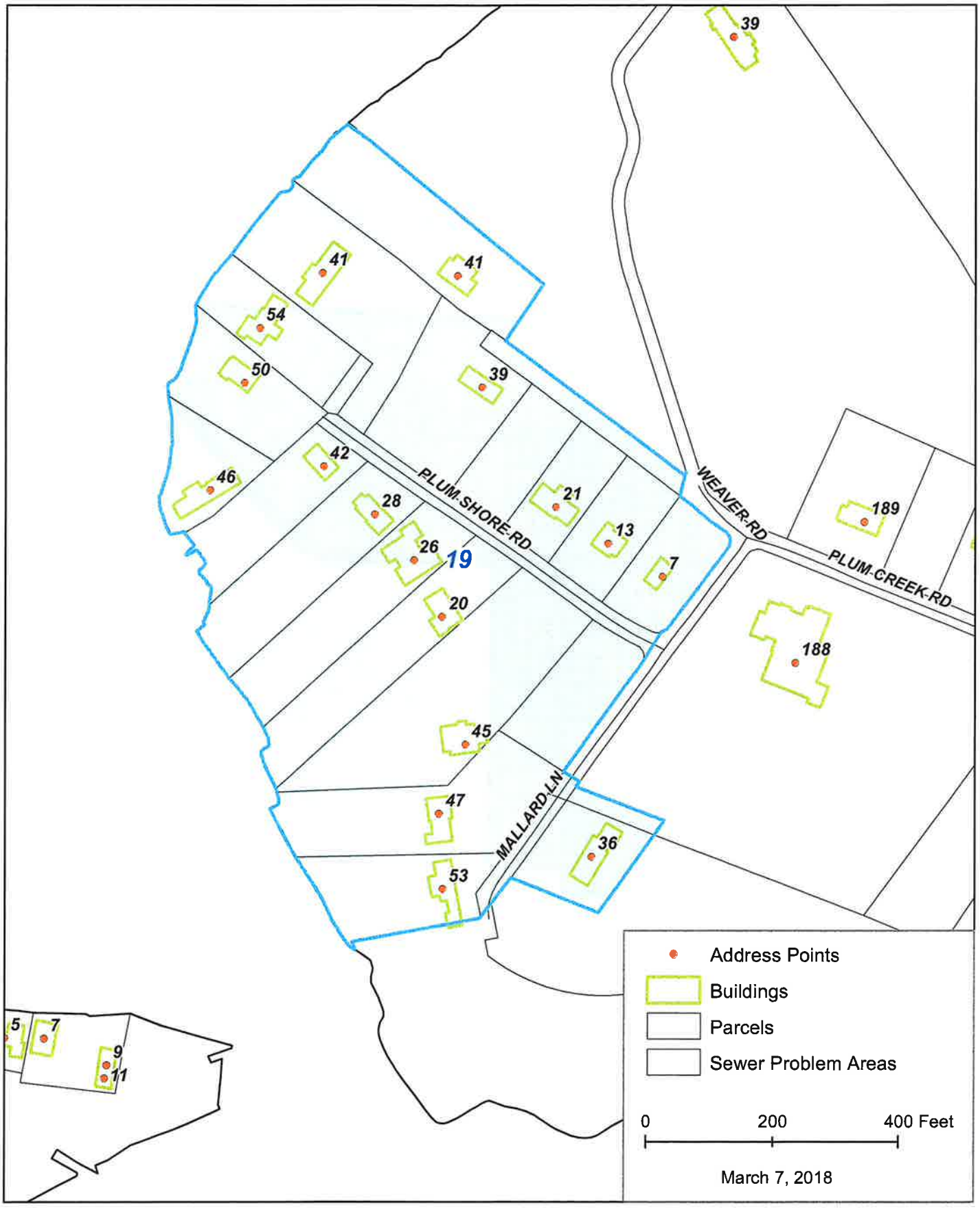
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #16 - Union Church Rd & vicinity, Elkton, MD



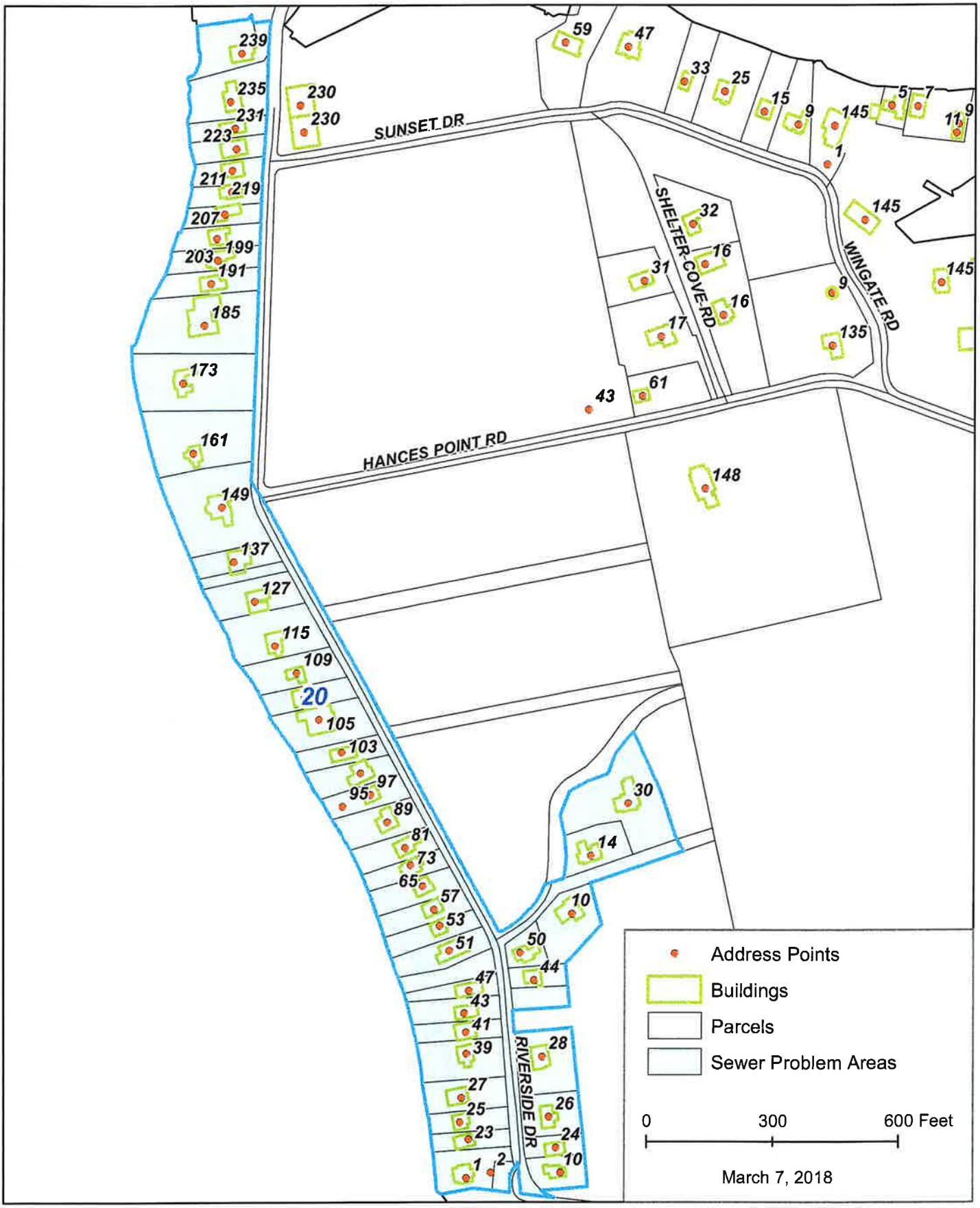
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #17 - Red Point, North East, MD



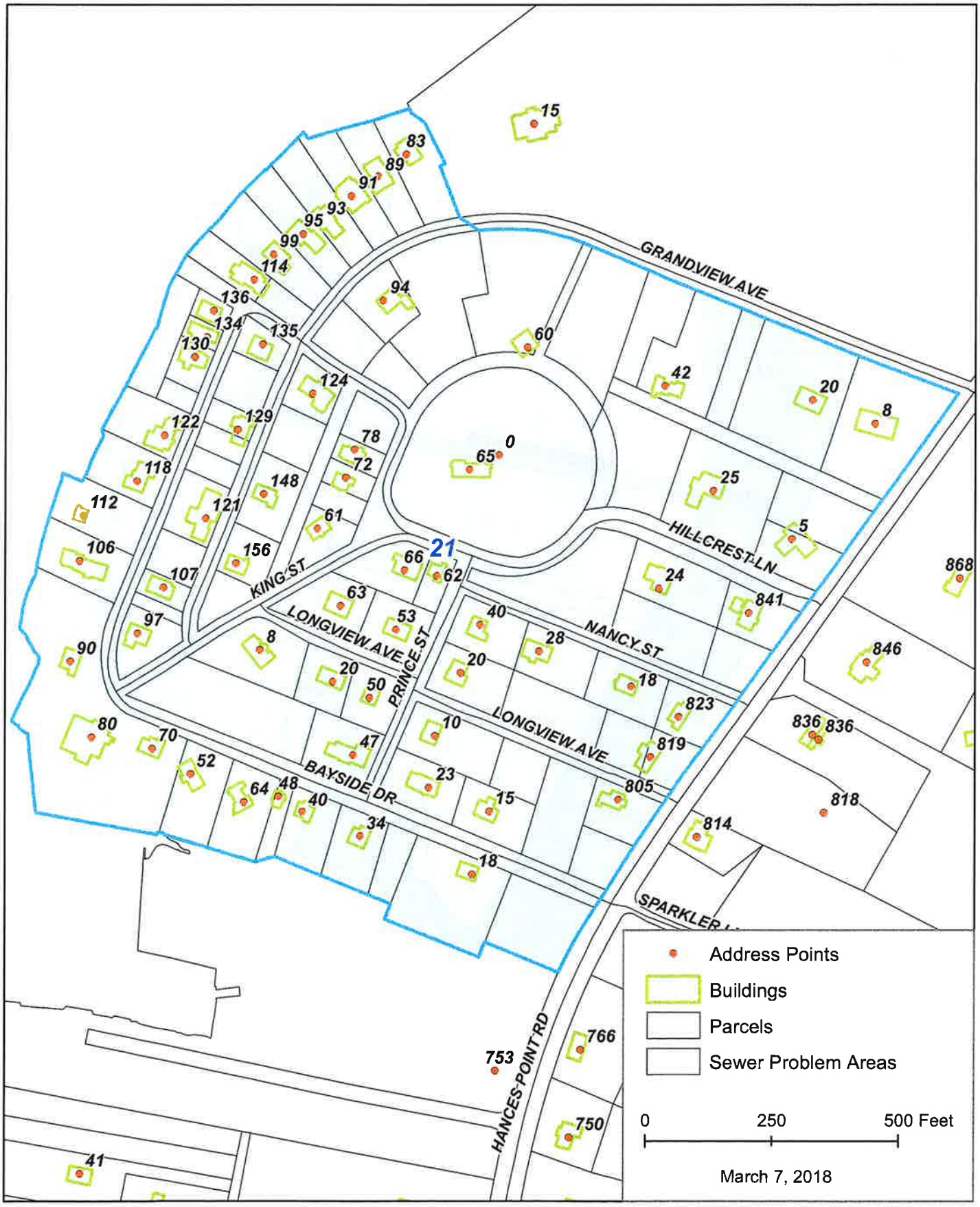
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #19 - Plum Shore, North East, MD



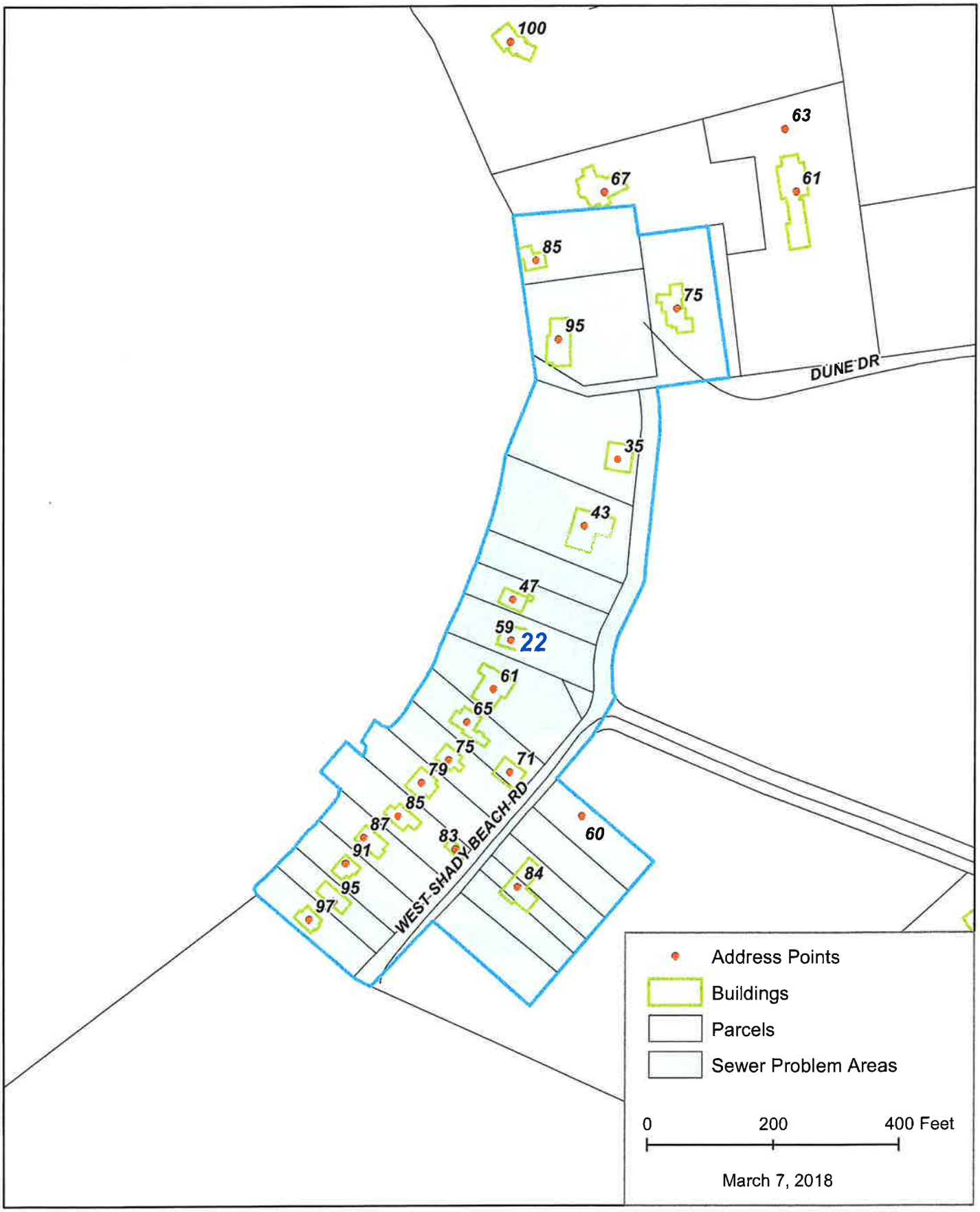
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #20 - Hances Point, North East, MD



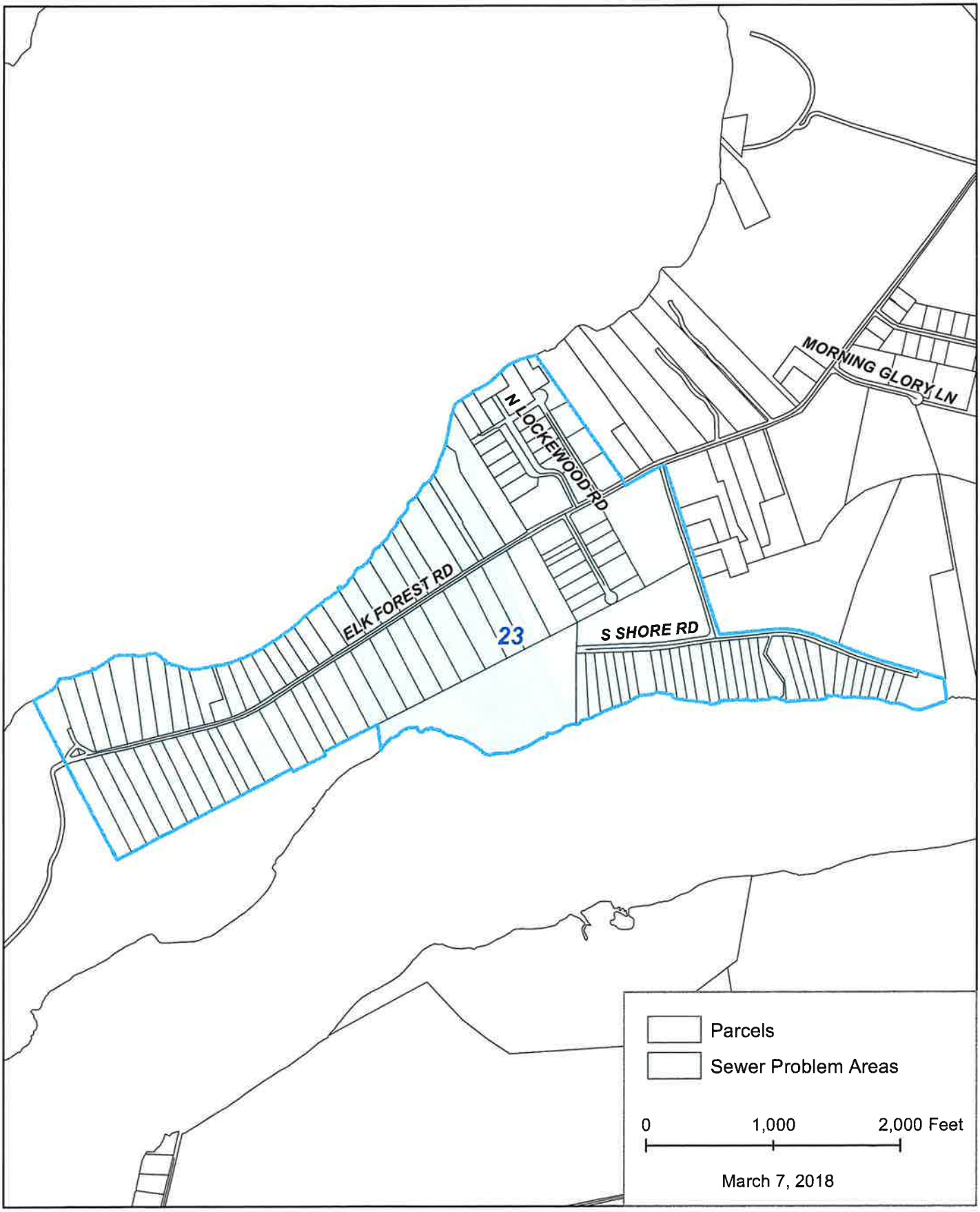
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #21 - North East Heights, North East, MD



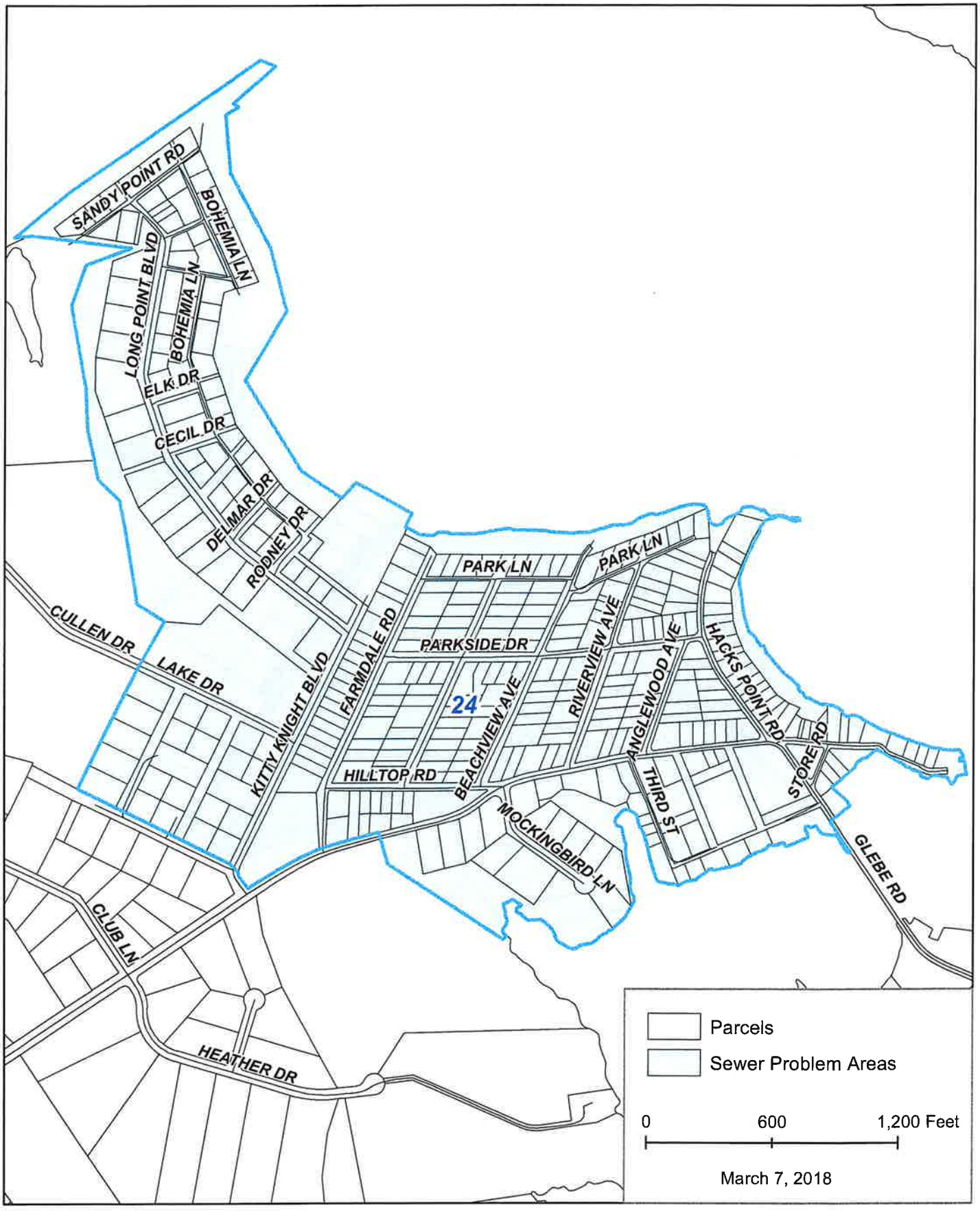
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #22 - West Shady Beach Rd, North East, MD



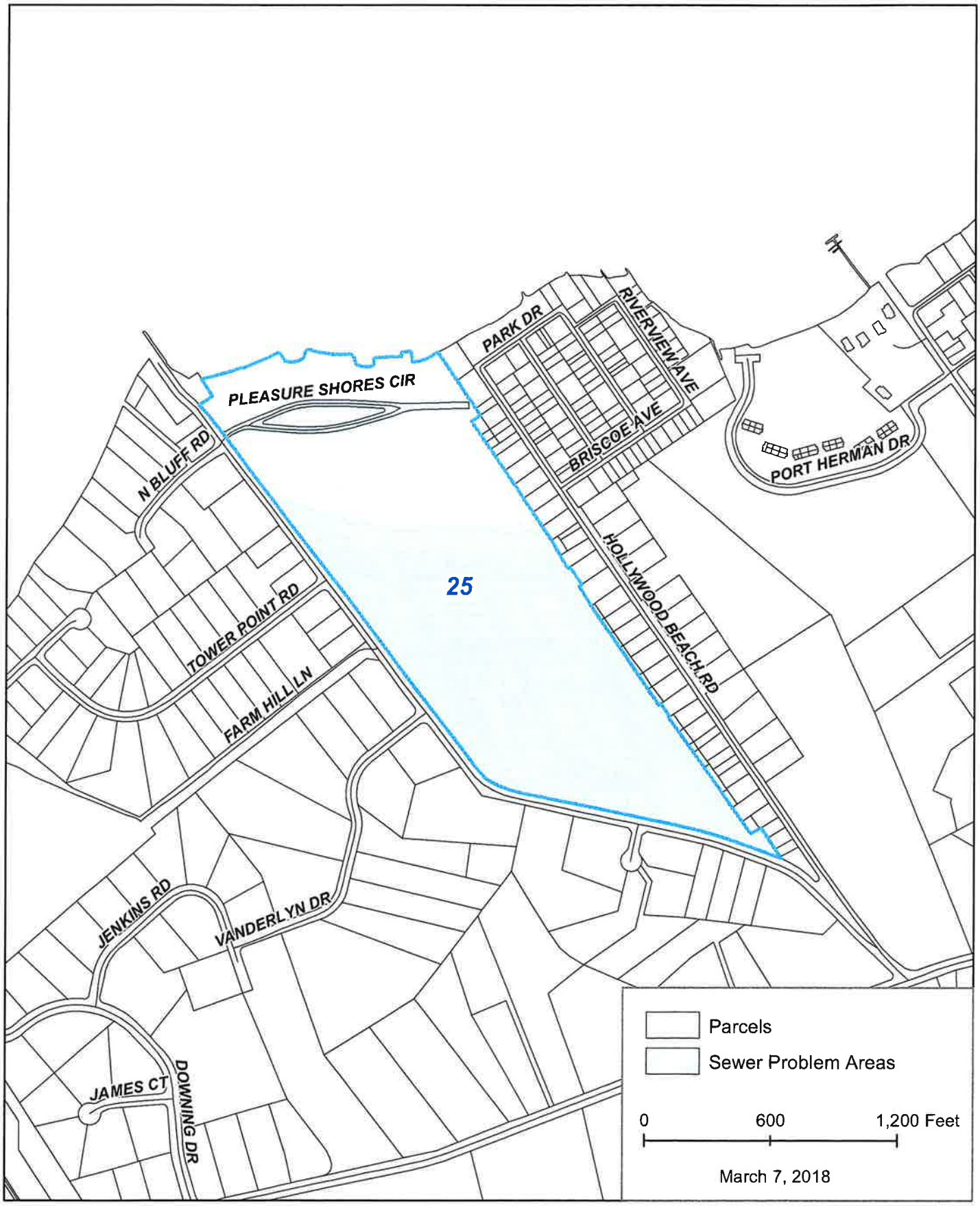
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #23 - Elk Forest Rd, Elkton, MD



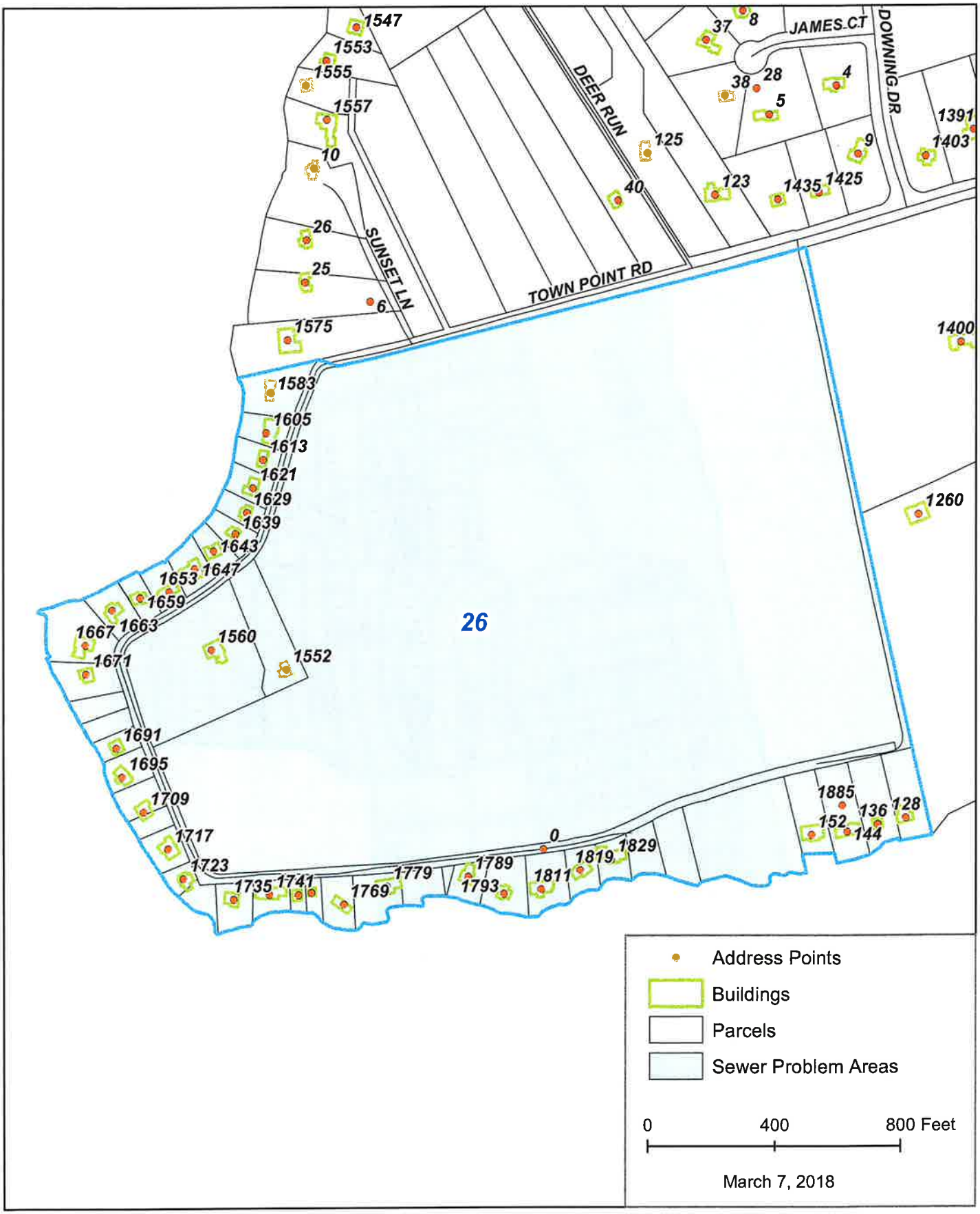
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #24 - Hacks Point, Earleville, MD



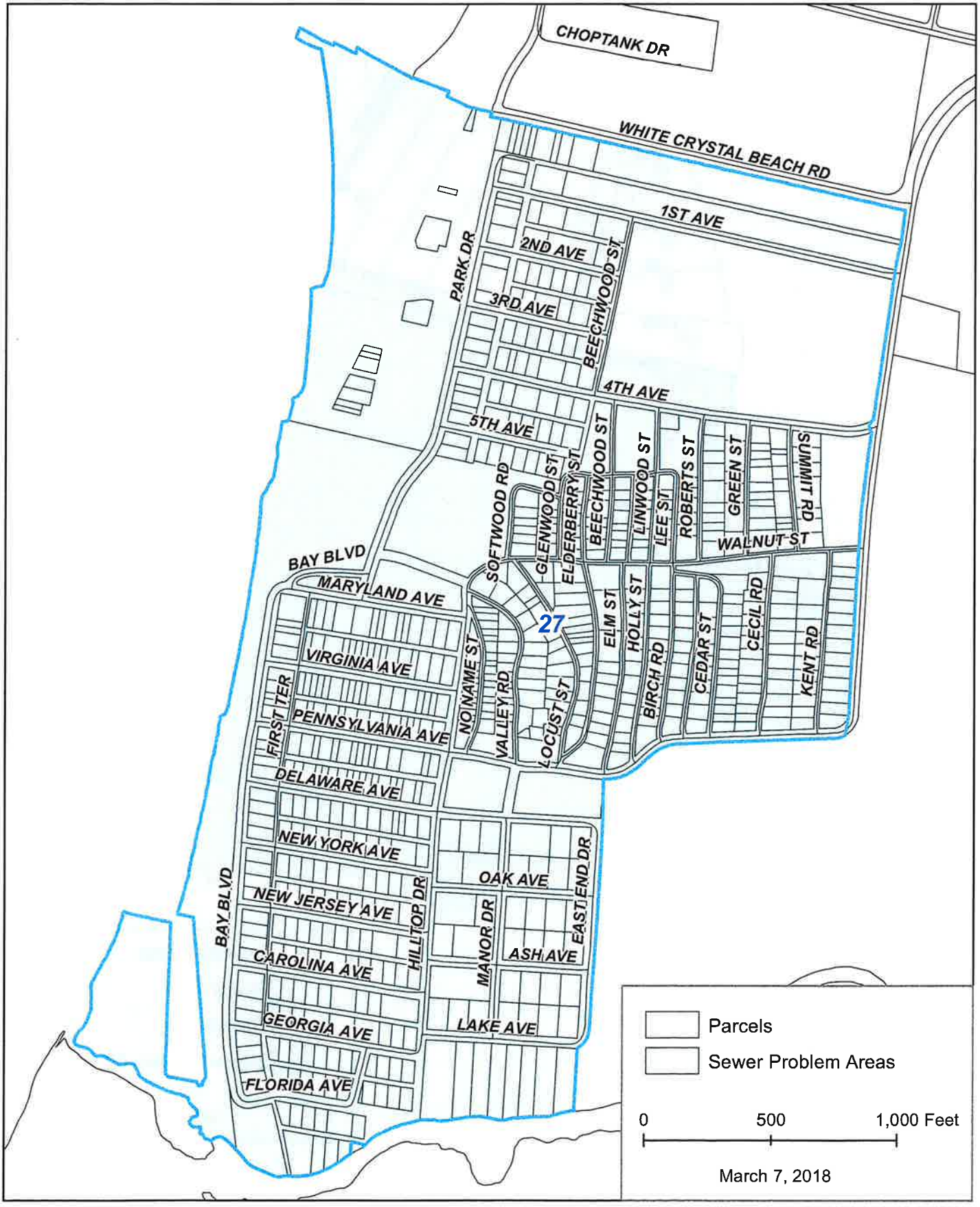
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #25 - Pleasure Shores, Chesapeake City, MD



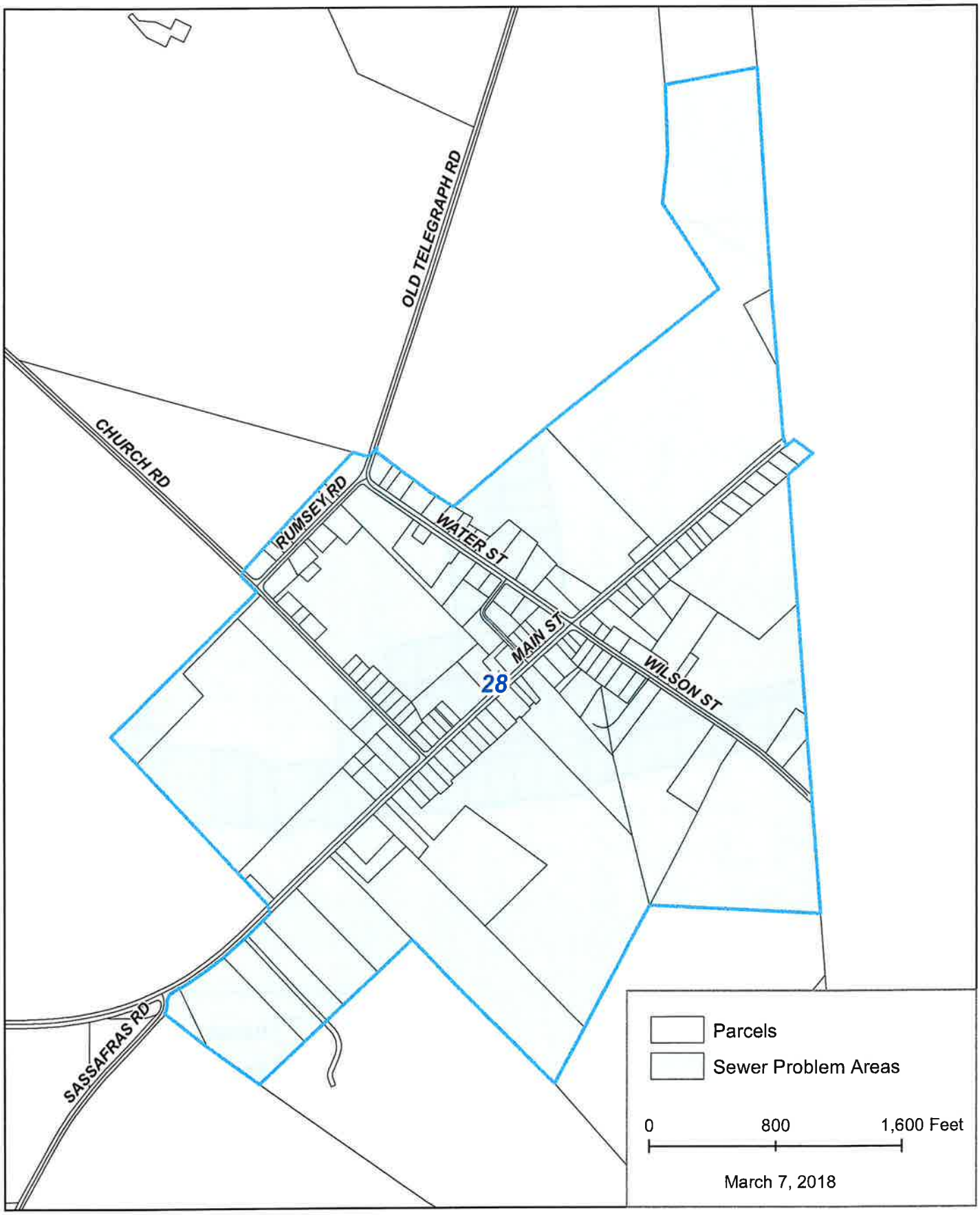
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #26 - Town Point, Chesapeake City, MD



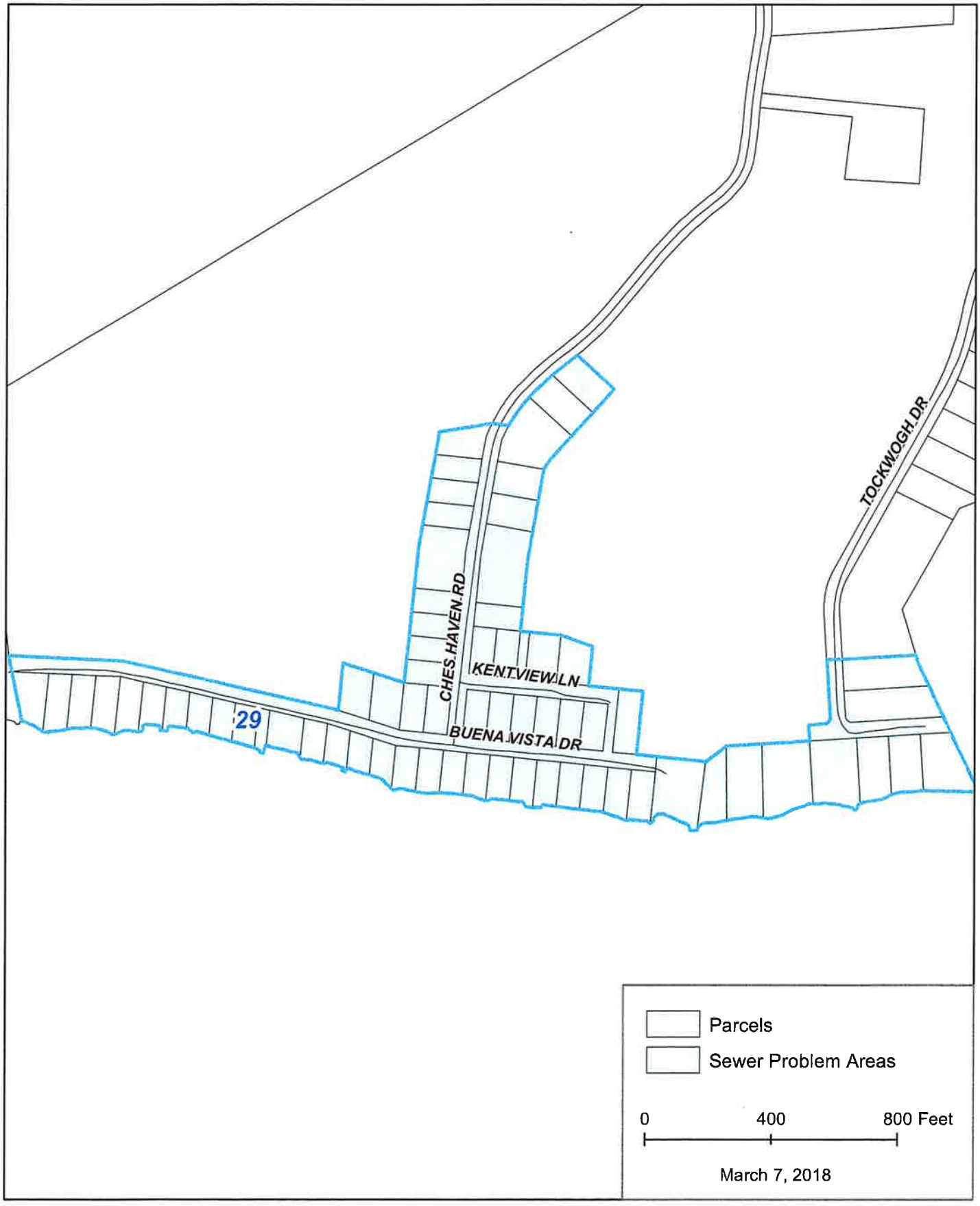
Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #27 - Crystal Beach, Earleville, MD



Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #28 - Village of Warwick, Warwick, MD



Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #29 - Cheshaven, Earleville, MD



Cecil County 2018 Master Water & Sewer Plan
Table 11 - Inventory of Sewage Problem Areas
Area #30 - Village of Zion, North East, MD

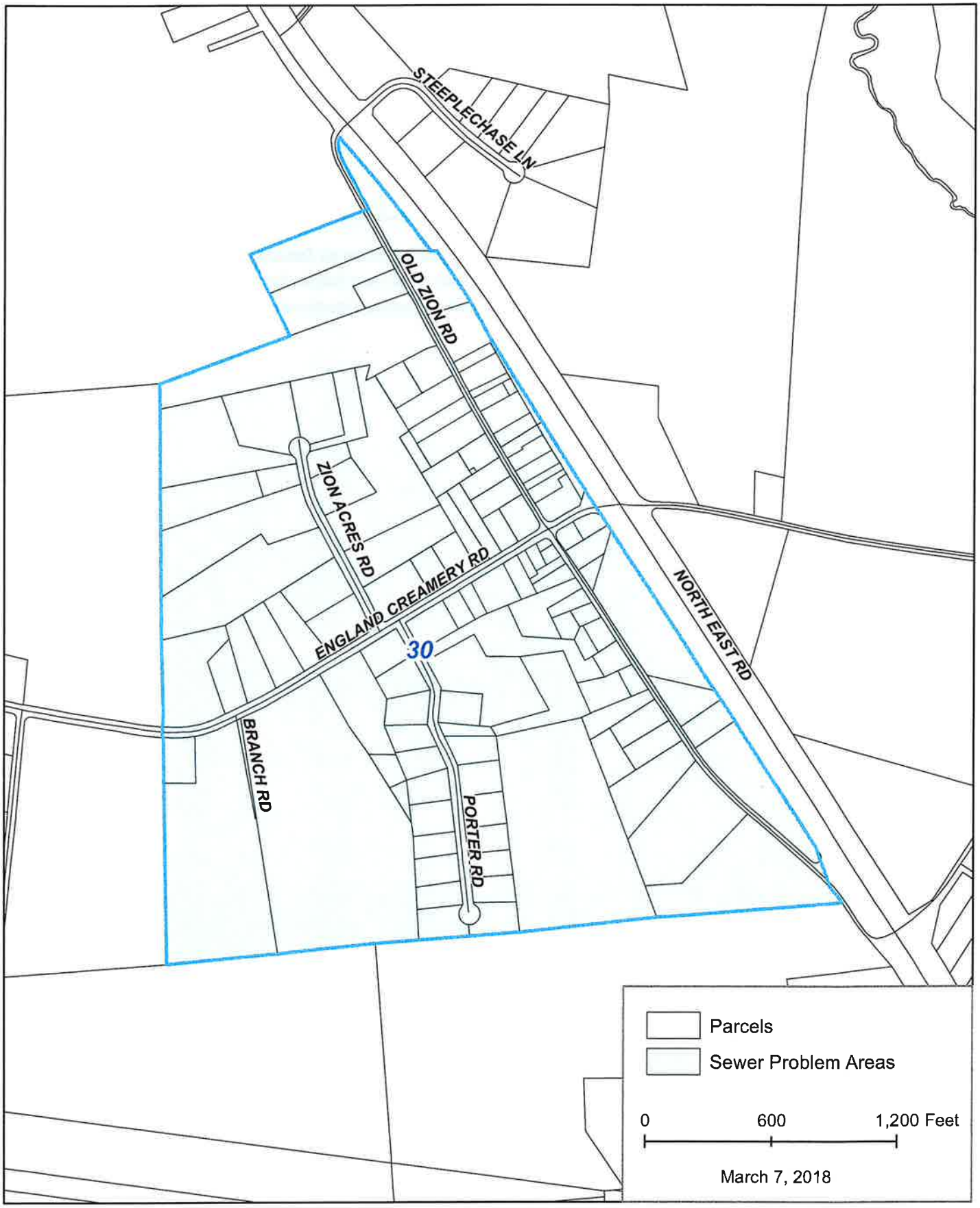


Table 12 - Water Quality Problems due to Storm Drainage Outfalls and Non-point Sources

Service Area	Location	Problem Description	Reach Affected

The Cecil County Department of Public Works conducts IDDE (Illicit Discharge Detection and Elimination) operations on the County's storm drain system on an annual basis. For purposes of this Master Water & Sewer Plan, the annual IDDE reports are hereby incorporated by reference.

Table 13 - Immediate, 5 and 10 Year Priorities for Sewerage Development

				Estimated Costs			Project Status Construction Start (Fiscal Year)	
Project Number	County Priority Assigned	Coordinate Location	Description	Total	Federal and/or State	Local	Immediate Priority Projects	5 and 10 Year Period Projects
Cecil County Department of Public Works								
55070	4	499,088.66; 220,967.38	***CECO Utilities*** - Connect to Cherry Hill WWTP and decommission current lagoon treatment facility.	$2.9 million	Unknown	Unknown	2019	
55067	17	498,077.43; 222,143.04	***Cherry Hill*** - Conversion of plant to a pump station; Convey sewage to expanded Meadowview WWTP for treatment.	Unknown	n/a	n/a		5-10 year project
55064	2	497,413.6; 215,885.74	***Elkton West*** - Construct sanitary sewer collection and conveyance system	$45 million	Unknown	Unknown	2019-2023	
55053	3	497,030.23; 205,500.7	***Harborview*** - Upgrade WWTP to ENR package plant having 0.1 mgd treatment capacity	$4.55 million	$1.5 million	$3.05 million	2019	
55041	6	487,313.1; 211,775.77	***Holloway Beach*** - Construct sanitary sewer collection and conveyance system	$2.85 million	$1.26 million	$1.59 million	2019-2023	
55033	9	503,312.82; 221,348.8	***Meadowview*** - Upgrade the WWTP capacity to 4.8 mgd to serve as regional WWTP for the Elkton West franchise area	$2.18 million	0	$2.18 million		2024
55021	14	486,987.34; 211,675.53	***North East River Advanced WWTP*** - Expand plant capacity to 9.1 mgd and ultimate capacity of 11.3 mgd	$26 million	0	$26 million		5-10 year project
55069	1	477,315.78; 215,565.25	***Port Deposit*** - Construct a new ENR packaged WWTP. The new WWTP will be designed to readily expand to accommodate increased flows.	$10.7 million	$2.5 million	$5.7 million	2019	
55055	7	476,613.33; 214,759.85	***Port Deposit*** - Construct modifications to collections system to convey sewage to the new WWTP and a connection to convey treated effluent to the existing outfall.	$1.25 million	0	$1.25 million	2019	

55040	22	487,737.53; 206,630.41	***Red Point Beach*** - Construction of a sewer collection system and treatment plant to address failing septic systems.	$6.77 million	$6.27 million	500,000		5-10 year project
55057	8	475,504.16; 216,851.37	***Rock Run Rd Sanitary Sewer Extension*** - Construct sanitary sewer collection and conveyance system	$1.1 million	$1.1 million	0		5-10 year project
55031	5	488,971.33; 215,409.3	***Route 40 West Sanitary Subdistrict*** - Construct sanitary sewer collection and conveyance system	$5.83 million	0	$5.83 million	2020	

Incorporated Towns

n/a	n/a	501,613.75; 207,731.31	***Chesapeake City*** - Construction of 300,000 gpd SBR to serve both sides of town	Unknown	n/a	n/a	2019-2020	
n/a	n/a	Various	***Chesapeake City*** - Conduct inflow and infiltration repairs and improvements.	Unknown	n/a	n/a	2019	
n/a	n/a	503,387.12; 206,636.06	***Chesapeake City*** - Extend sewer service to the Chesapeake Estates manufactured home park	Unknown	n/a	n/a		5-10 year project
n/a	n/a	499,935.45; 215,291.29	***Elkton*** - Upgrade the permitted capacity of the WWTP to 5.0 mgd	Unknown	n/a	n/a		5-10 year project
n/a	n/a	500,405.45; 216,425.99	***Elkton*** - Reduce rates of inflow and infiltration	Unknown	n/a	n/a	2019-2023	
n/a	n/a	480,409.43; 210,481.33	***Perryville*** - Upgrade WWTP with cloth disk filters and denitrification filters	Unknown	n/a	n/a	2019	
n/a	n/a	480,397.03; 225,925.77	***Rising Sun*** - Replace undersized conveyance and collection lines.	Unknown	n/a	n/a		5-10 year project

Table 13A - Marinas

Name	*Address*	*Sewage Disposal*	*Known Problems*
Anchor Marina	36 Iroquois Drive, North East, MD	Connected to County sewer	None
Bay Boat Works	145 Hances Point Rd, North East, MD	Septic tanks	None
Bohemia Anchorage	1703 Glebe Rd, Earleville, MD	Septic tanks	None
Bohemia Bay Yacht Harbor	1026 Town Point Rd, Chesapeake City, MD	Septic tanks	None
Bohemia Vista Yacht Basin	140 Vista Marina Rd, Chesapeake City, MD	Septic tanks	None
Charlestown Marina	4 Water St, Charlestown, MD	Connected to County sewer	None
Chesapeake Inn & Marina	605 Second St, Chesapeake City, MD	Connected to Town sewer	None
Craft Haven	900 Carpenters Point Rd, Perryville, MD	Connected to County sewer	None
Duffy Creek Marina	20 Duffy Creek Rd, Fredericktown, MD	Septic tanks	None
Galahad Marine Sales	230 Riverside Dr, North East, MD	Septic tanks	None
Granary Marina	100 George St, Fredericktown, MD	Septic tanks	None
Hacks Point Marina	1645 Glebe Rd, Chesapeake City, MD	Septic tanks	None
Harbour North Marina	111 River Rd, Chesapeake City, MD	Connected to County sewer	None
Lee's Marina	726 Water St, Charlestown, MD	Connected to County sewer	None
Locust Point Marina	145 River Rd, Elkton, MD	Septic tanks	None
Long Point Marina	125 Kitty Knight Blvd, Earleville, MD	Septic tanks	None
Losten Marina	1645 Glebe Rd, Chesapeake City, MD	Septic tanks	None
McDaniel Yacht Basin	15 Grandview Ave, North East, MD	Septic tanks	None
North East River Marina	724 Water St, Charlestown, MD	Connected to County sewer	None
North East River Yacht Club	80 Bayside Dr, North East, MD	Septic tanks	None
North East Yacht Sales	753 Hances Point Rd, North East, MD	Septic tanks	None
Owens Marina	10 River Rd, Perryville, MD	Connected to Town sewer	None
Perryville Yacht Club	31 River Rd, Perryville, MD	Connected to Town sewer	None
Richmonds Marina	1500 Glebe Rd, Earleville, MD	Septic tanks	None
Sailing Associates, Inc.	78 George St, Fredericktown, MD	Septic tanks	None
Sassafras Harbor Marina	2 George St, Fredericktown, MD	Septic tanks	None
Scotchmans Creek Marina	34 Greenspring Rd, Earleville, MD	Septic tanks	None
Shelter Cove Yacht Basin	230 Riverside Dr, North East, MD	Septic tanks	None
Skipjack Cove	150 Skipjack Cove Rd, Fredericktown, MD	Septic tanks	None
Taylors Marina	46 River Rd, Elkton, MD	Septic tanks	None
The Cove Marina	11 Main Sail Dr, Elkton, MD	Septic tanks	None

Tomes Landing Marina	1000 Rowland Dr, Port Deposit, MD	Connected to Town sewer	None
Triton Marina	285 Plum Point Rd, Elkton, MD	Septic tanks	None
Two Rivers Yacht Basin	64 Two Rivers Ln, Chesapeake City, MD	Septic tanks	None
Wellwood Marina	523 Water St, Charlestown, MD	Connected to County sewer	None

Total number of marinas = 35
Total connected to sewer = 11
Total using septic tanks = 24

Table 14 - Water and Sewerage Map Symbols

Please see the maps contained in Appendices C and D to view the map legends and symbology used for exising and planned service areas, various types of water and sewer infrastructure, etc.

Table 15 - Flow Data - Wastewater Treatment Plants

Please see Tables 9 & 10 for this information.

Table 15A - Sewer Pump Stations and Force Mains

Pump Station Name	Location	Number of pumps	Pump Design Capacity (MGD)	Peak Flow (MGD)	Average daily flow (MGD)	Part of Conveyance system	Associated Force Main Diameter
Cecil County Department of Public Works							
Academy Hills Pump Station	35 Somerset Circle, Elkton	2	Unknown	0.024	0.006	Cherry Hill WWTP	4 inch
Avalon Pump Station	24 Louisa Lane, Charlestown	2	0.15	0.03	0.006	NERA WWTP	6 inch
Bay View Pump Station	425 Old Bayview Road, North East	2	0.12	0.01	0.002	NERA WWTP	4 inch
Belvidere Rd pump station	85 Belvidere Rd, Perryville	2	0.342	0.316	0.079	NERA WWTP	8 inch
Carpenters Point Pump Station	Oak Road and Dewberry Lane	2	0.95	0.06	0.016	NERA WWTP	6 inch
Cecil Community College Pump Station	1000 North East Road, North East	2	0.33	0.03	0.008	NERA WWTP	6 inch
Charlestown Crossing - Pump Station	W Old Philadelphia Rd, North East	2	0.66	0.83	0.049	NERA WWTP	8 inch
Charlestown Manor Pump Station	37 Edgewater Avenue, Charlestown	2	0.28	0.11	0.027	NERA WWTP	4 inch
Cherry Hill Pump Station	45 Cherry Hill Road, Elkton	2	0.144	0.083	0.021	Cherry Hill WWTP	4 inch
Chesapeake Club Pump Station	311 Tournament Circle, North East	2	0.36	0.024	0.006	NERA WWTP	6 Inch
Church Point Pump Station	29 Church Point Road, North East	2	0.43	0.27	0.067	NERA WWTP	6 inch
Cool Springs at Charlestown Pump Station	Cool Springs Road, North East	2	0.252	0.233	0.058	NERA WWTP	4 inch
DelaPlaine Pump Station	966 Turkey Point Road, North East	2	0.25	0.14	0.036	NERA WWTP	12 inch
Greenbank Pump Station	Greenbank Road and Woodall Road	2	0.42	0.03	0.007	NERA WWTP	6 inch
Highlands Pump Station	Ballantrae Drive, Elkton	2	0.19	0.21	0.052	Meadowview WWTP	4 inch
Indian Springs Pump Station	Van Weaver Drive, North East	2	0.05	0.01	0.001	NERA WWTP	2 inch
Meadowview WWTP influent Pump Station	246 Fletchwood Rd, Elkton, MD 21921	2	Unknown	Unknown	0.333	Meadowview WWTP	two 12 inch
Mechanic Valley Pump Station	666 Mechanic Valley Road, North East	2	0.12	0.02	0.005	NERA WWTP	6 inch
North East Isles Pump Station	North East Isles Dr, North East	2	0.19	0.03	0.007	NERA WWTP	3 inch
Persimmon Creek Pump Station	Persimmon Lane, Elkton	2	Unknown	0.13	0.033	Meadowview WWTP	6 Inch
Port Deposit - S Main St Pump Station	across from 64 S Main St, Port Deposit	2	Unknown	0.13	0.032	Port Deposit WWTP	6 inch
Port Deposit - Vannort Pump Station	Vannort Drive, Port Deposit	2	Unknown	0.065	0.016	Port Deposit WWTP	6 inch

Price Marina (Veterans Park) Pump Station	524 Water Street, Charlestown	2	0.05	0.004	0.001	NERA WWTP	Unknown
Principio South pump station	Cecil Street, Charlestown	2	3.27	3.01	1.19	NERA WWTP	16 inch
Ridgely Forest - Corktree Lane Pump Station	34 Corktree Lane, Elkton	2	0.094	0.087	0.021	NERA WWTP	4 inch
Route 279 Pump Station	1585 Elkton Newark Road, Elkton	2	0.12	0.0208	0.0083	Meadowview WWTP	6 inch
Route 40 Pump Station	2408 Pulaski Hwy, North East	2	1.41	0.53	0.133	NERA WWTP	12 inch
Washington Street Pump Station	1 Washington Street, North East	4	4	2.37	1.005	NERA WWTP	20 & 24 inch
West Creek Village Pump Station	4775 West Creek Village Dr, Elkton	2	1.71	1.54	0.415	Meadowview WWTP	10 inch

Pump Station Name	Location	Number of pumps	Pump Design Capacity (MGD)	Peak Flow (MGD)	Average daily flow (MGD)	Part of Conveyance system	Associated Force Main Diameter
Incorporated Towns							
Cecilton - Wilson St Pump Station	Wilson St & Church St, Cecilton	No data provided	No data provided	No data provided	No data provided	Town of Cecilton	No data provided
Cecilton - WWTP Influent pump station	262 N Bohemia Ave, Cecilton	2	No data provided	No data provided	No data provided	Town of Cecilton	6 inch
Chesapeake City - Bohemia Manor HS/MS pump station	2799 Augustine Herman Hwy, Chesapeake City	2	0.0397	0.0345	0.0115	Town of Chesapeake City	3 inch
Chesapeake City - VFW pump station	2655 Augustine Herman Hwy, Chesapeake City	2	0.1357	0.1245	0.0415	Town of Chesapeake City	4 inch
Chesapeake City - Bank St pump station	105 Bank St, Chesapeake City	2	0.0648	0.1715	0.049	Town of Chesapeake City	N/A
Elkton - Kensington Courts pump station	534 Highland Dr, Elkton	2	0.3485	0.2369	0.0592	Town of Elkton	4 inch
Elkton - Whitehall Rd pump station	116 Whitehall Rd, Elkton	2	0.2016	0.0946	0.0237	Town of Elkton	4 inch
Elkton - Warner Road pump station	8 Warner Rd, Elkton	2	0.9504	0.3117	0.0779	Town of Elkton	10 inch
Elkton - Patriots Glen pump station	300 Patriots Way, Elkton	2	0.9014	0.1919	0.048	Town of Elkton	8 & 10 inch
Elkton - Little Elk Creek pump station	407 Cow Ln, Elkton	2	0.5544	0.276	0.069	Town of Elkton	8 inch
Elkton - Washington Woods pump station	250 Independence Dr, Elkton	2	0.3168	0.2572	0.0643	Town of Elkton	4 inch
Elkton - Colonial Ridge pump station	153 Park Towne Dr, Elkton	2	0.2952	0.1248	0.0312	Town of Elkton	6 inch

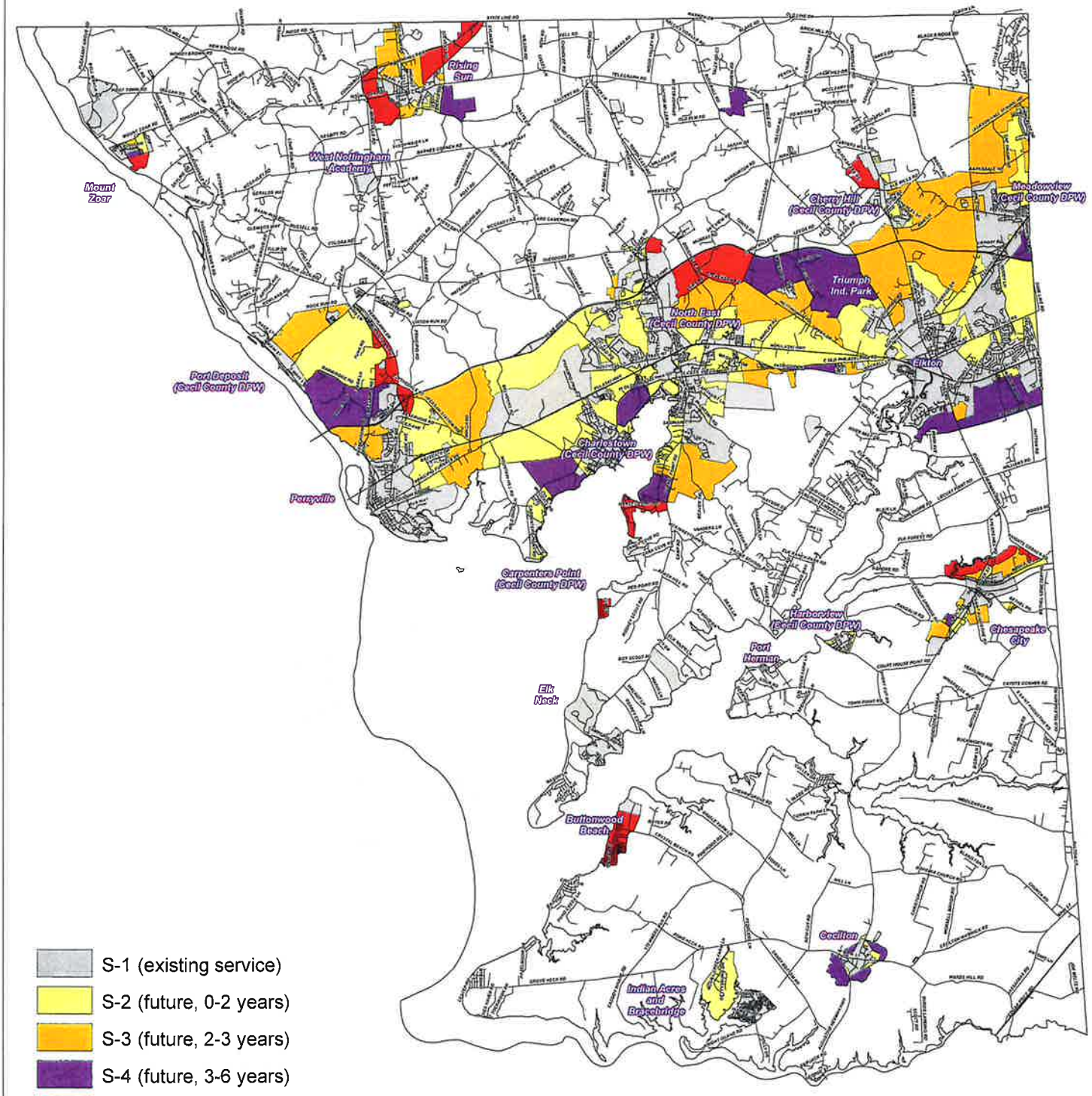
Elkton - Elk Ridge pump station	58 1/2 Jessie Boyd Cir, Elkton	2	0.54	0.1161	0.029	Town of Elkton	6 inch
Elkton - Walnut Lane pump station	100 Gina Marie Ln, Elkton	2	0.0331	0.0155	0.0039	Town of Elkton	2 inch
Elkton - Upper Chesapeake pump station	202 Chesapeake Blvd, Elkton	2	0.1728	0.0188	0.0047	Town of Elkton	4 inch
Elkton - Meadows pump station	501 Elkwood Rd, Elkton	2	0.7373	0.2713	0.0678	Town of Elkton	8 & 10 inch
Elkton - Courts of Southfield pump station	340 Buttonwoods Rd, Elkton	2	0.6048	0.0318	0.008	Town of Elkton	6 inch
Perryville - Chesapeake Landing pump station	River Landing Ct, Perryville	2	0.12	0.03	0.01	Town of Perryville	4 inch
Perryville - North Frenchtown Rd pump station	1408 Frenchtown Rd, Perryville	2	0.83	0.4	0.13	Town of Perryville	6 inch
Perryville - South Frenchtown Rd pump station	1100 block of Frenchtown Rd, Perryville	2	0.83	0.4	0.13	Town of Perryville	6 inch
Perryville - Fairgreen pump station	100 Greenway, Perryville	2	0.11	0.048	Unknown	Town of Perryville	4 inch
Perryville - IKEA pump station	100 IKEA Way, Perryville	2	0.202	0.002	0.002	Town of Perryville	4 inch
Perryville - Owens Landing pump station	Owens Landing Ct, Perryville	2	0.13	0.06	0.02	Town of Perryville	4 inch
Perryville - Perryville library pump station	500 Coudon Blvd, Perryville	2	0.202	0.002	0.002	Town of Perryville	4 inch
Perryville - Roundhouse Dr pump station	202 Roundhouse Dr, Perryville	3	1.44	0.7	0.23	Town of Perryville	10 inch
Perryville - Turnpike Dr pump station	15 Turnpike Dr, Perryville	2	0.05	0.01	0.001	Town of Perryville	4 inch

APPENDIX C

SANITARY SEWER SYSTEM MAPS

Cecil County 2018 Master Water & Sewer Plan
Appendix C – Sanitary Sewer Maps - Table of Contents

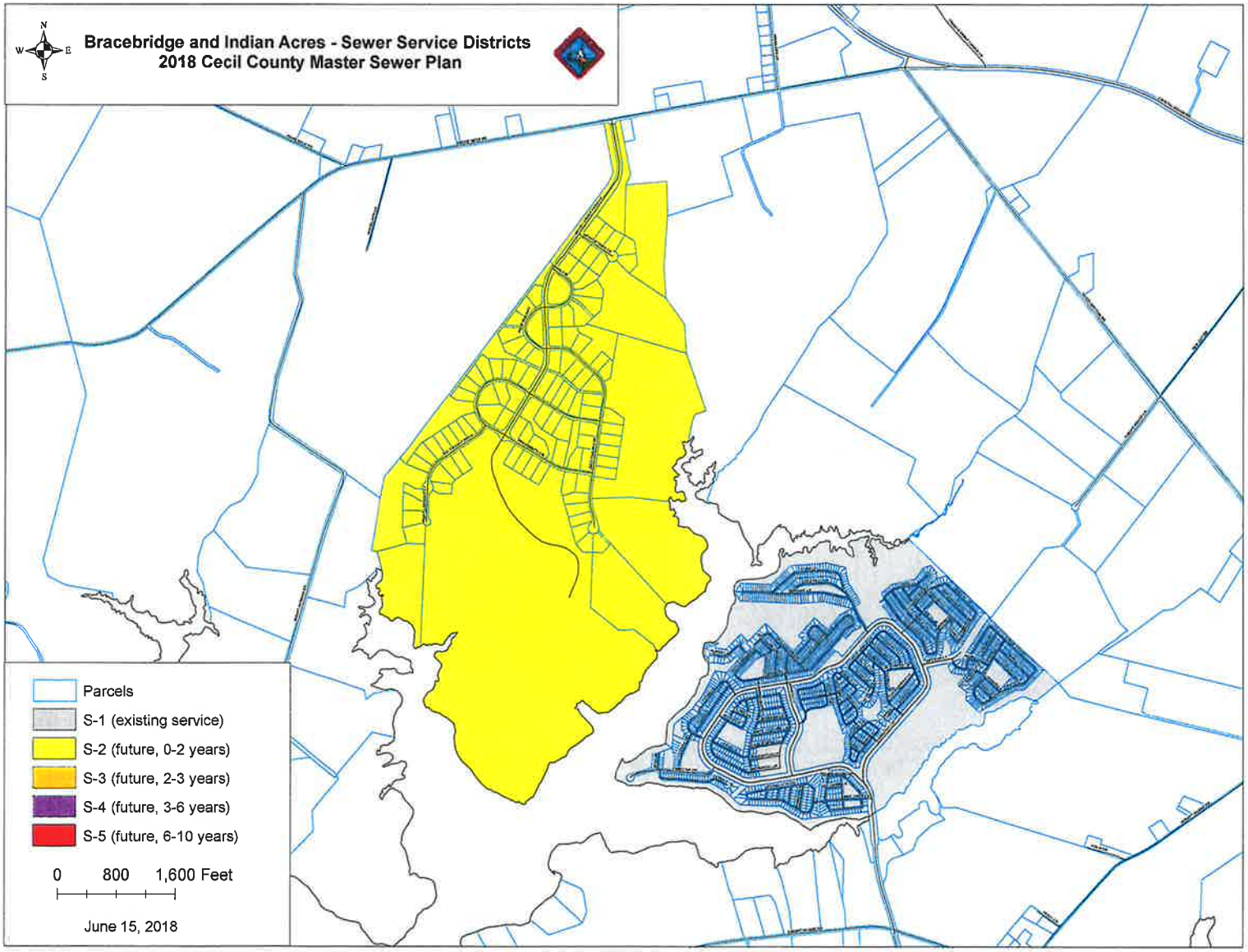
Cecil County
2018 Master Sewer Plan

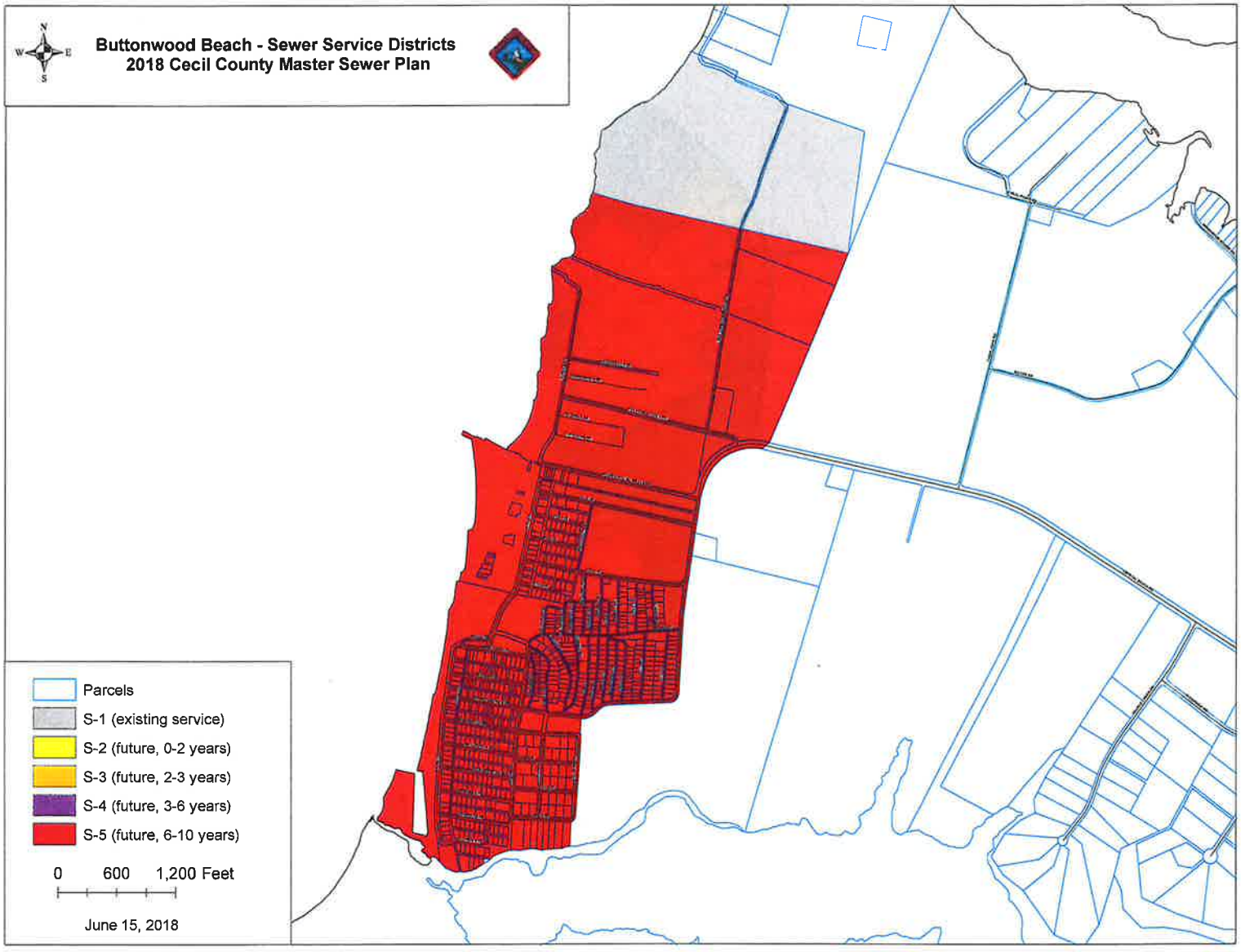


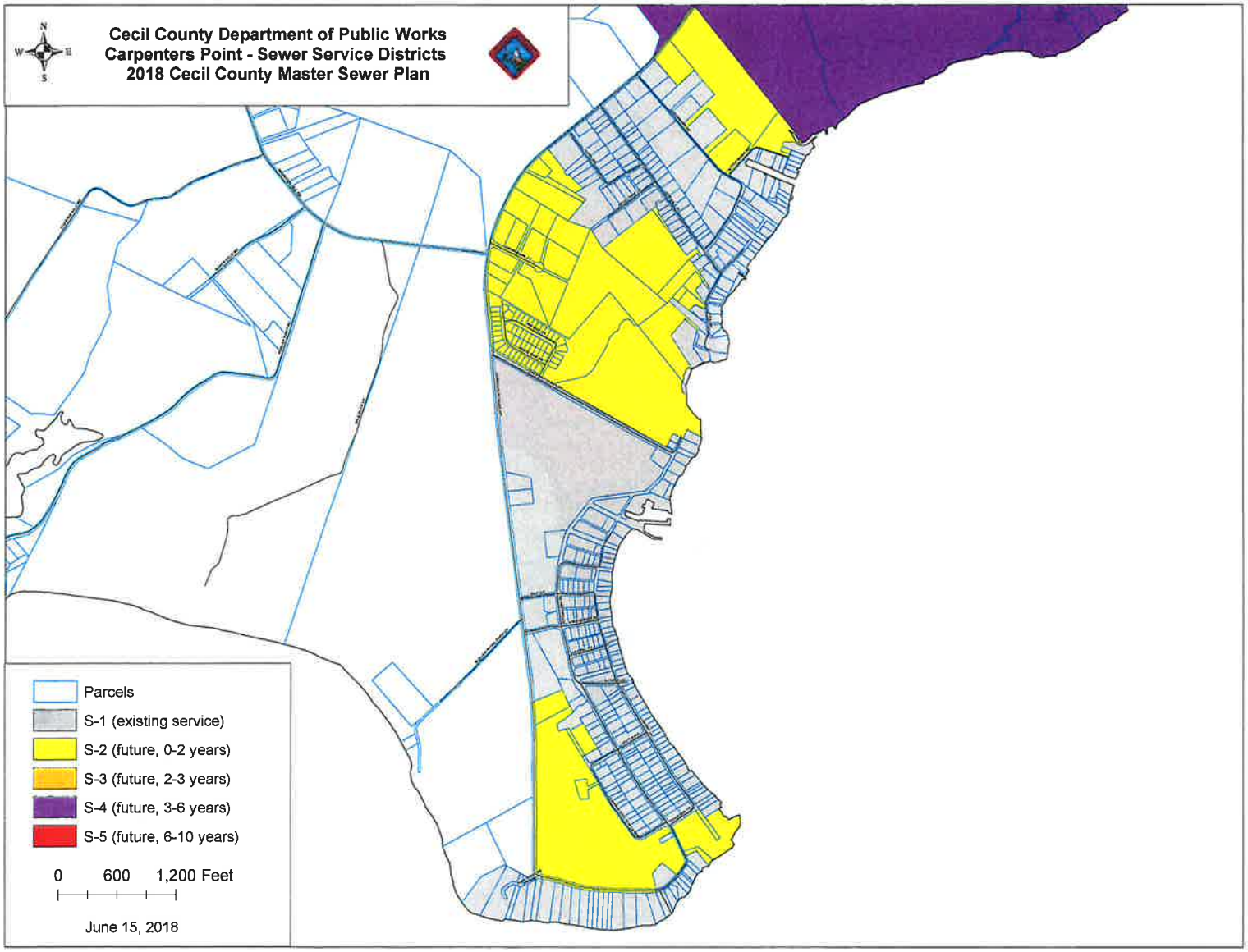
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)

0 2 4 Miles

November 9, 2018


Bracebridge and Indian Acres - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
W
E
S
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 800 1,600 Feet
June 15, 2018


Buttonwood Beach - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 600 1,200 Feet
June 15, 2018


Cecil County Department of Public Works
Carpenters Point - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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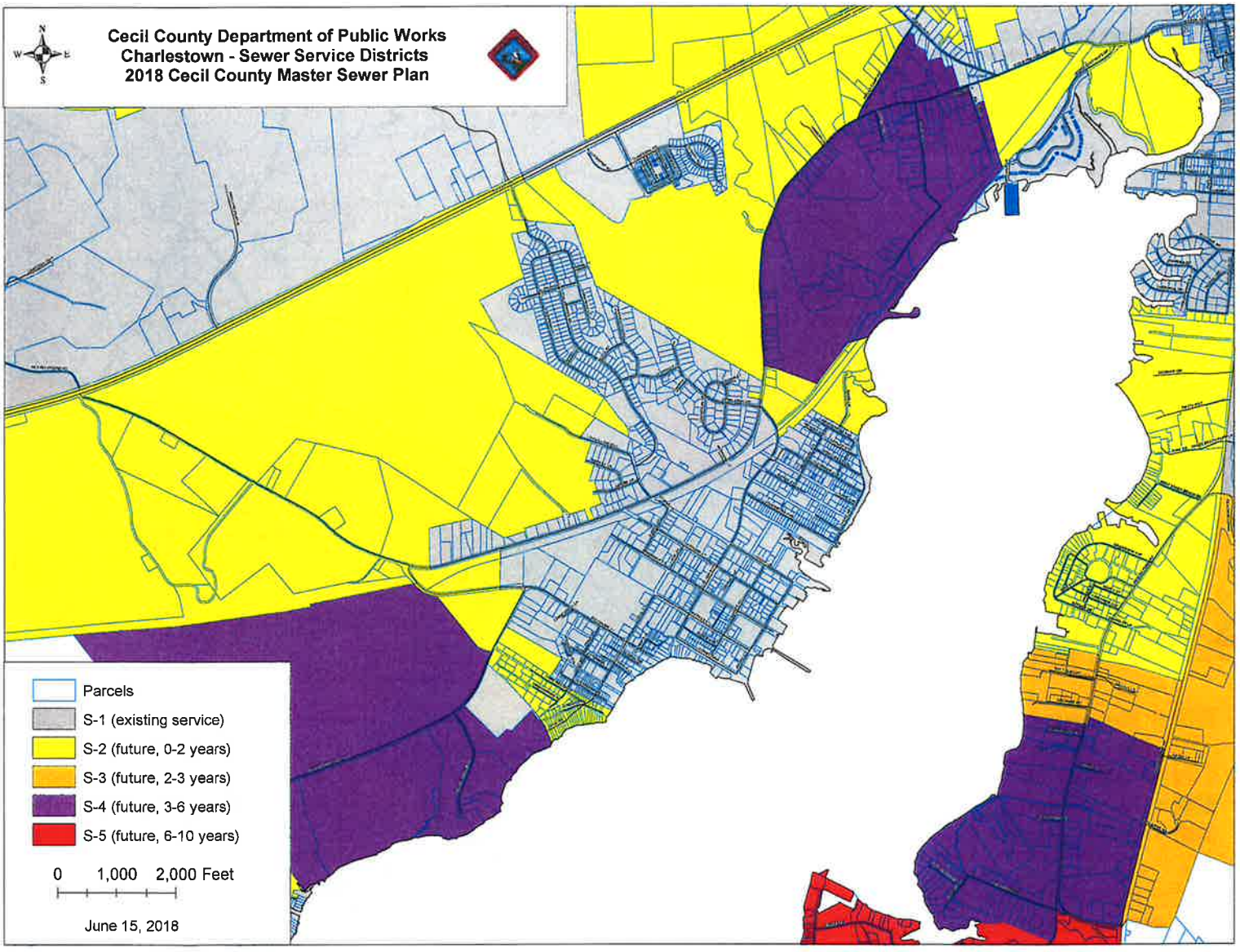
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0
600
1,200 Feet
June 15, 2018


Cecil County Department of Public Works
Charlestown - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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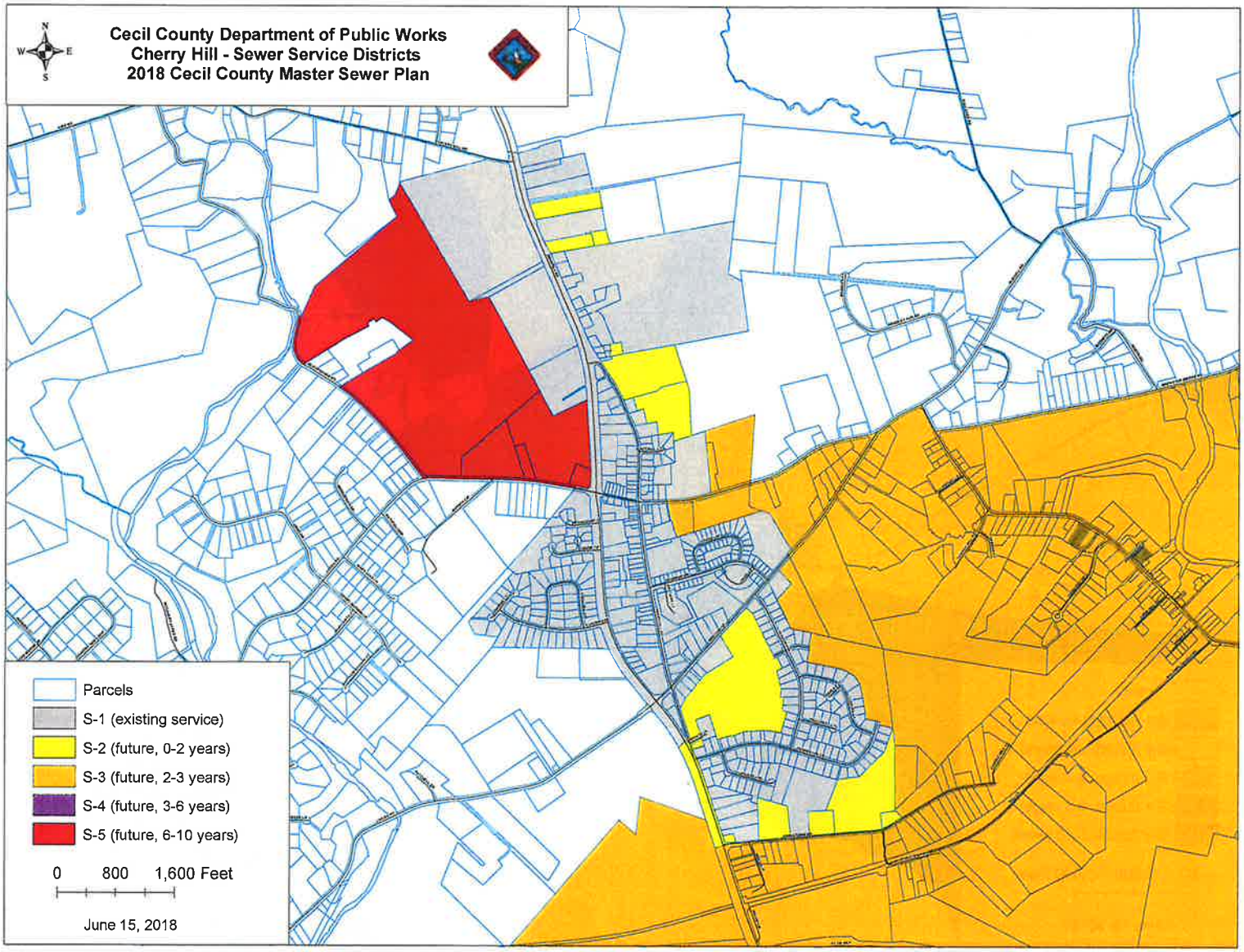
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 1,000 2,000 Feet
June 15, 2018


Cecil County Department of Public Works
Cherry Hill - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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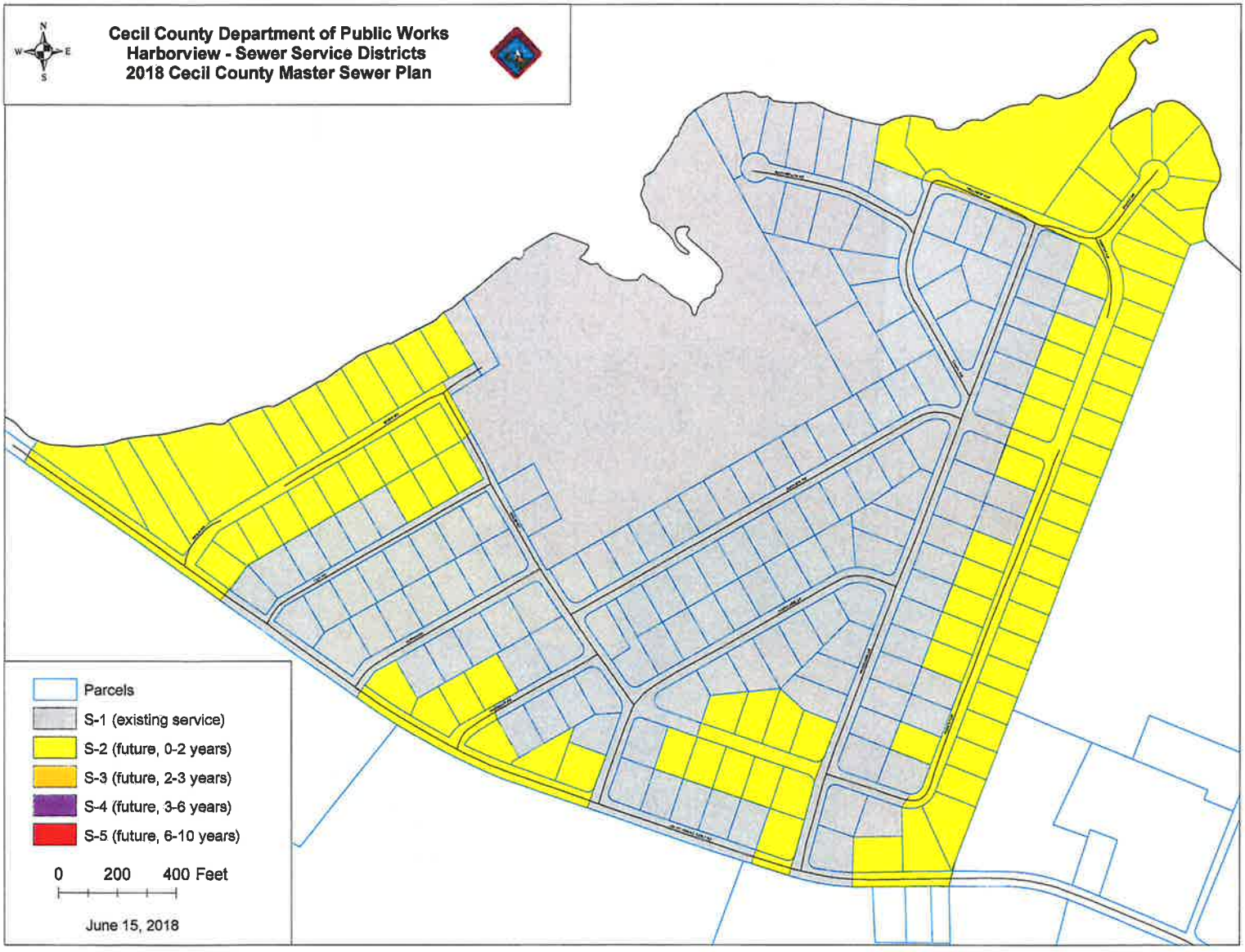
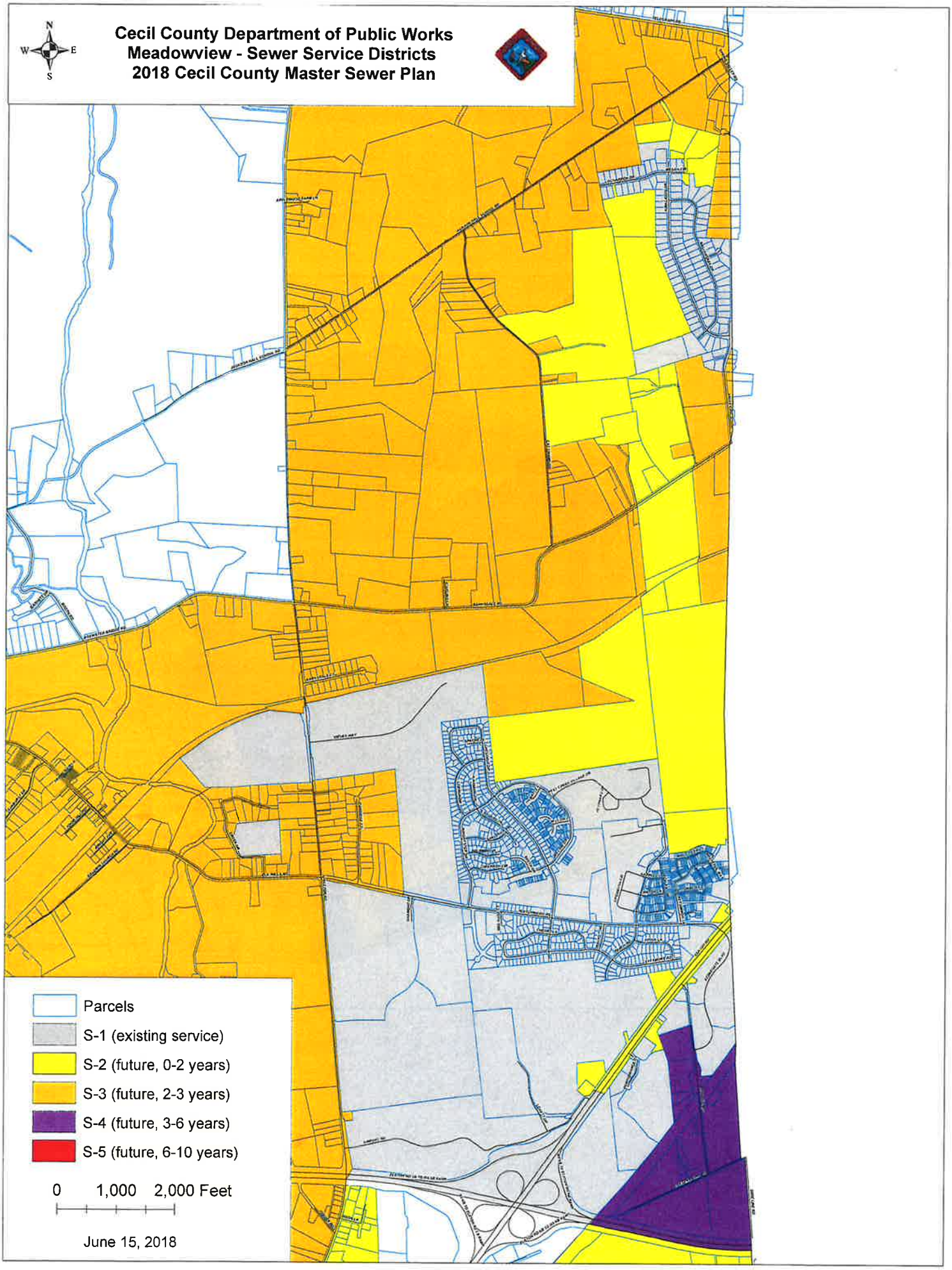
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 800 1,600 Feet
June 15, 2018


Cecil County Department of Public Works
Harborview - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 200 400 Feet
June 15, 2018


Cecil County Department of Public Works
Meadowview - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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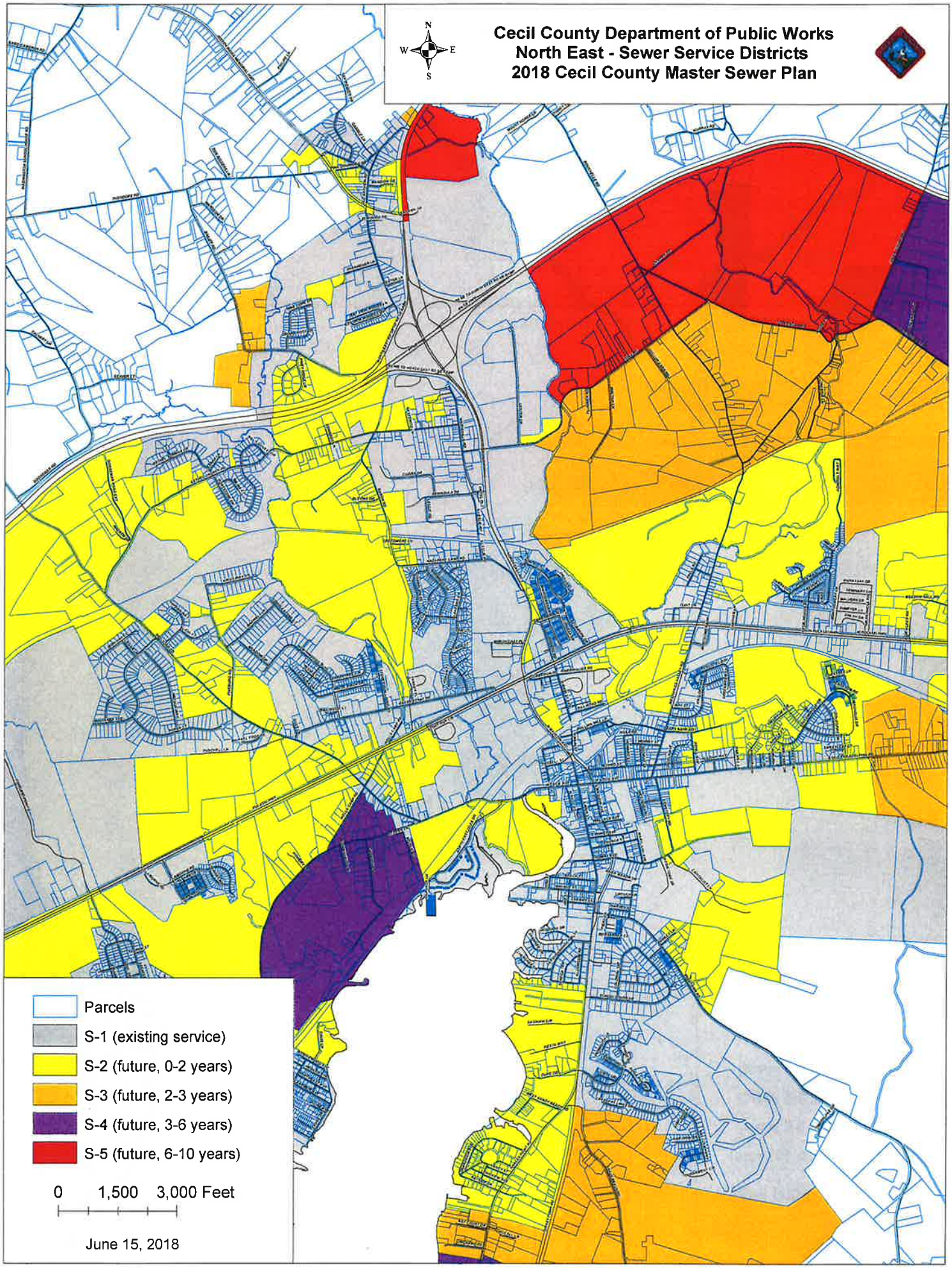
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 1,000 2,000 Feet
June 15, 2018


Cecil County Department of Public Works
North East - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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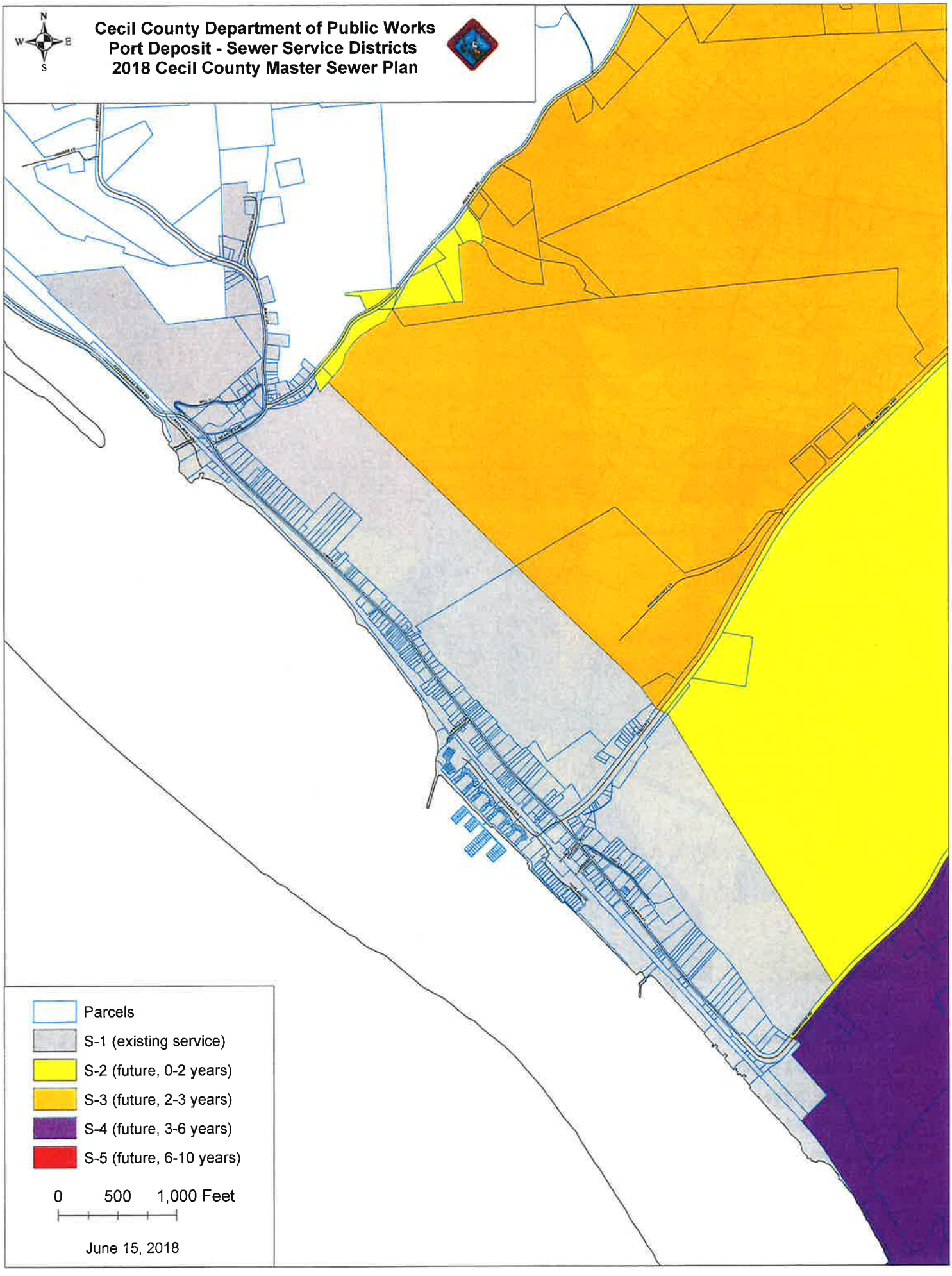
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 1,500 3,000 Feet
June 15, 2018


Cecil County Department of Public Works
Port Deposit - Sewer Service Districts
2018 Cecil County Master Sewer Plan
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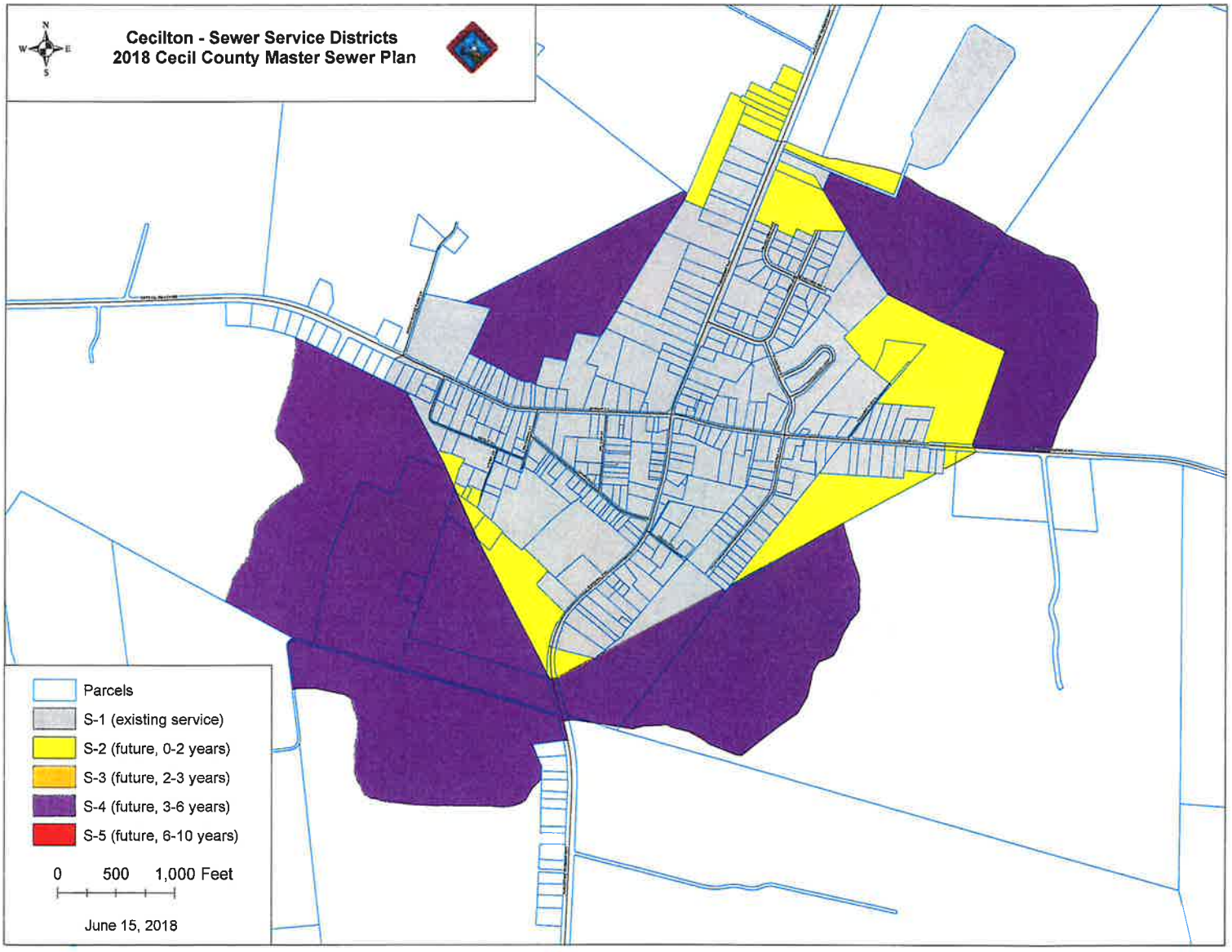
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0
500
1,000 Feet
June 15, 2018


Cecilton - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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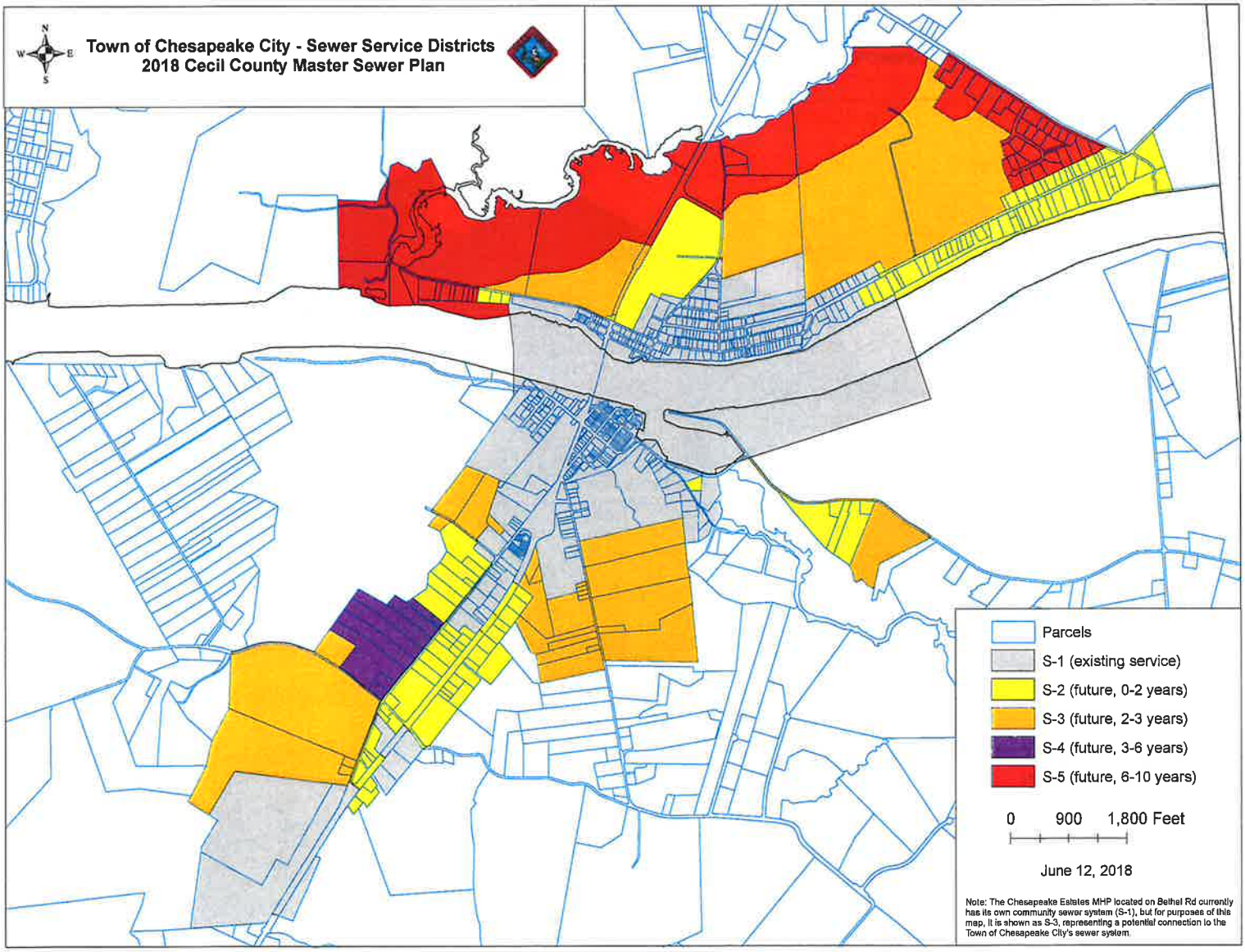
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 500 1,000 Feet
June 15, 2018


Town of Chesapeake City - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
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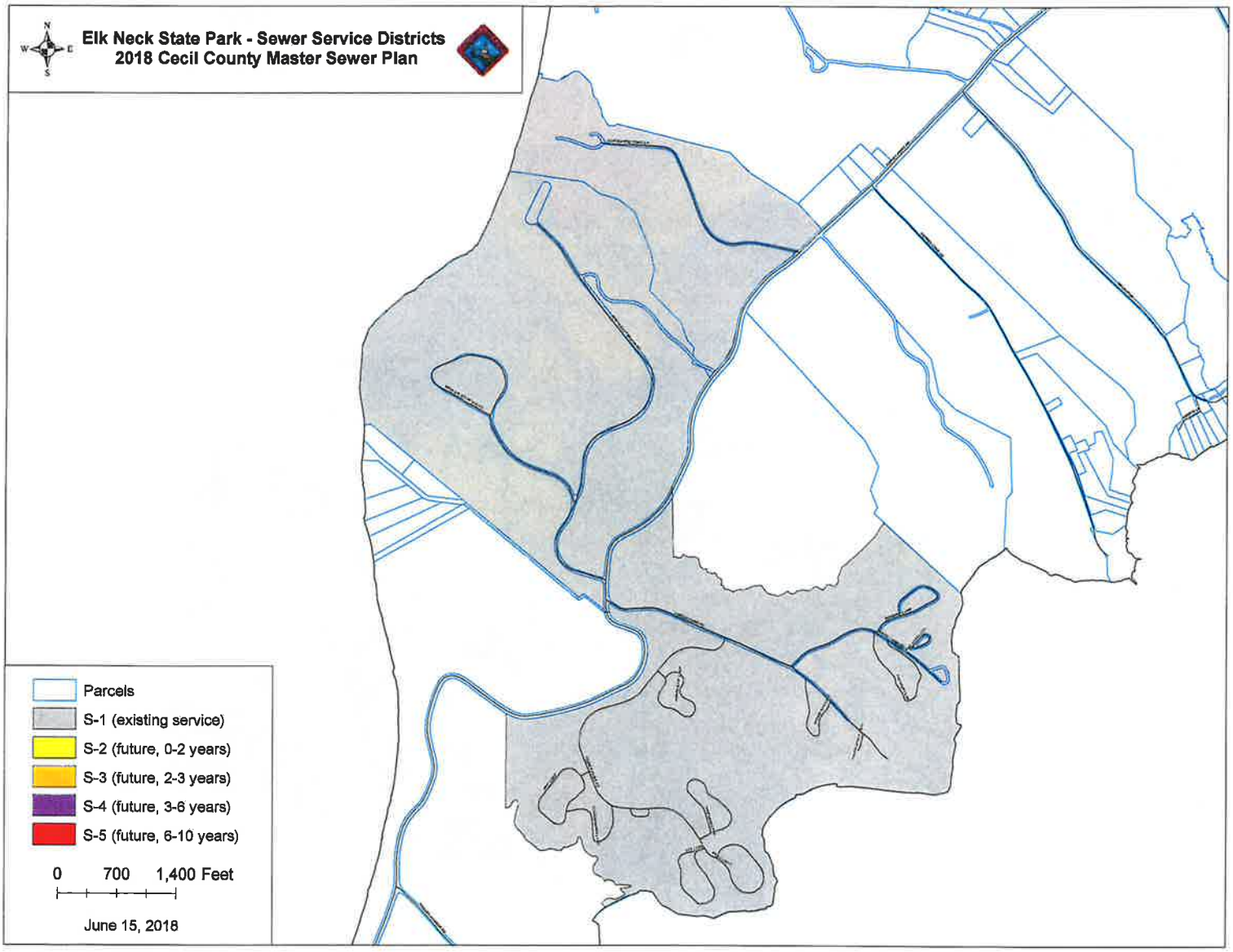
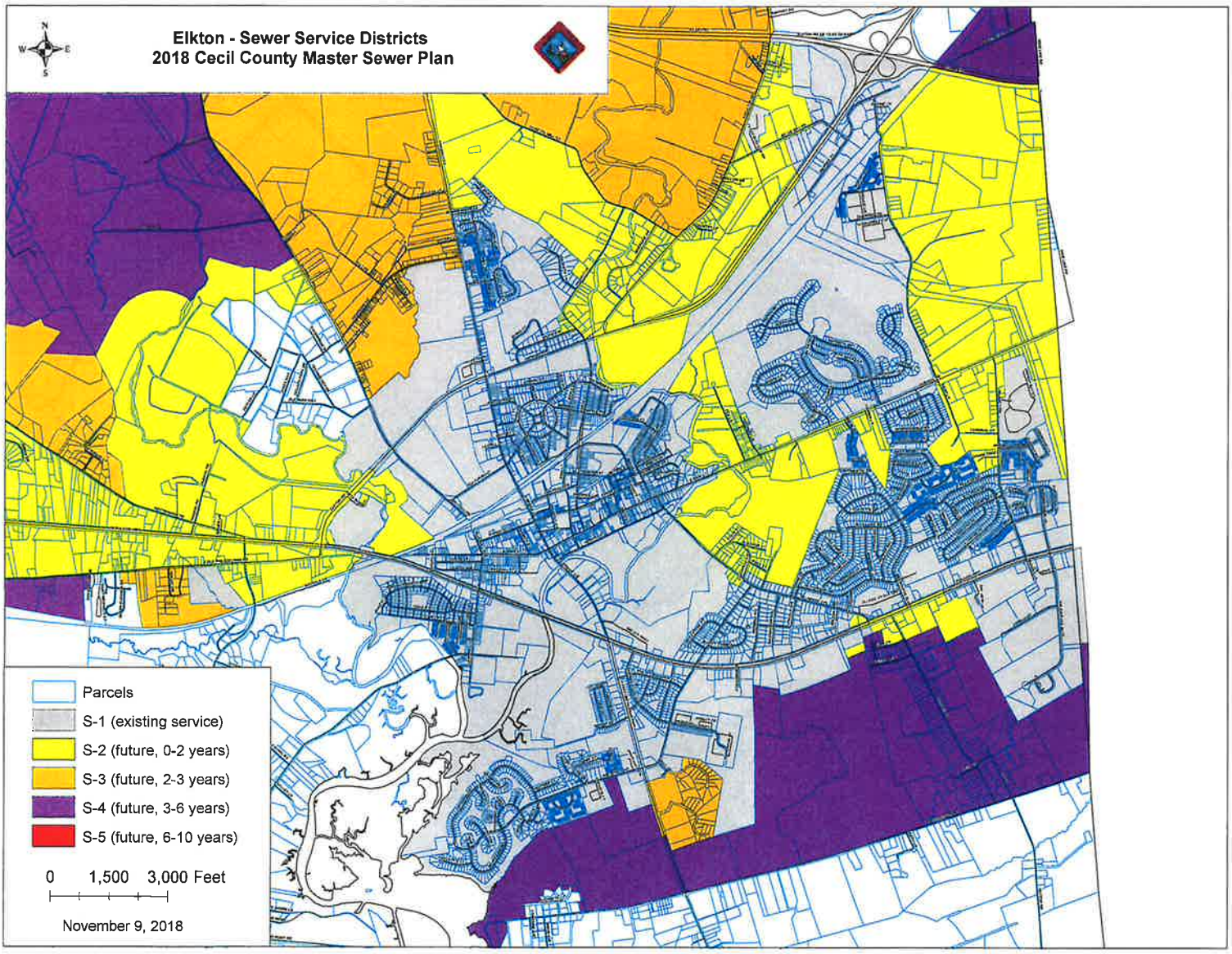
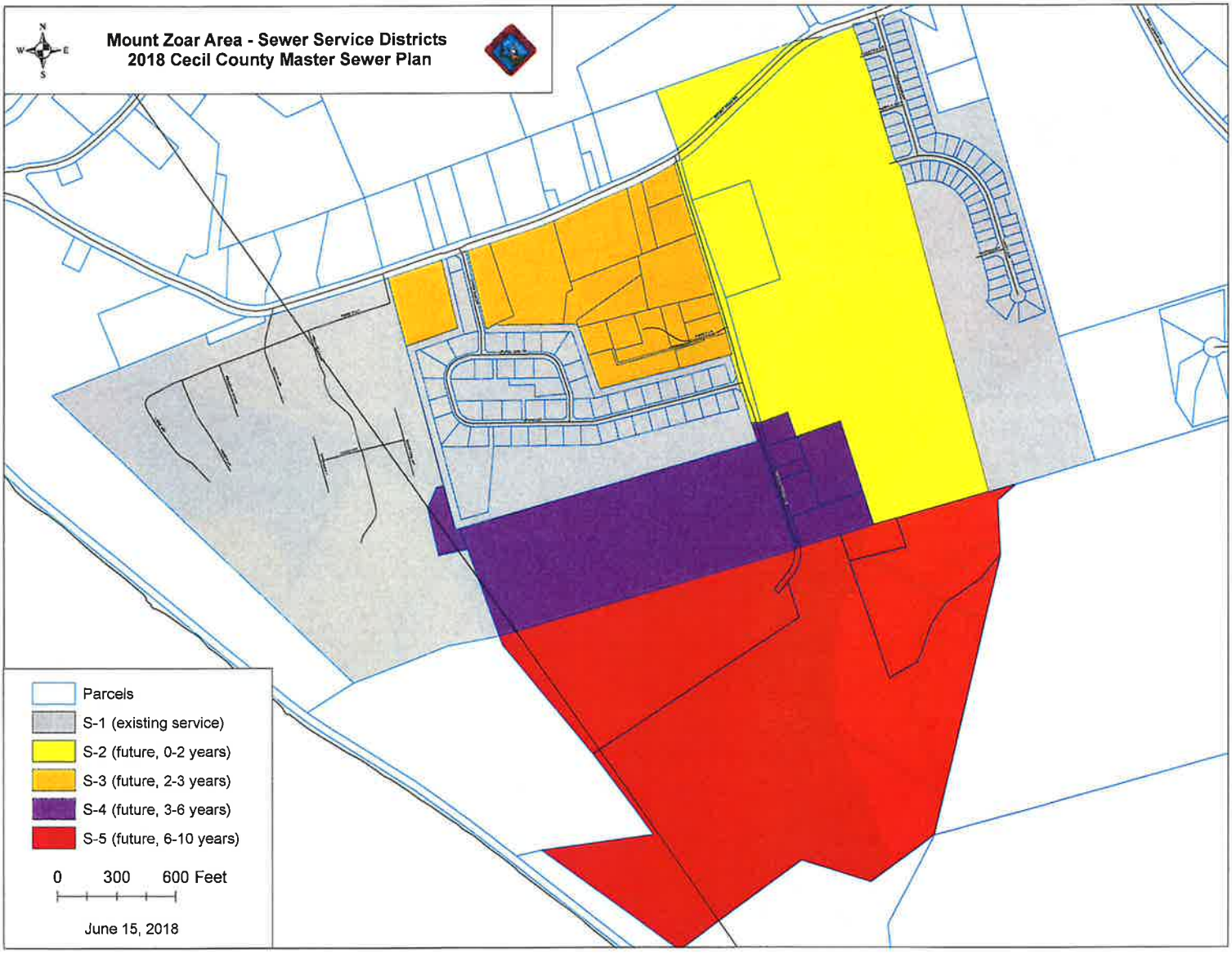
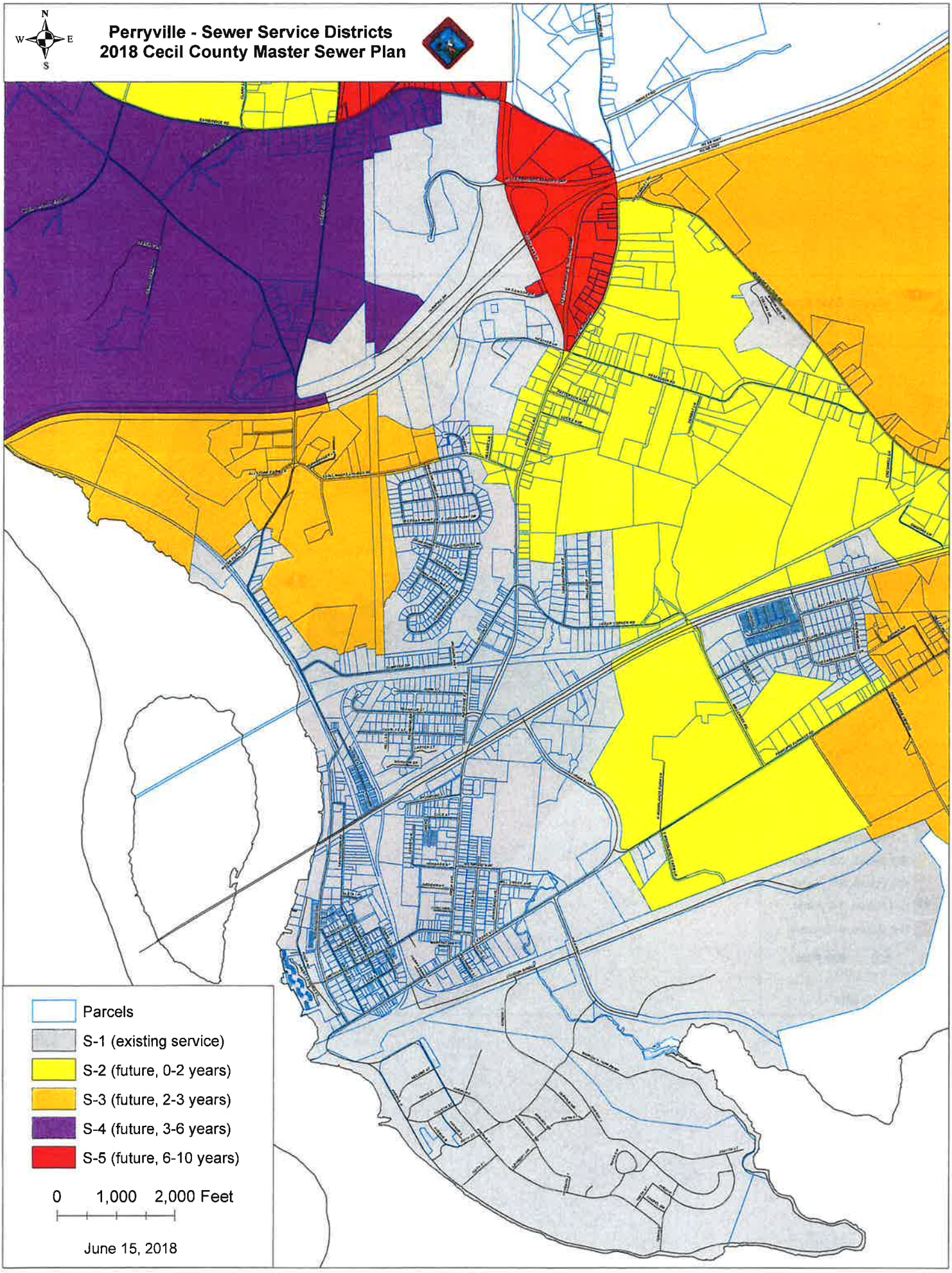
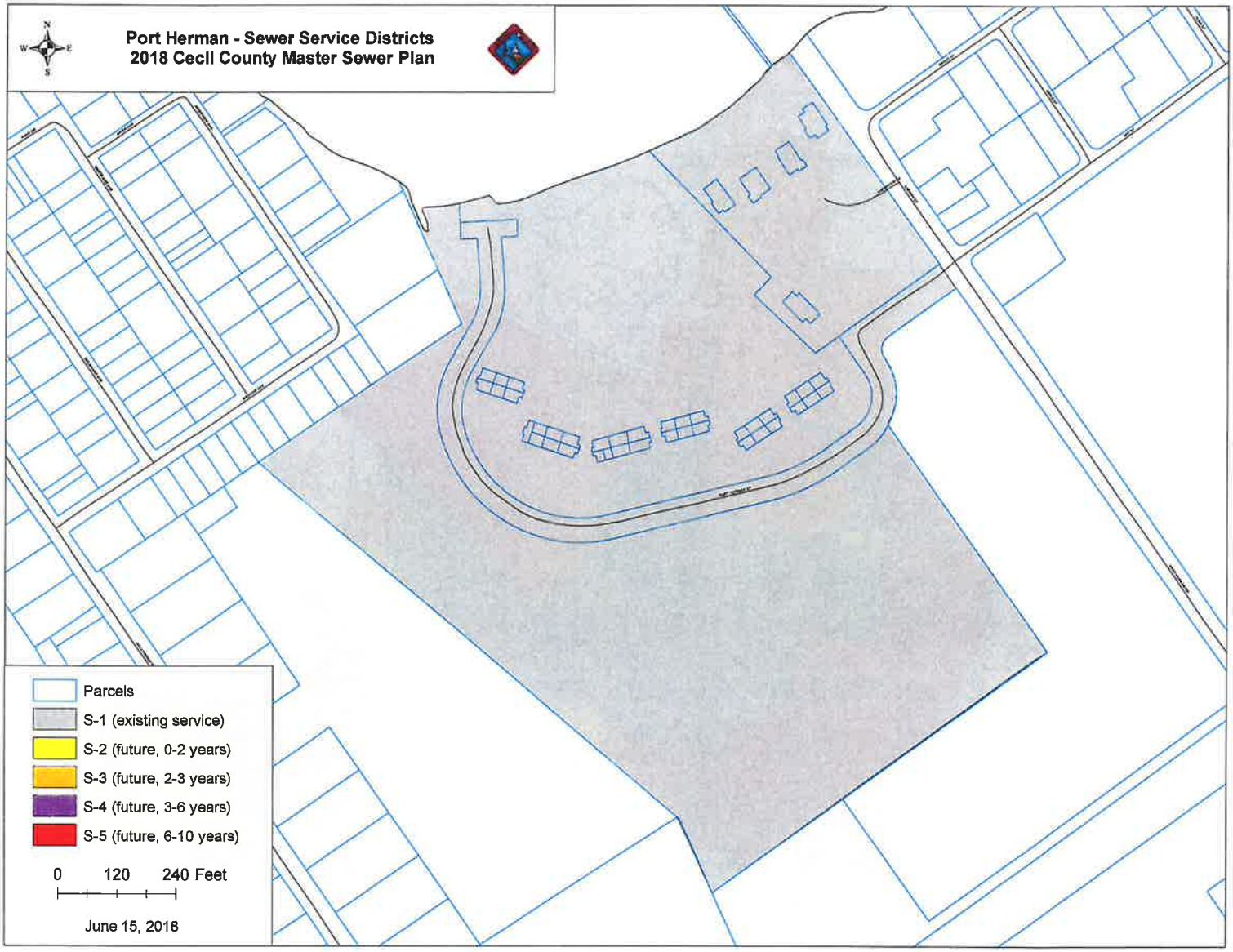
S
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 900 1,800 Feet
June 12, 2018
Note: The Chesapeake Estates MHP located on Bethel Rd currently has its own community sewer system (S-1), but for purposes of this map, it is shown as S-3, representing a potential connection to the Town of Chesapeake City's sewer system.

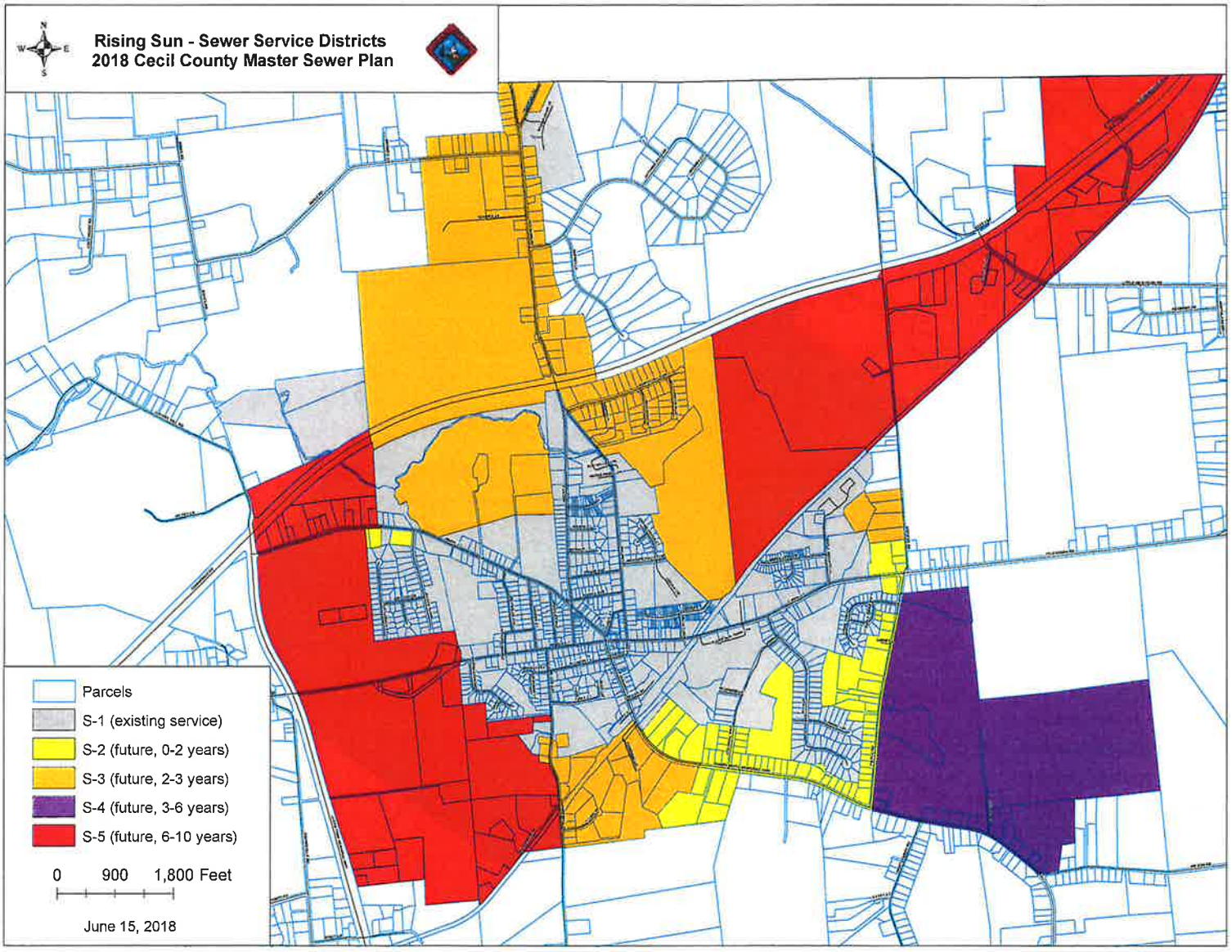

Elk Neck State Park - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 700 1,400 Feet
June 15, 2018

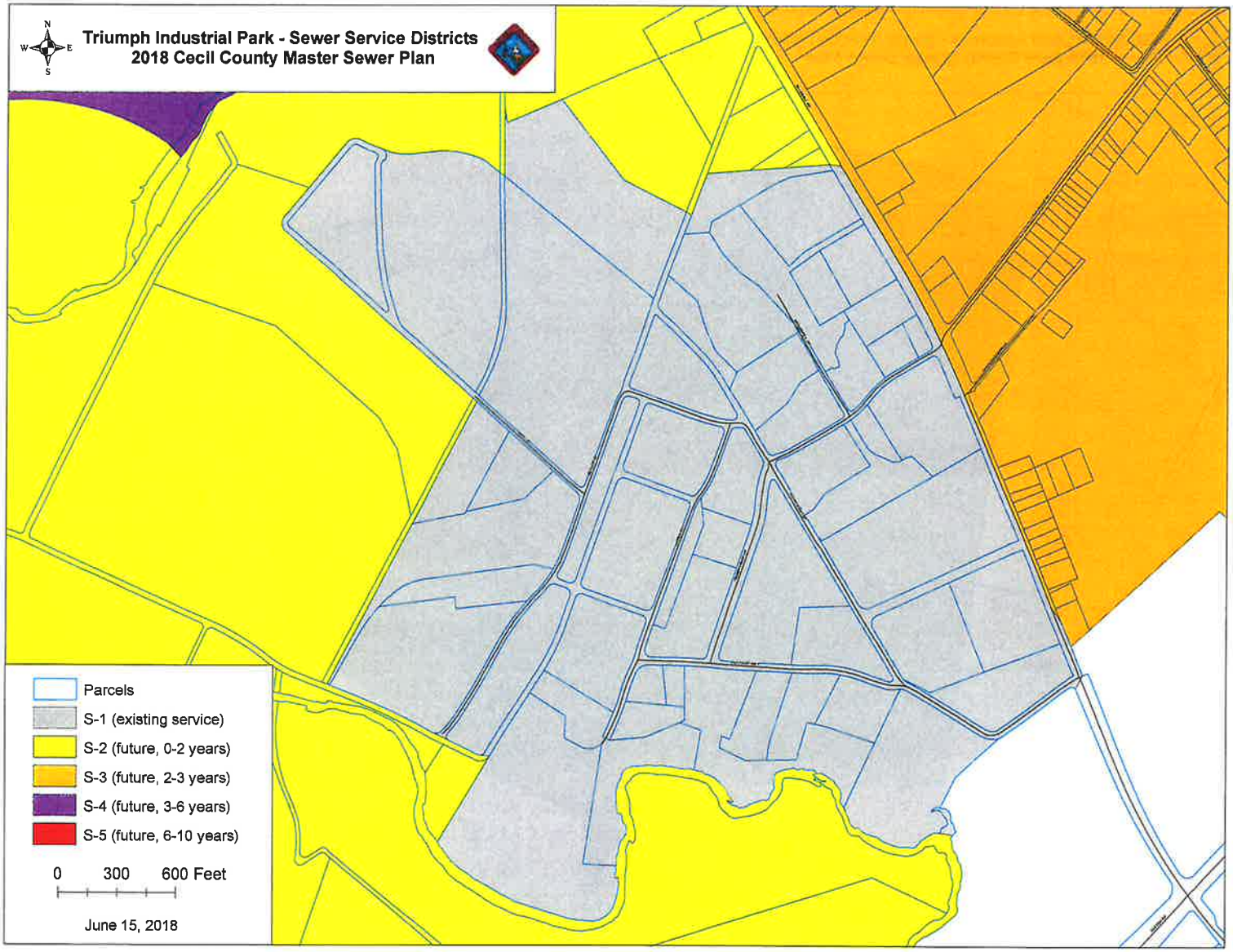

Elkton - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 1,500 3,000 Feet
November 9, 2018

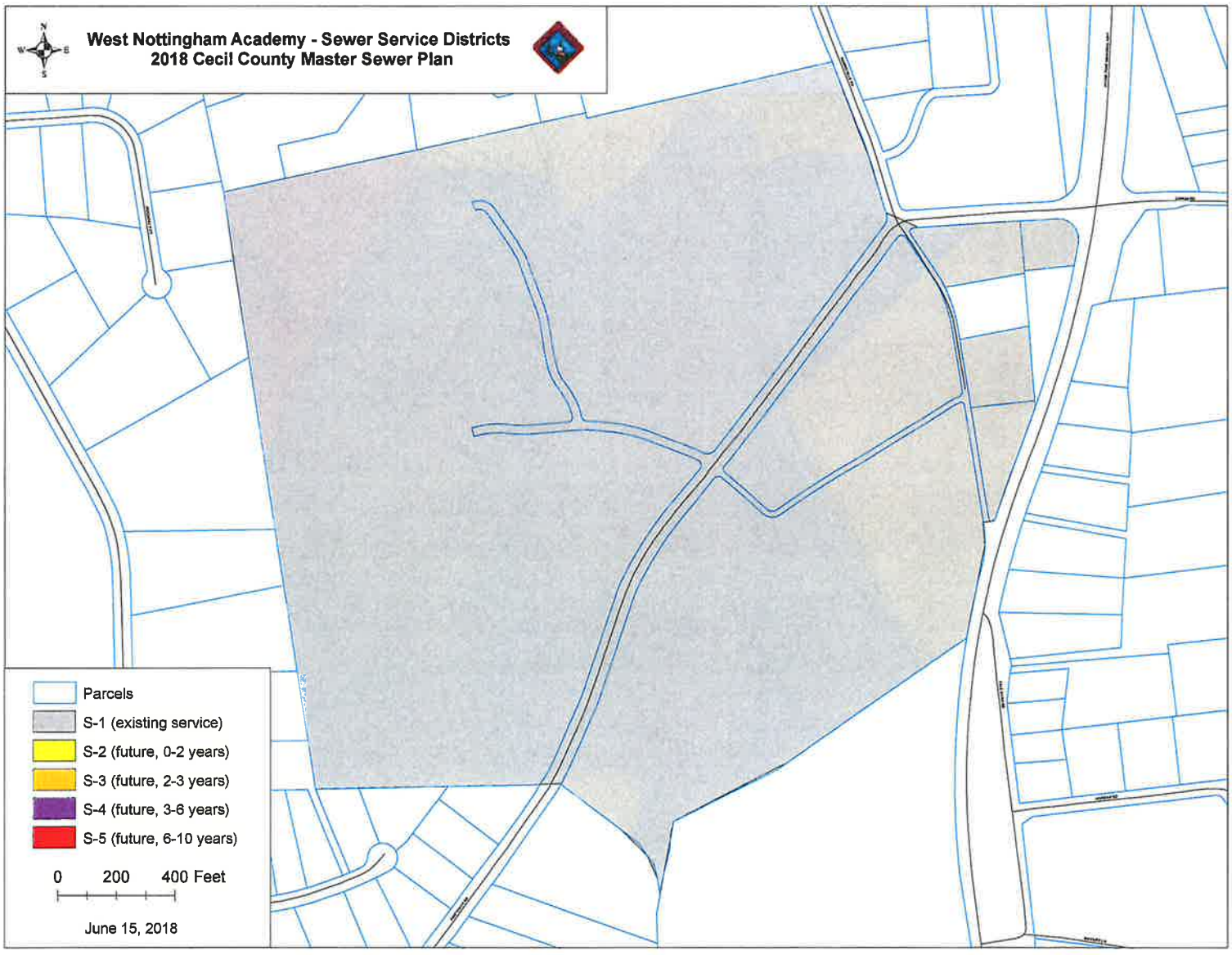

Mount Zoar Area - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 300 600 Feet
June 15, 2018

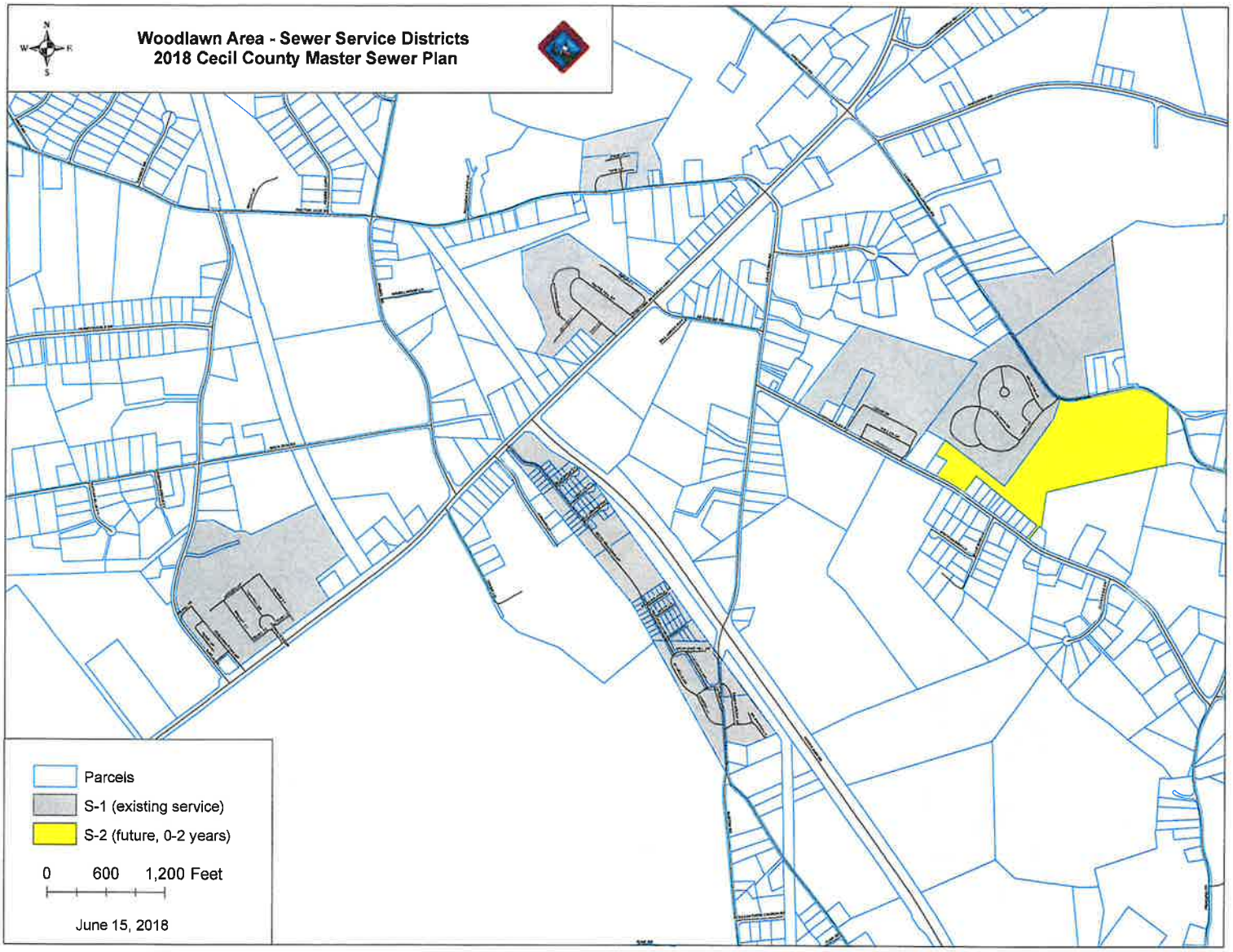

N
W
E
S
Perryville - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 1,000 2,000 Feet
June 15, 2018


Port Herman - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 120 240 Feet
June 15, 2018

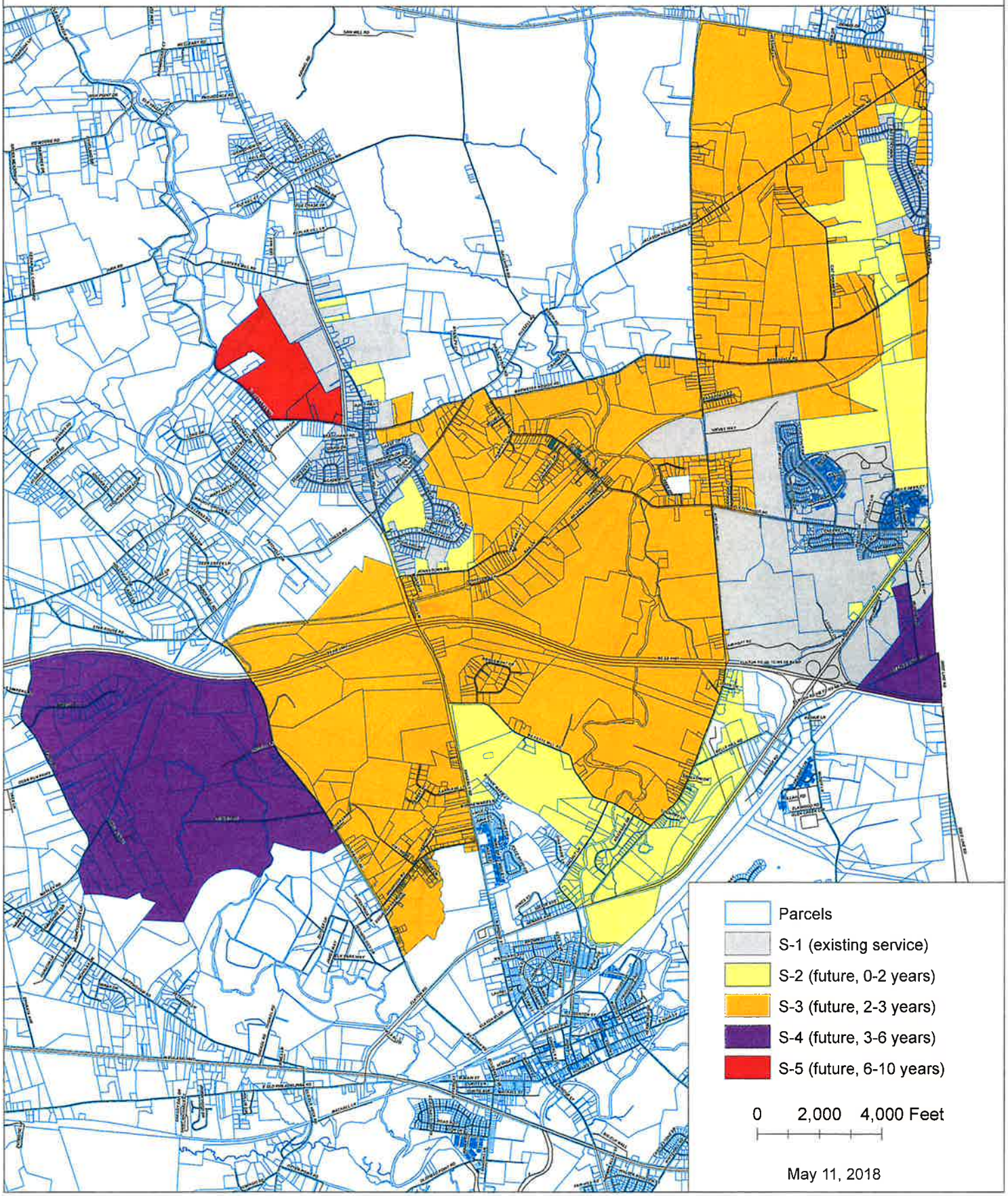

Rising Sun - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 900 1,800 Feet
June 15, 2018


Triumph Industrial Park - Sewer Service Districts
2018 Cecil County Master Sewer Plan
N
W
E
S
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0
300
600 Feet
June 15, 2018

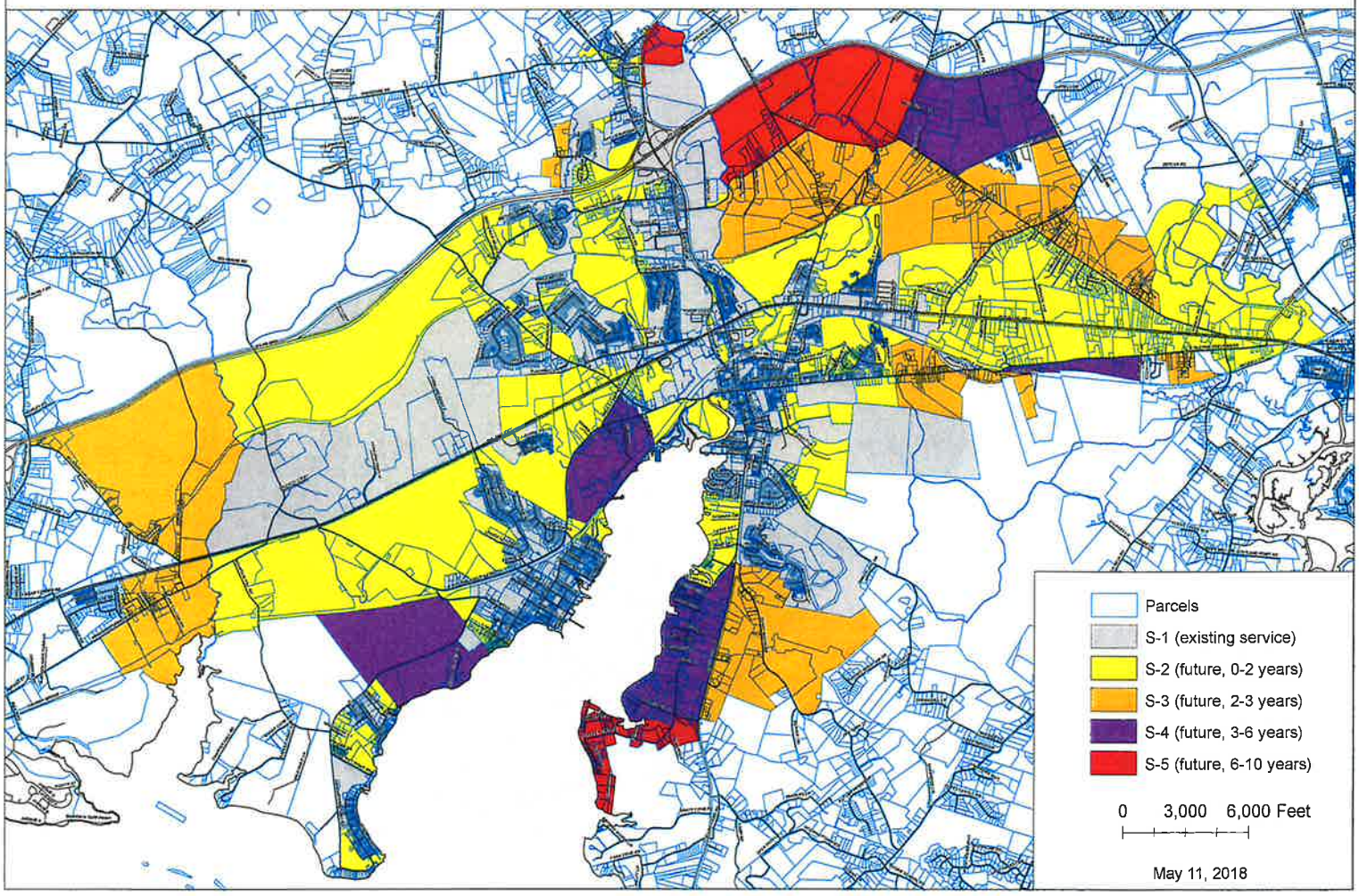

West Nottingham Academy - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
S-3 (future, 2-3 years)
S-4 (future, 3-6 years)
S-5 (future, 6-10 years)
0 200 400 Feet
June 15, 2018


Woodlawn Area - Sewer Service Districts
2018 Cecil County Master Sewer Plan
Parcels
S-1 (existing service)
S-2 (future, 0-2 years)
0 600 1,200 Feet
June 15, 2018

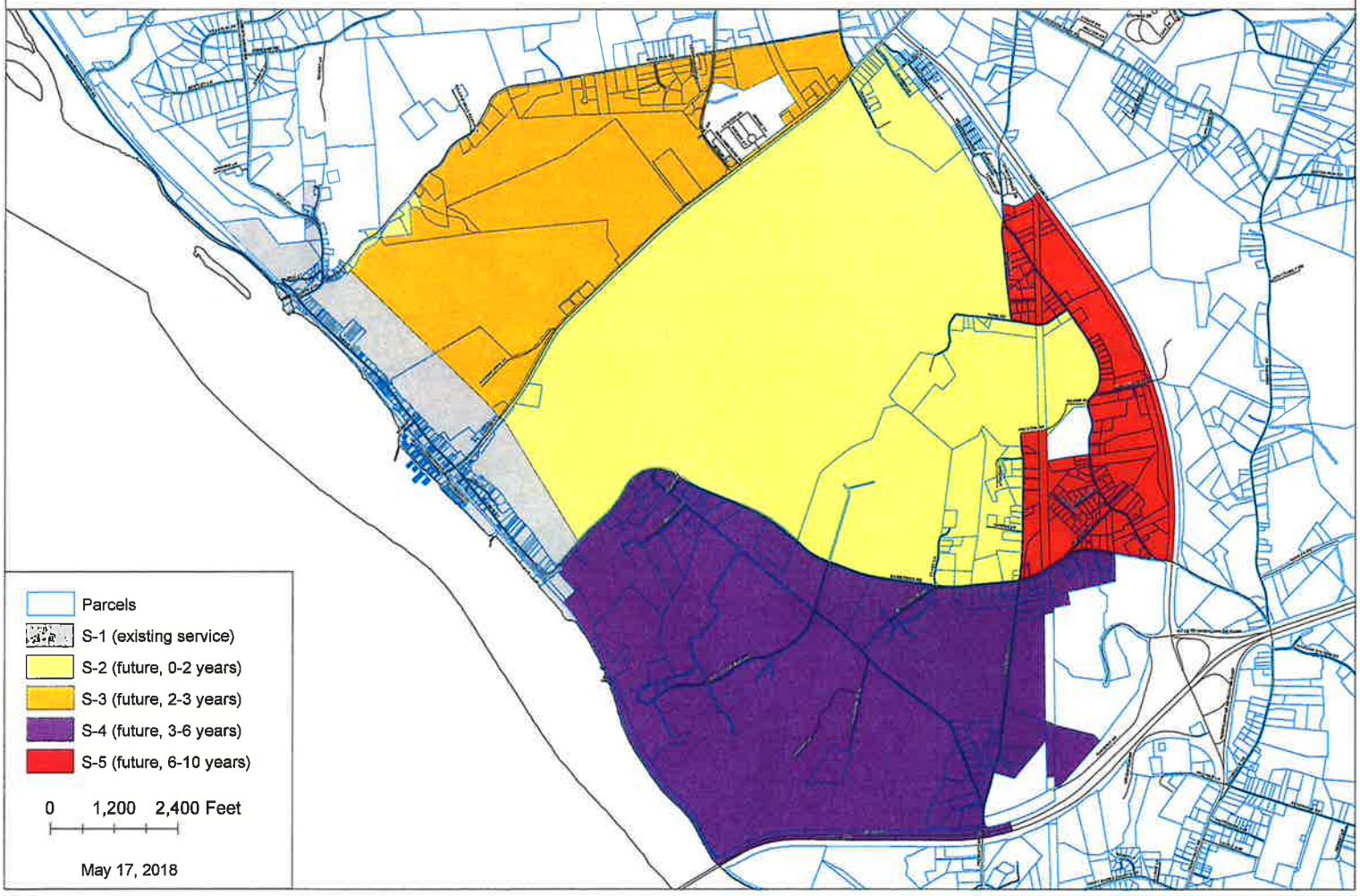
Cherry Hill & Meadowview WWTP Service Areas
2018 Cecil County Master Sewer Plan



North East River Advanced WWTP Service Area
2018 Cecil County Master Sewer Plan



Port Deposit WWTP Service Area
2018 Cecil County Master Sewer Plan

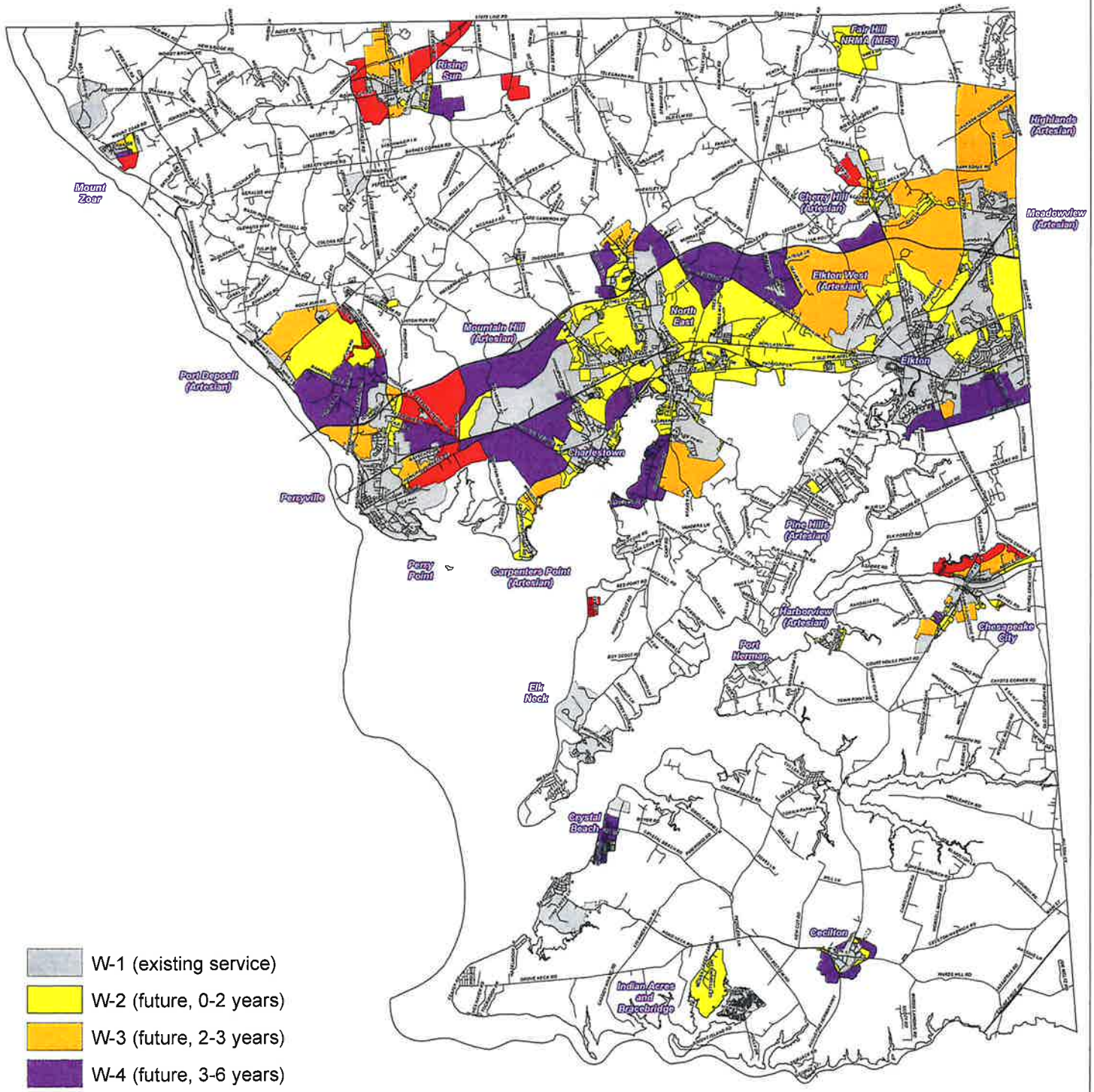


APPENDIX D

WATER SYSTEM MAPS

Cecil County 2018 Master Water & Sewer Plan
Appendix D – Water System Maps - Table of Contents

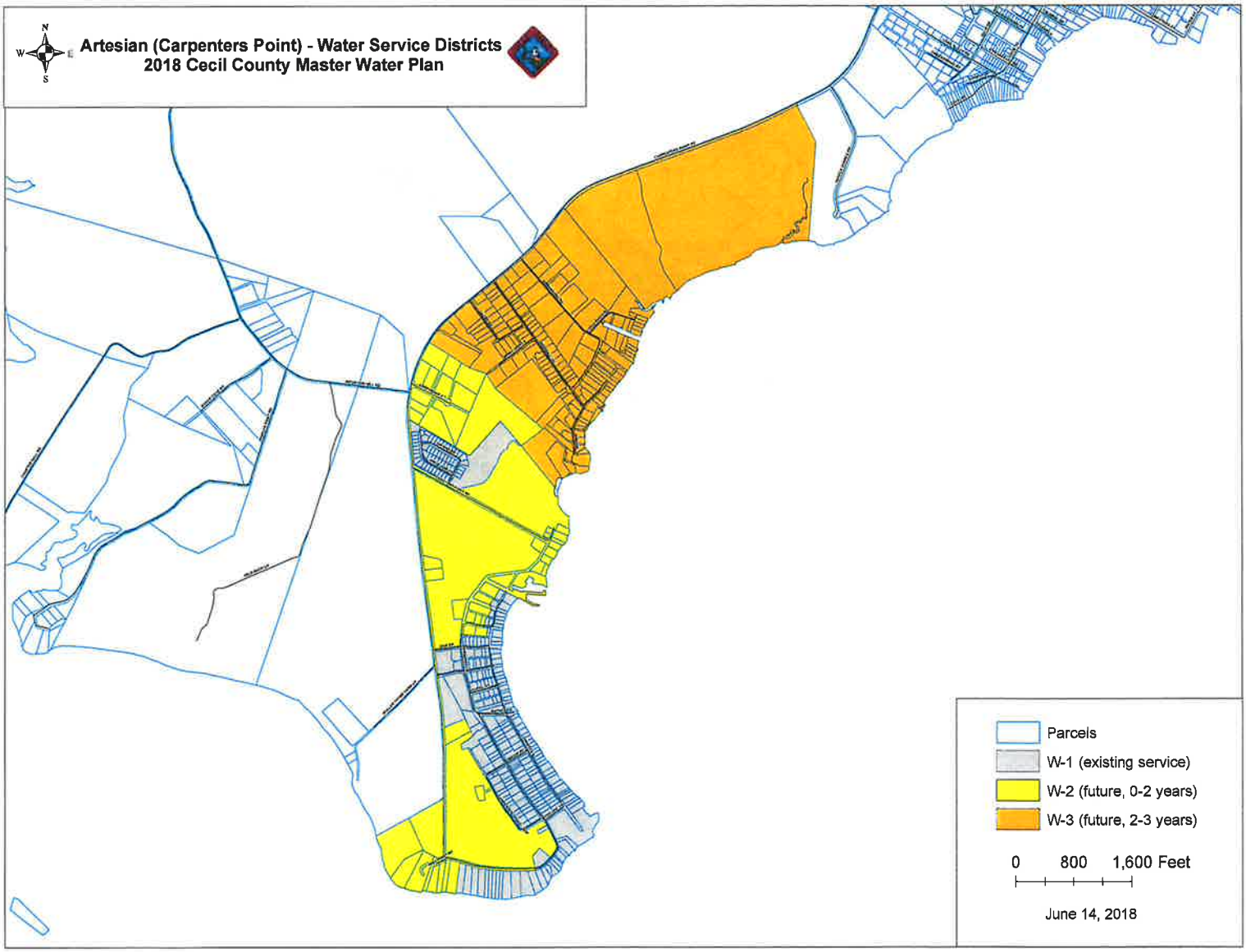
Cecil County
2018 Master Water Plan

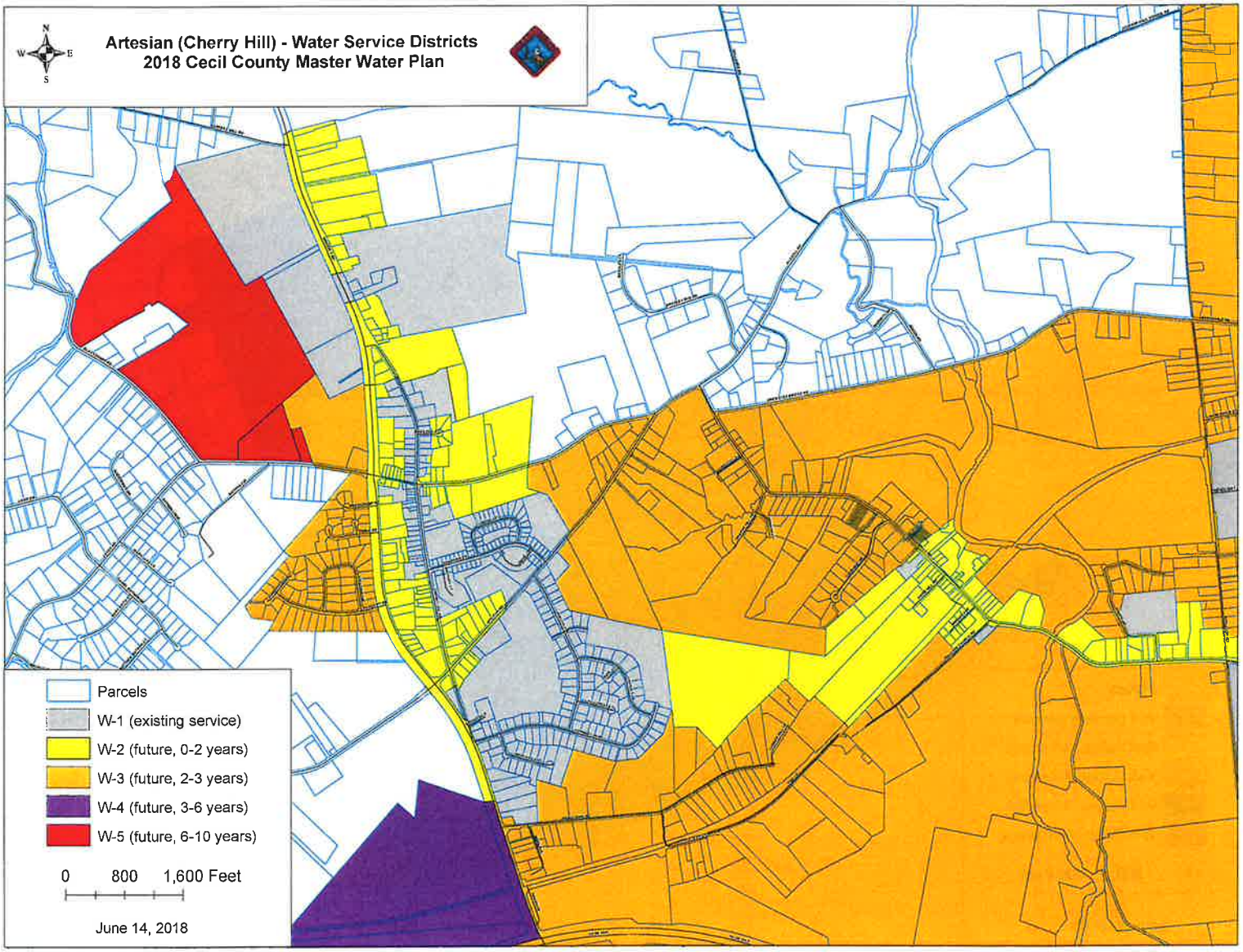


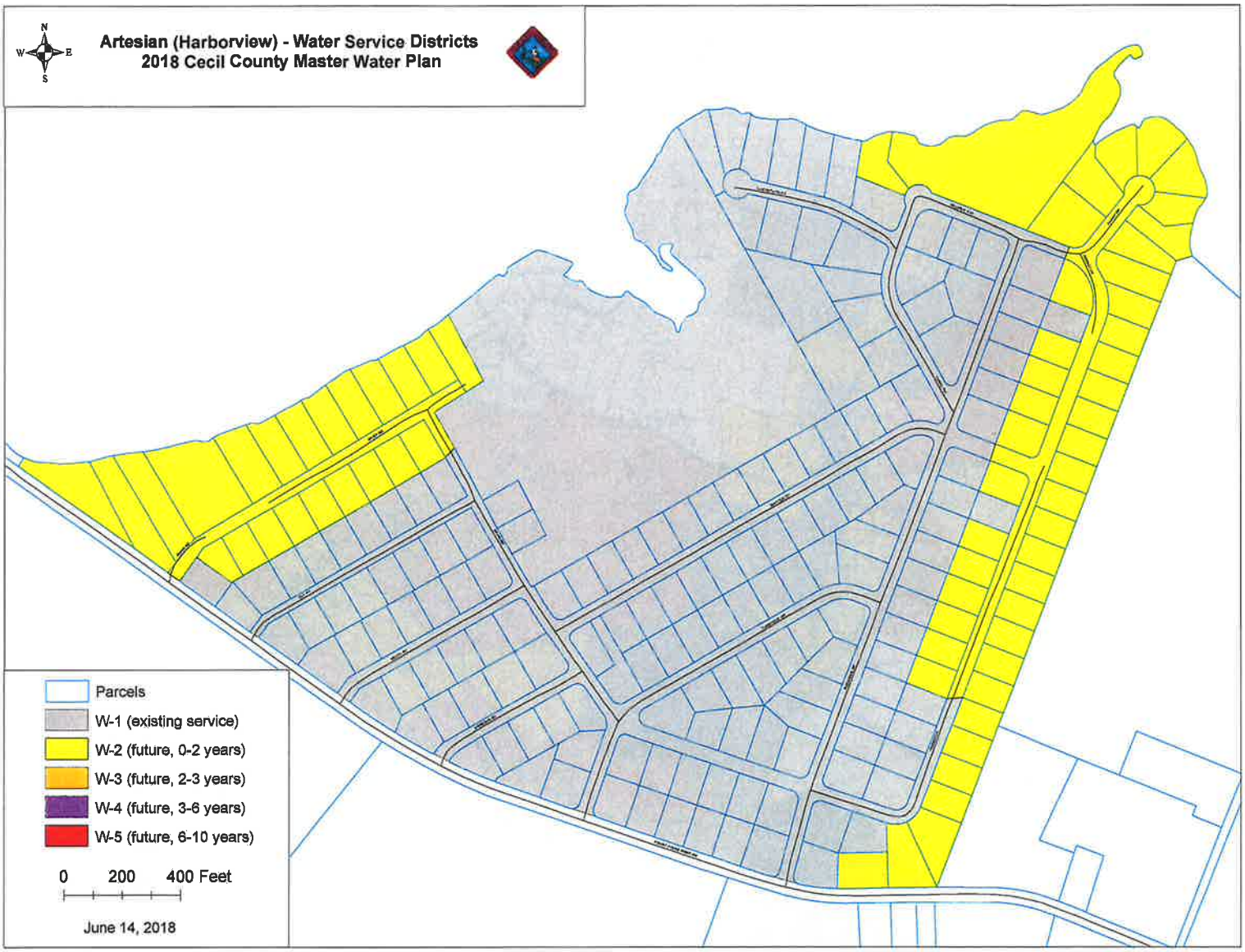
- W-1 (existing service)
- W-2 (future, 0-2 years)
- W-3 (future, 2-3 years)
- W-4 (future, 3-6 years)
- W-5 (future, 6-10 years)

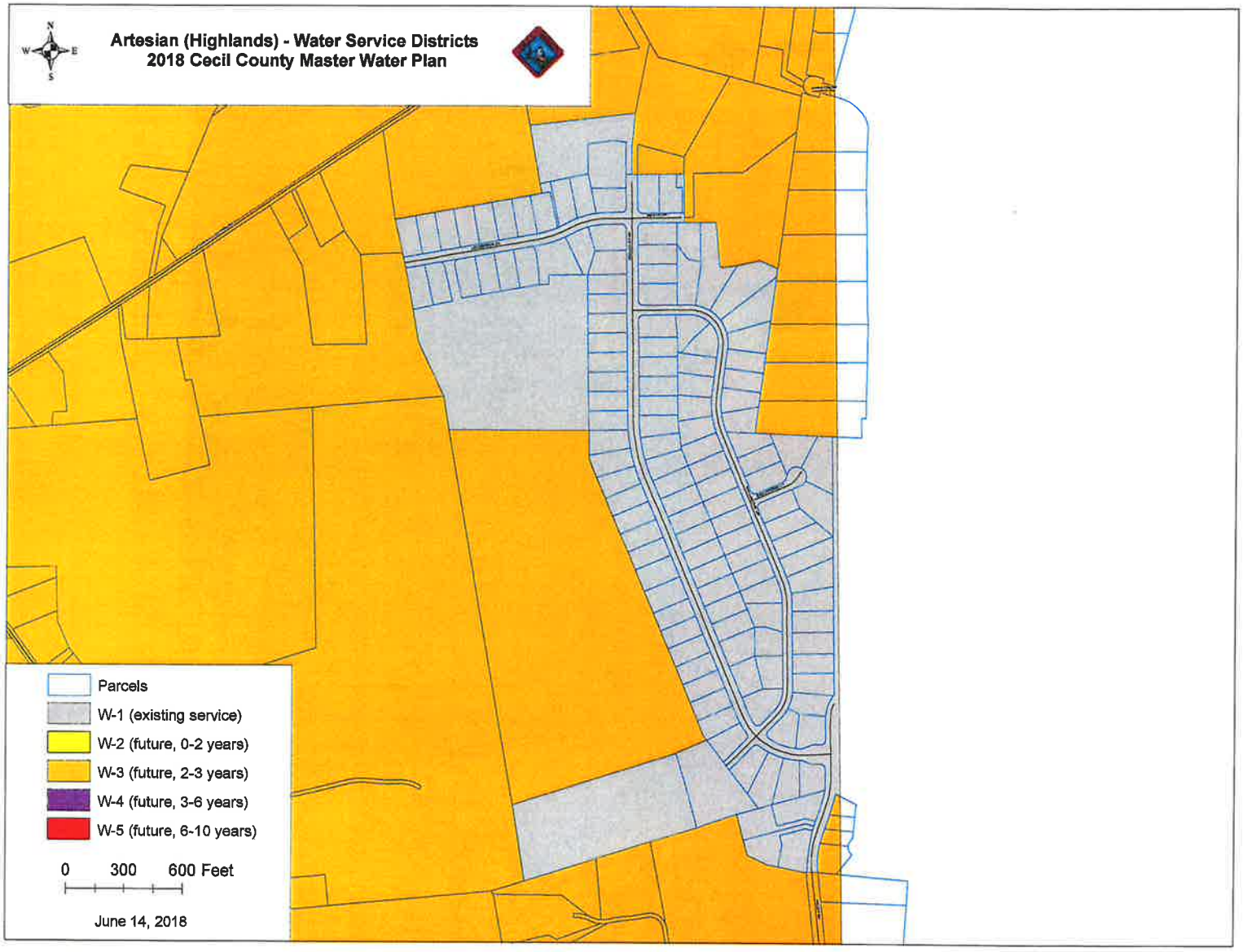
0 2 4 Miles

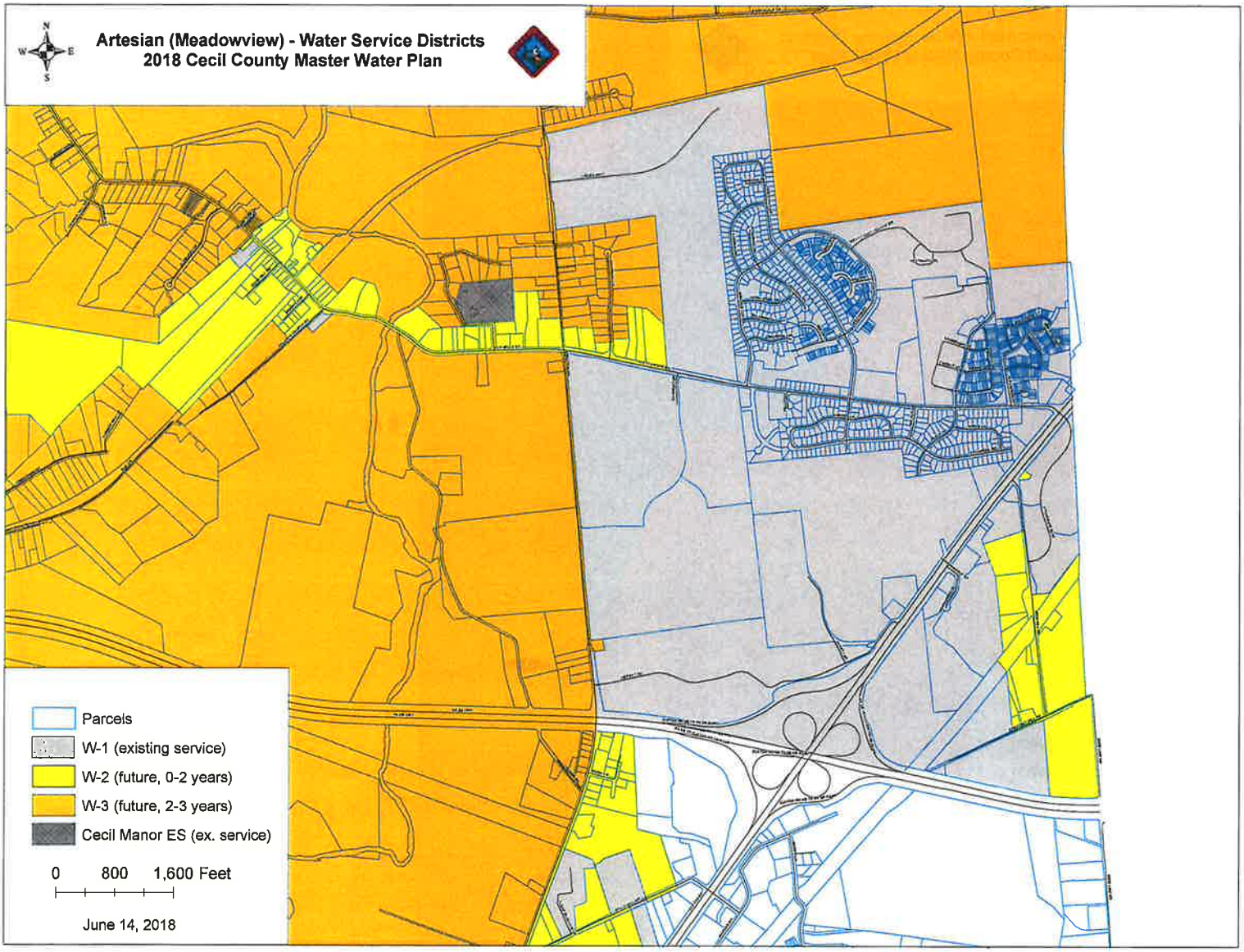
October 22, 2018

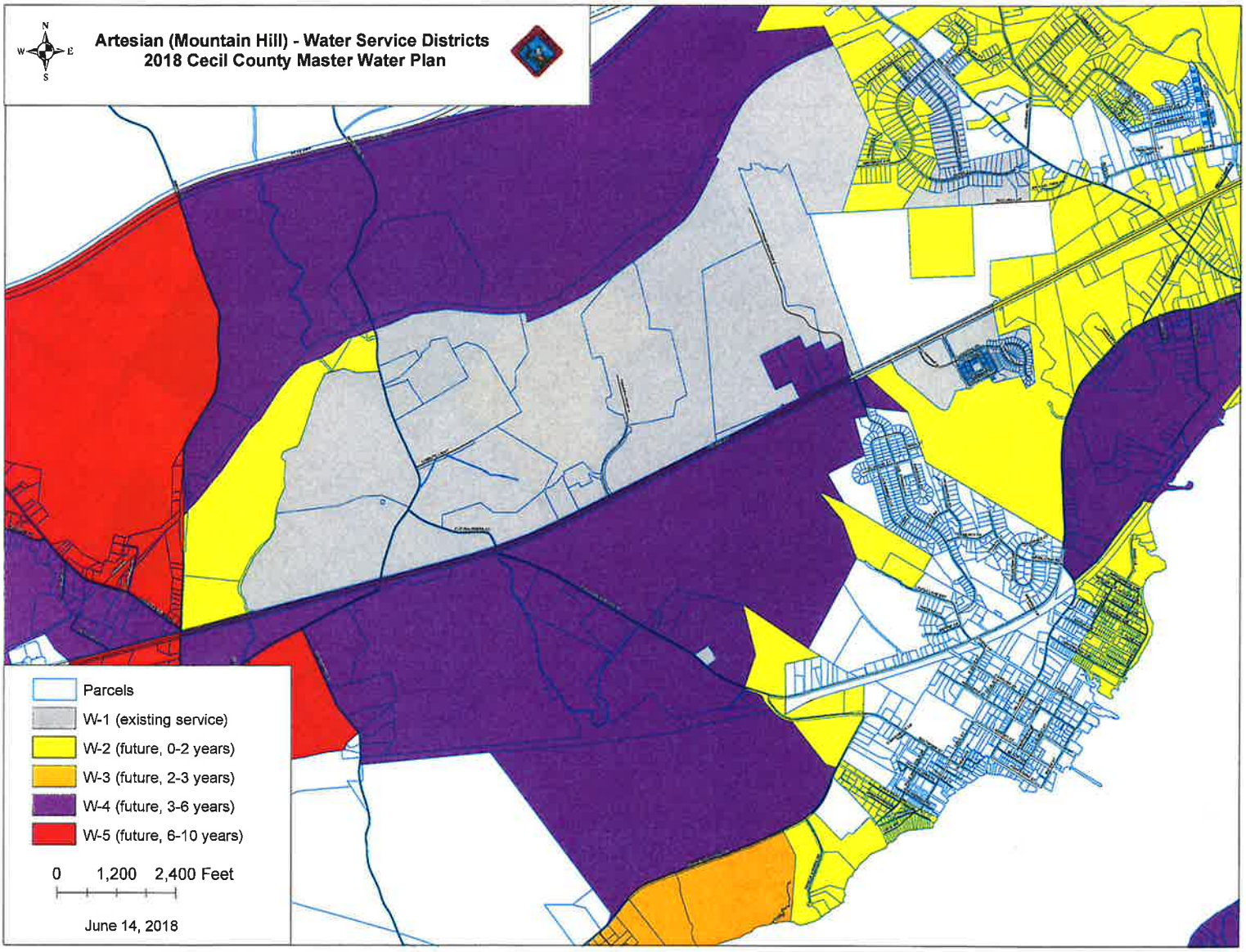

Artesian (Carpenters Point) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
0
800
1,600 Feet
June 14, 2018

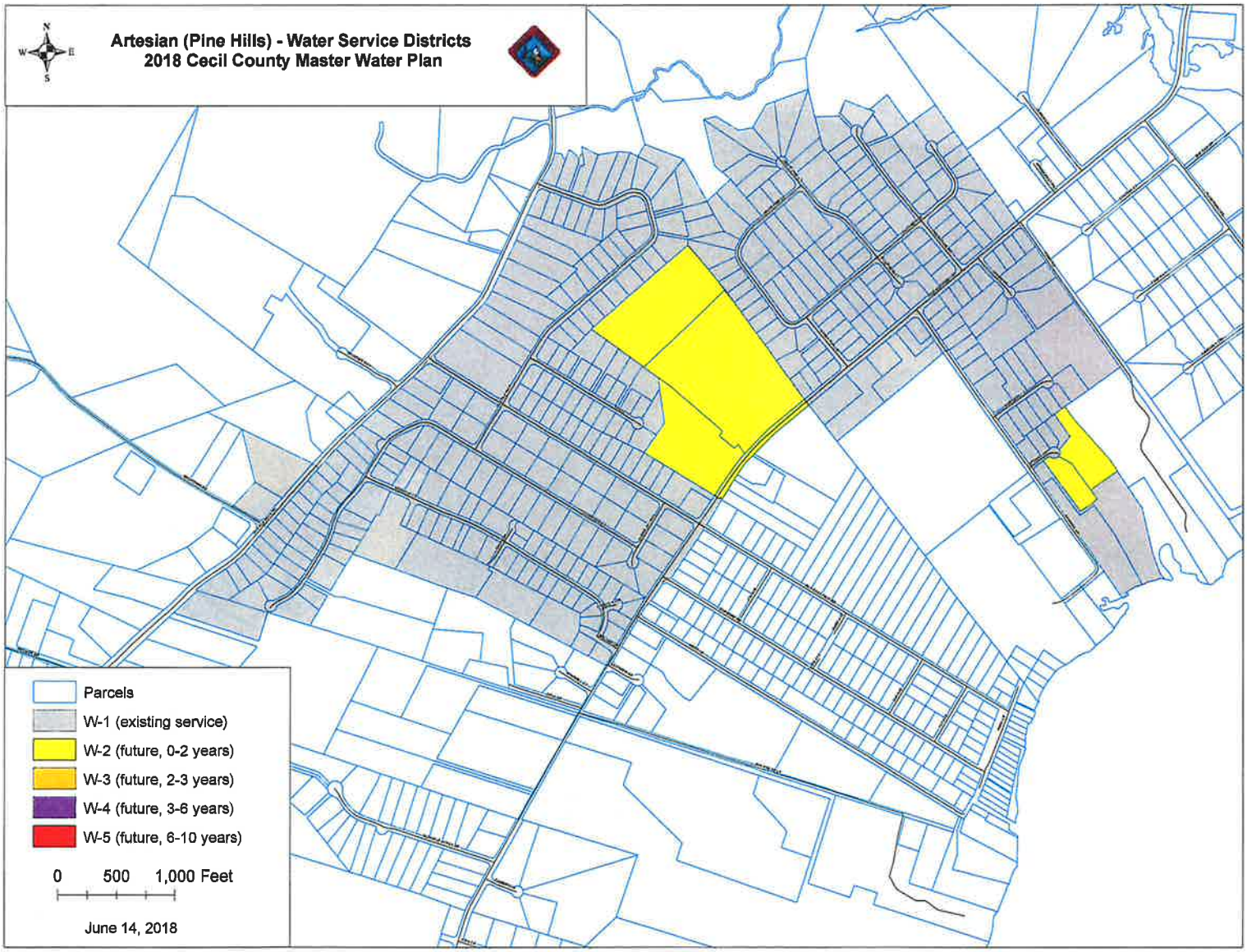

Artesian (Cherry Hill) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0
800
1,600 Feet
June 14, 2018

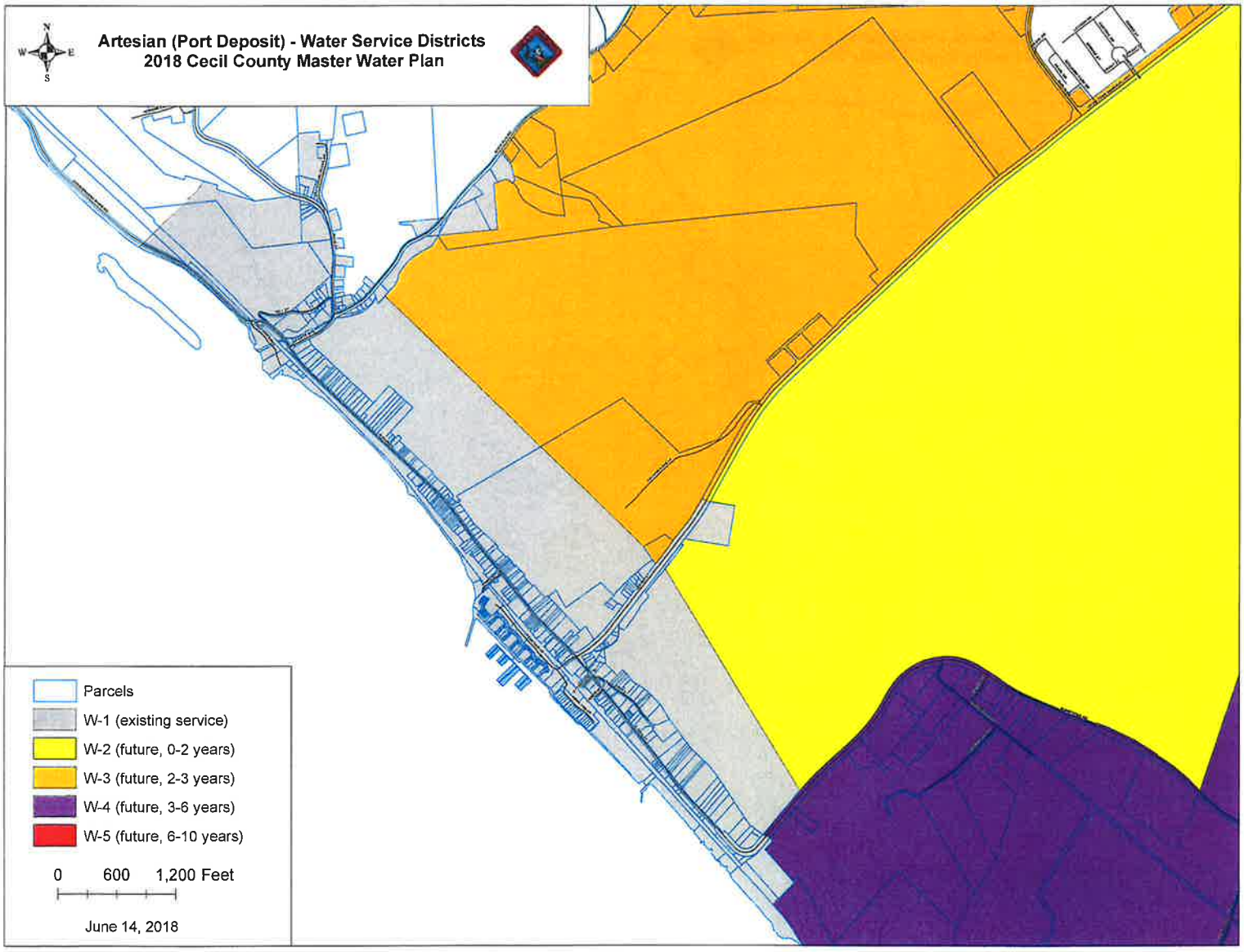

Artesian (Harborview) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 200 400 Feet
June 14, 2018

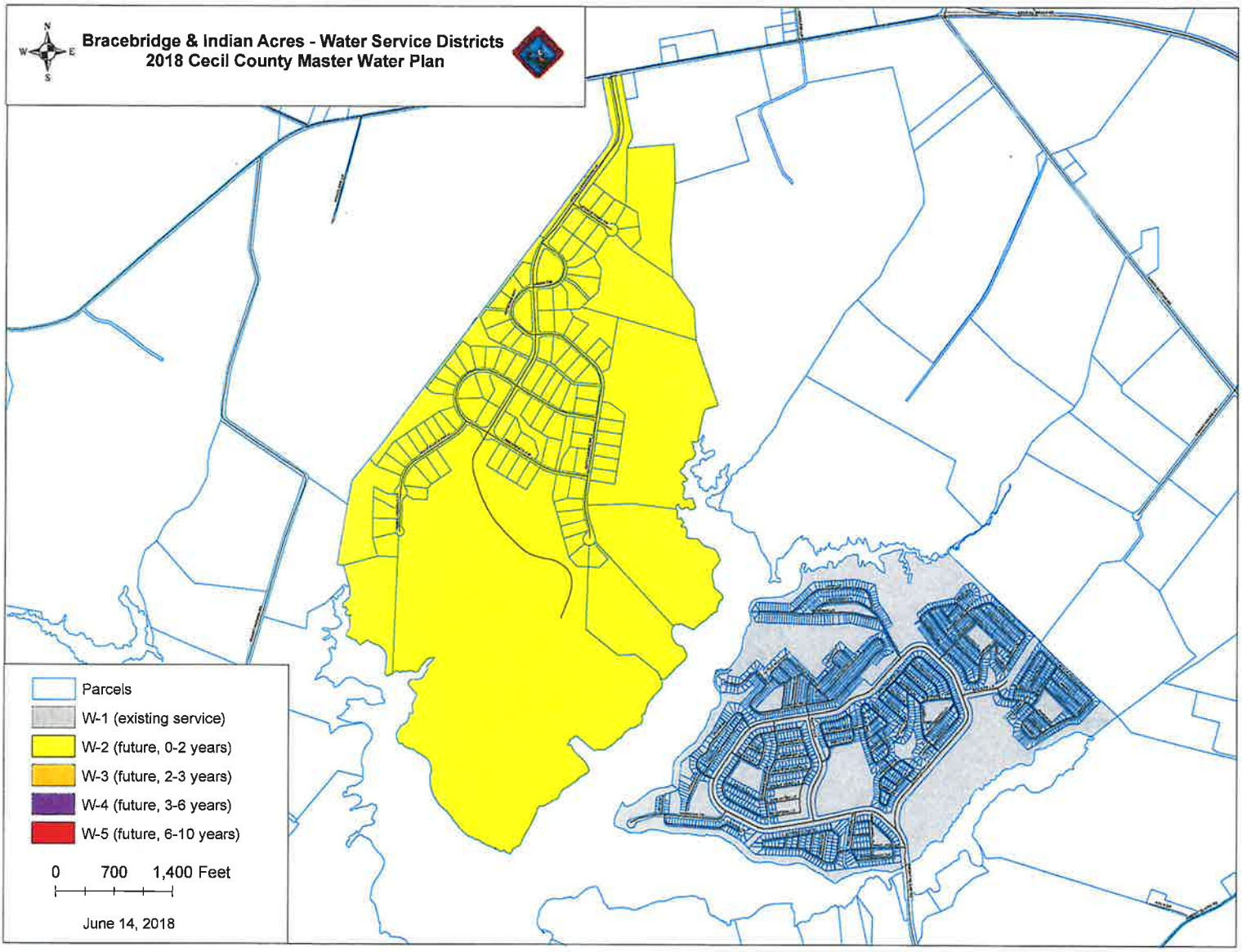

Artesian (Highlands) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 300 600 Feet
June 14, 2018

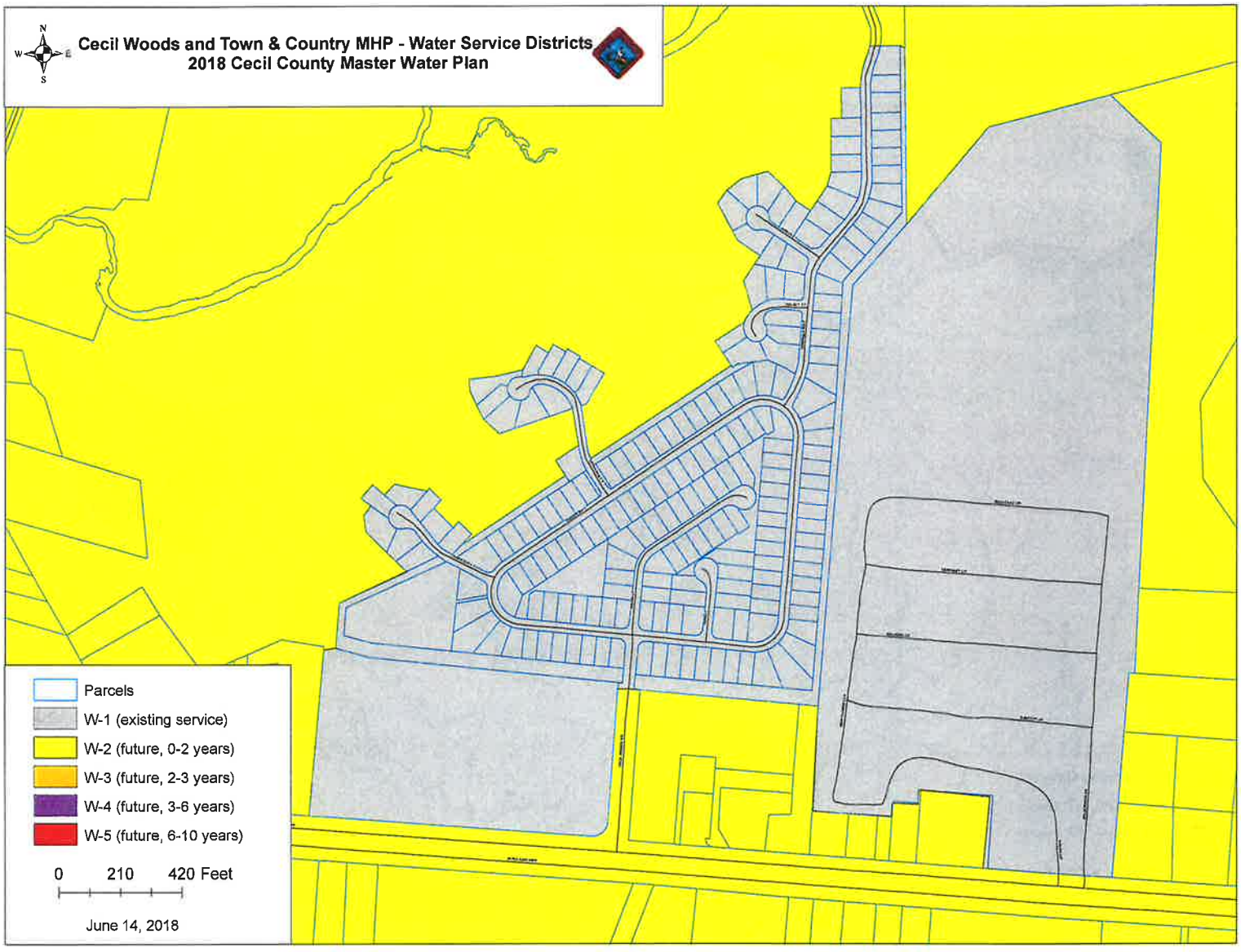

Artesian (Meadowview) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
Cecil Manor ES (ex. service)
0
800
1,600 Feet
June 14, 2018

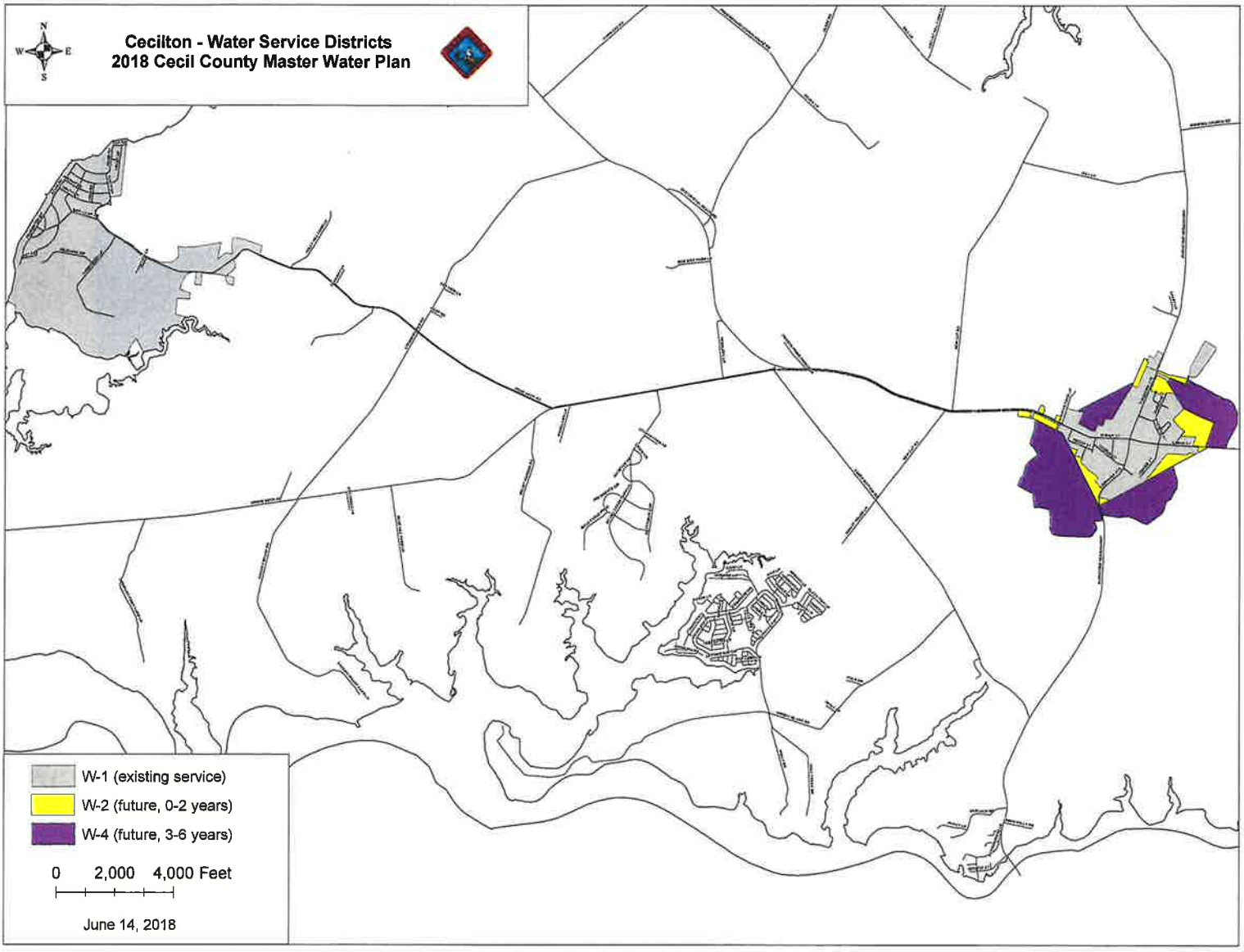

Artesian (Mountain Hill) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 1,200 2,400 Feet
June 14, 2018

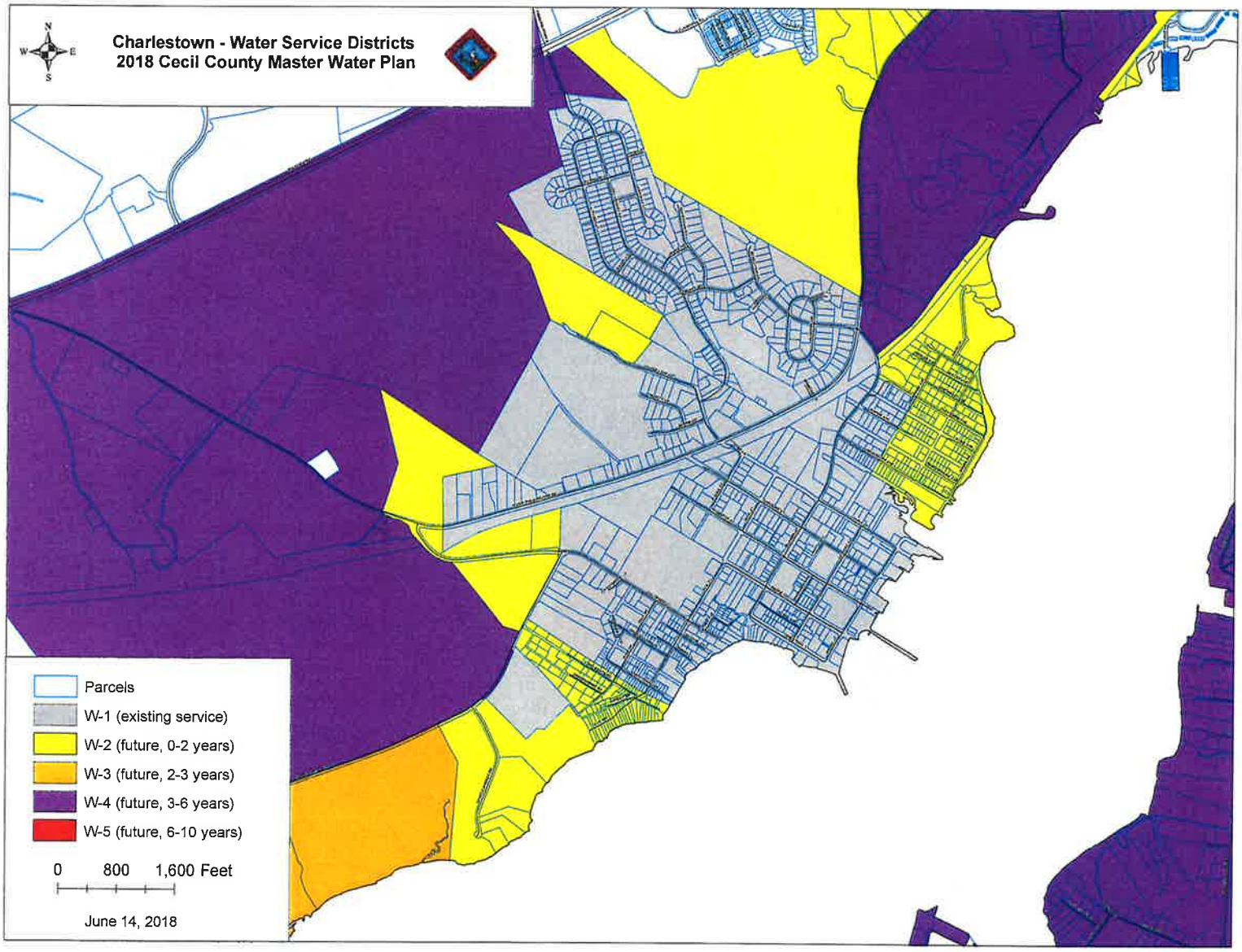

Artesian (Pine Hills) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 500 1,000 Feet
June 14, 2018

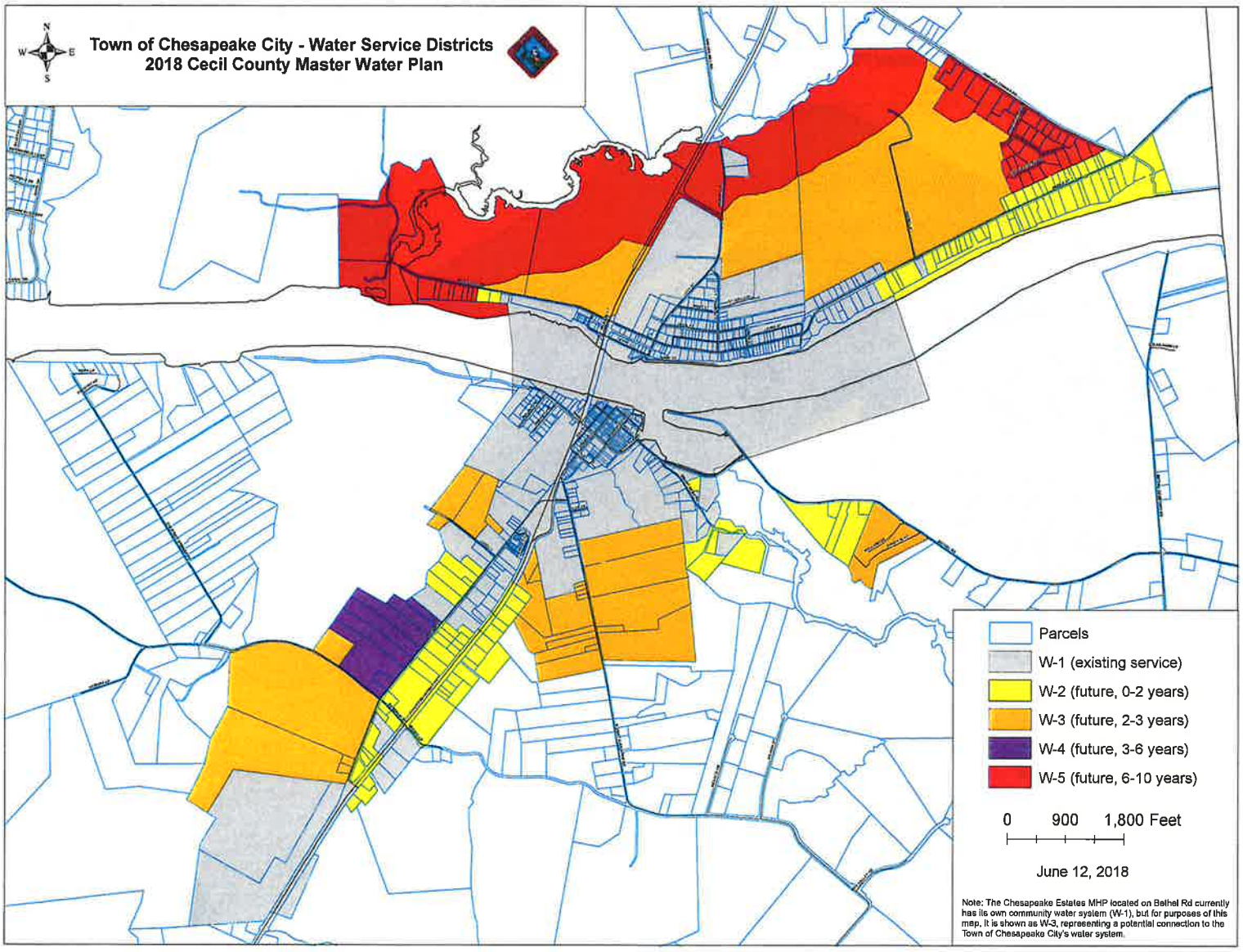

Artesian (Port Deposit) - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 600 1,200 Feet
June 14, 2018

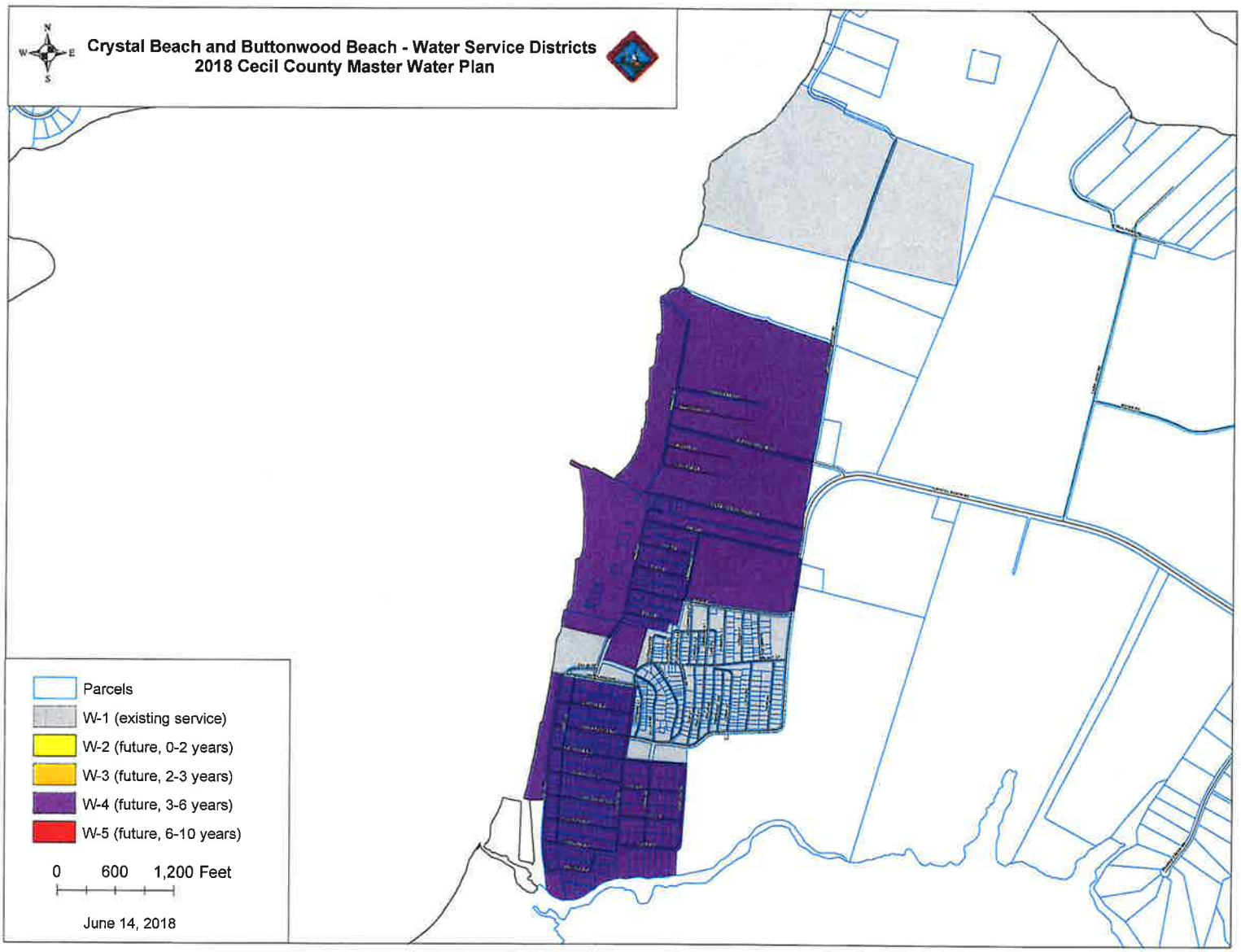

Bracebridge & Indian Acres - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 700 1,400 Feet
June 14, 2018

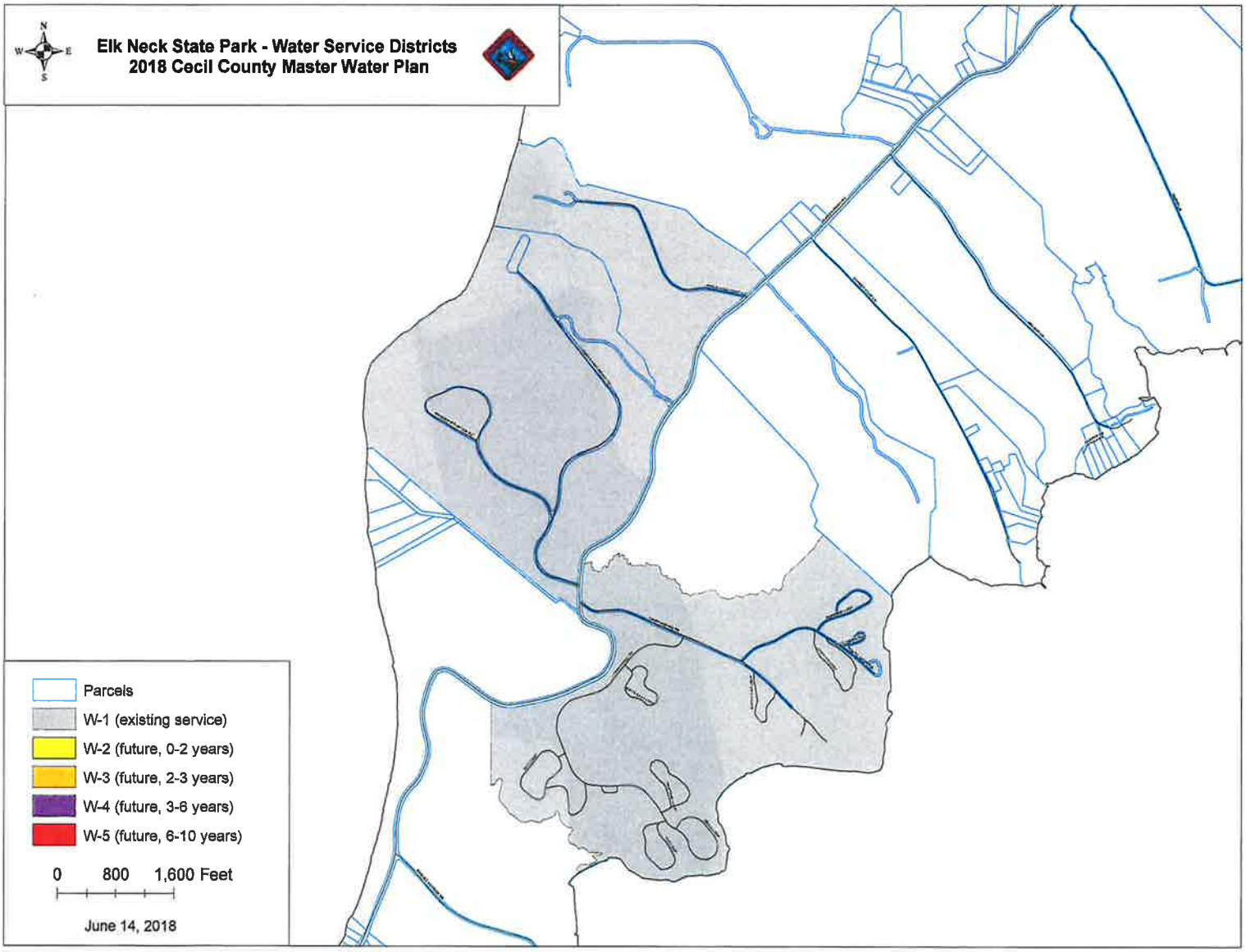

Cecil Woods and Town & Country MHP - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 210 420 Feet
June 14, 2018

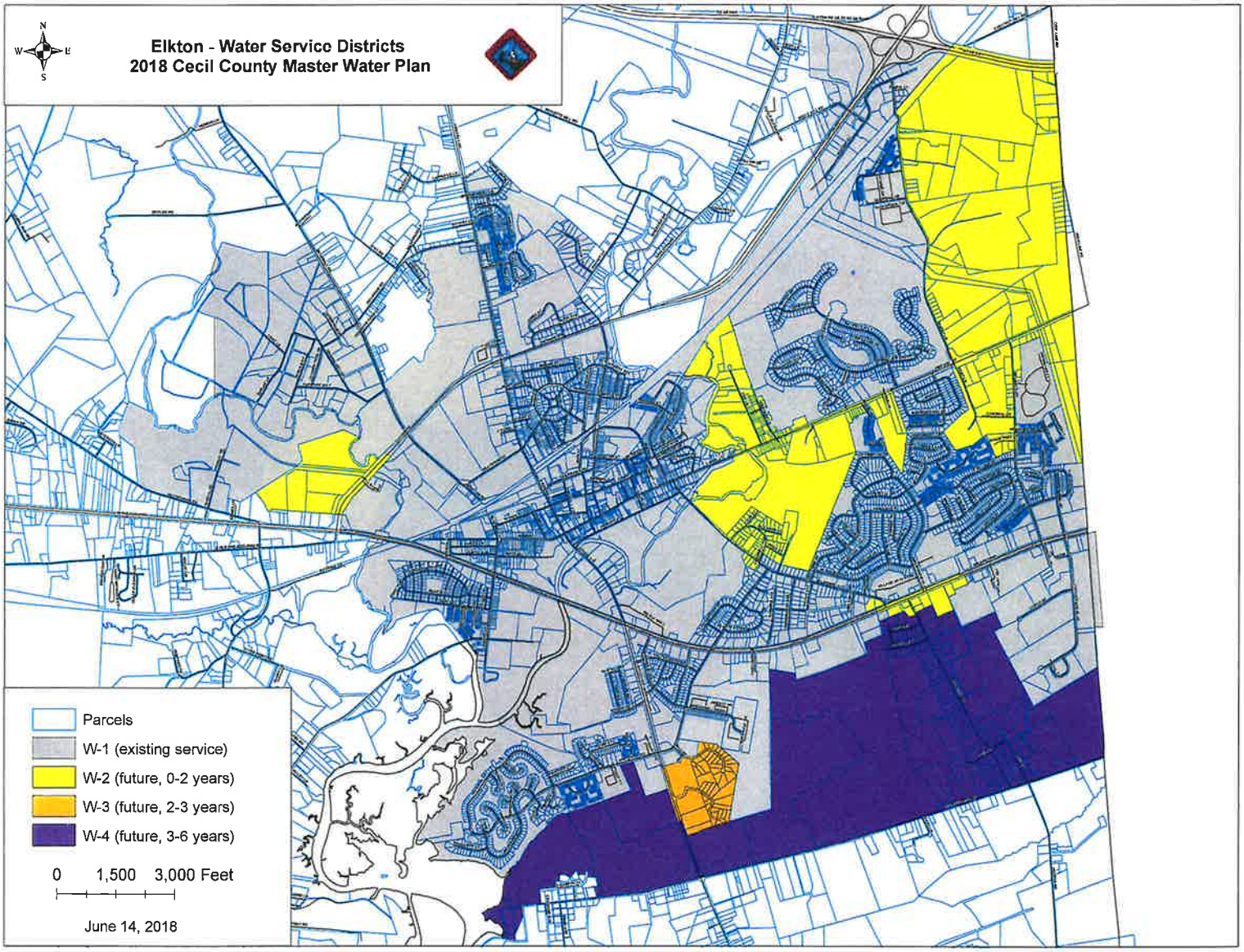

Cecilton - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
W-1 (existing service)
W-2 (future, 0-2 years)
W-4 (future, 3-6 years)
0 2,000 4,000 Feet
June 14, 2018

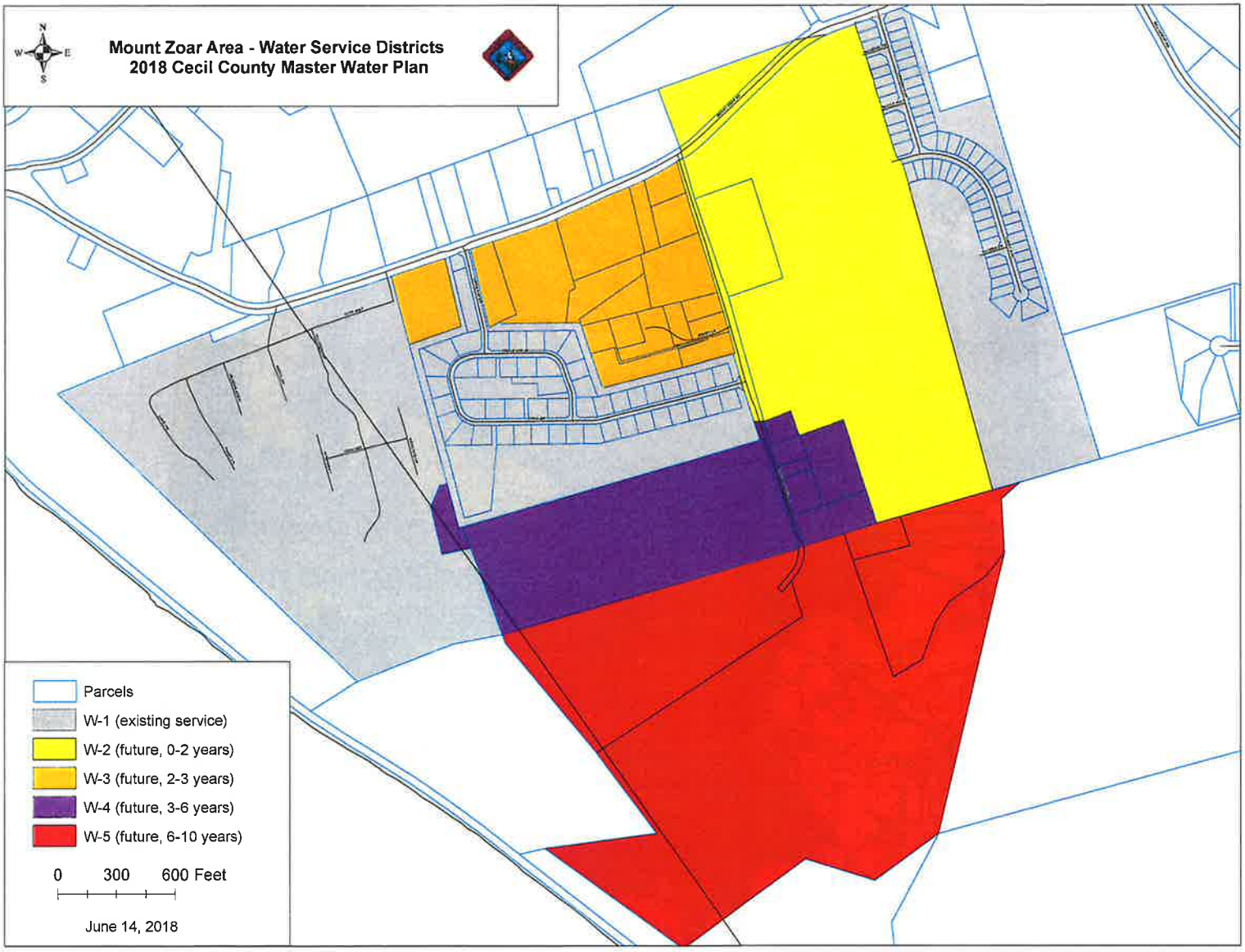

Charlestown - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 800 1,600 Feet
June 14, 2018

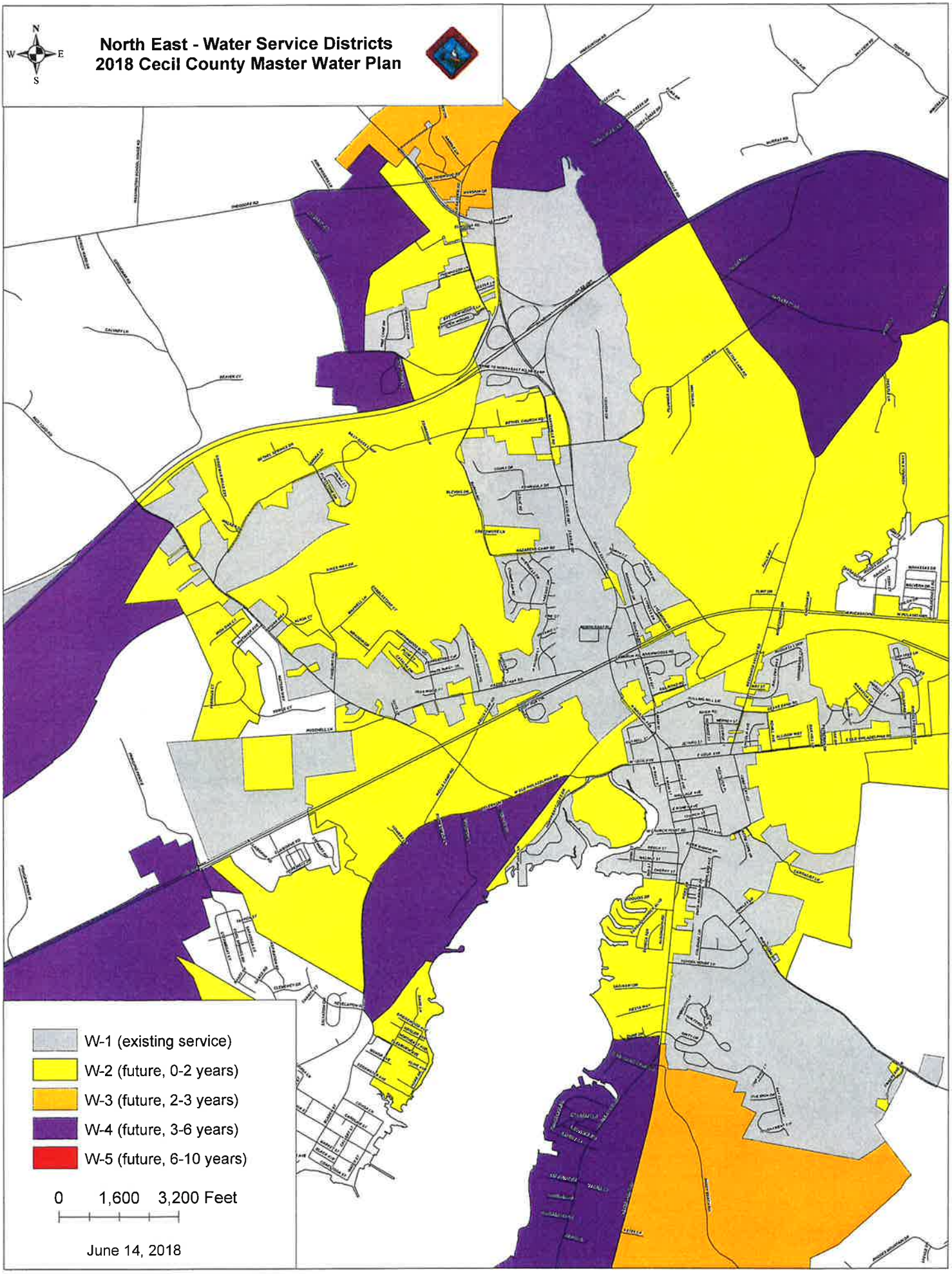

Town of Chesapeake City - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0
900
1,800 Feet
June 12, 2018
Note: The Chesapeake Estates MHP located on Bethel Rd currently has its own community water system (W-1), but for purposes of this map, it is shown as W-3, representing a potential connection to the Town of Chesapeake City's water system.

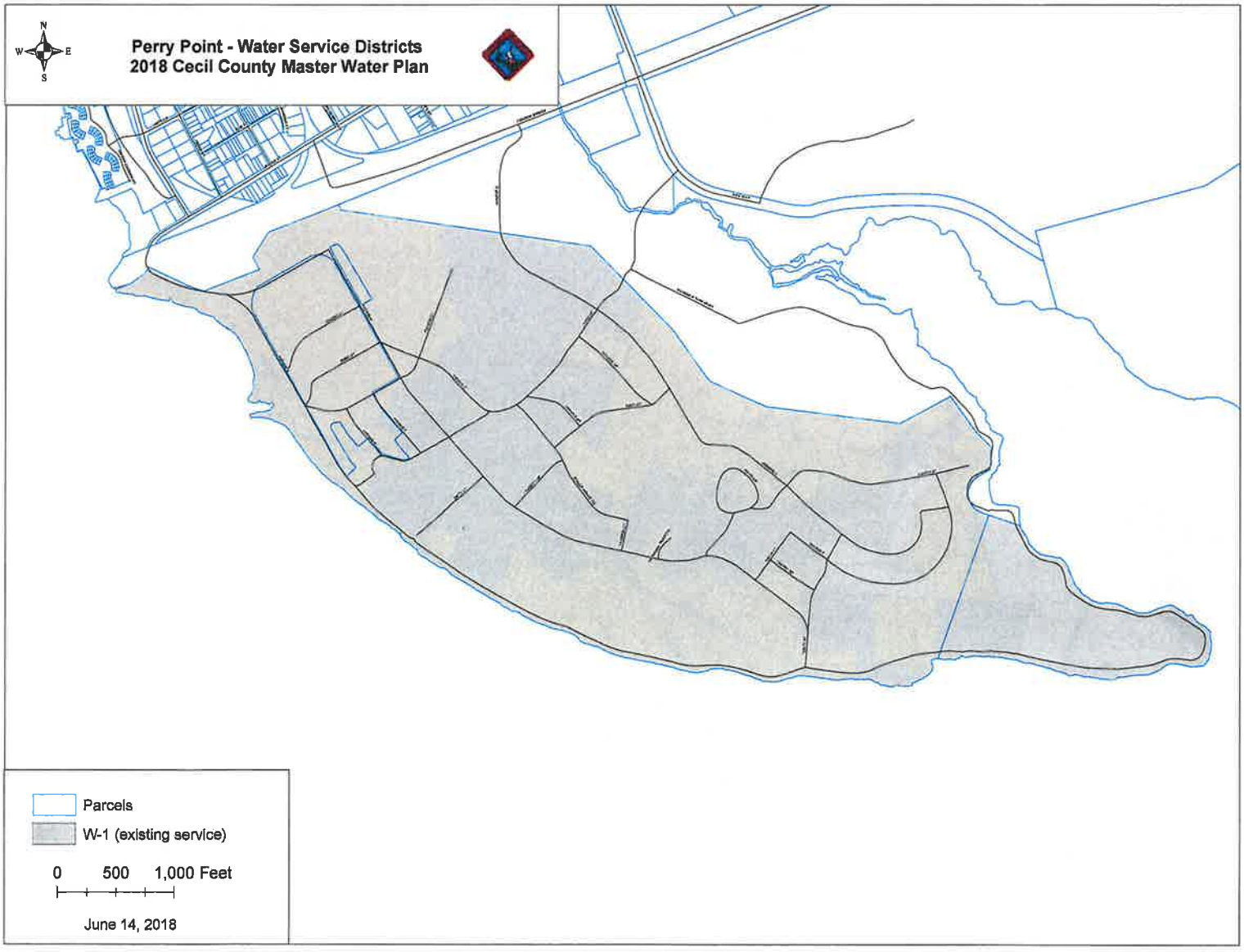

Crystal Beach and Buttonwood Beach - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 600 1,200 Feet
June 14, 2018

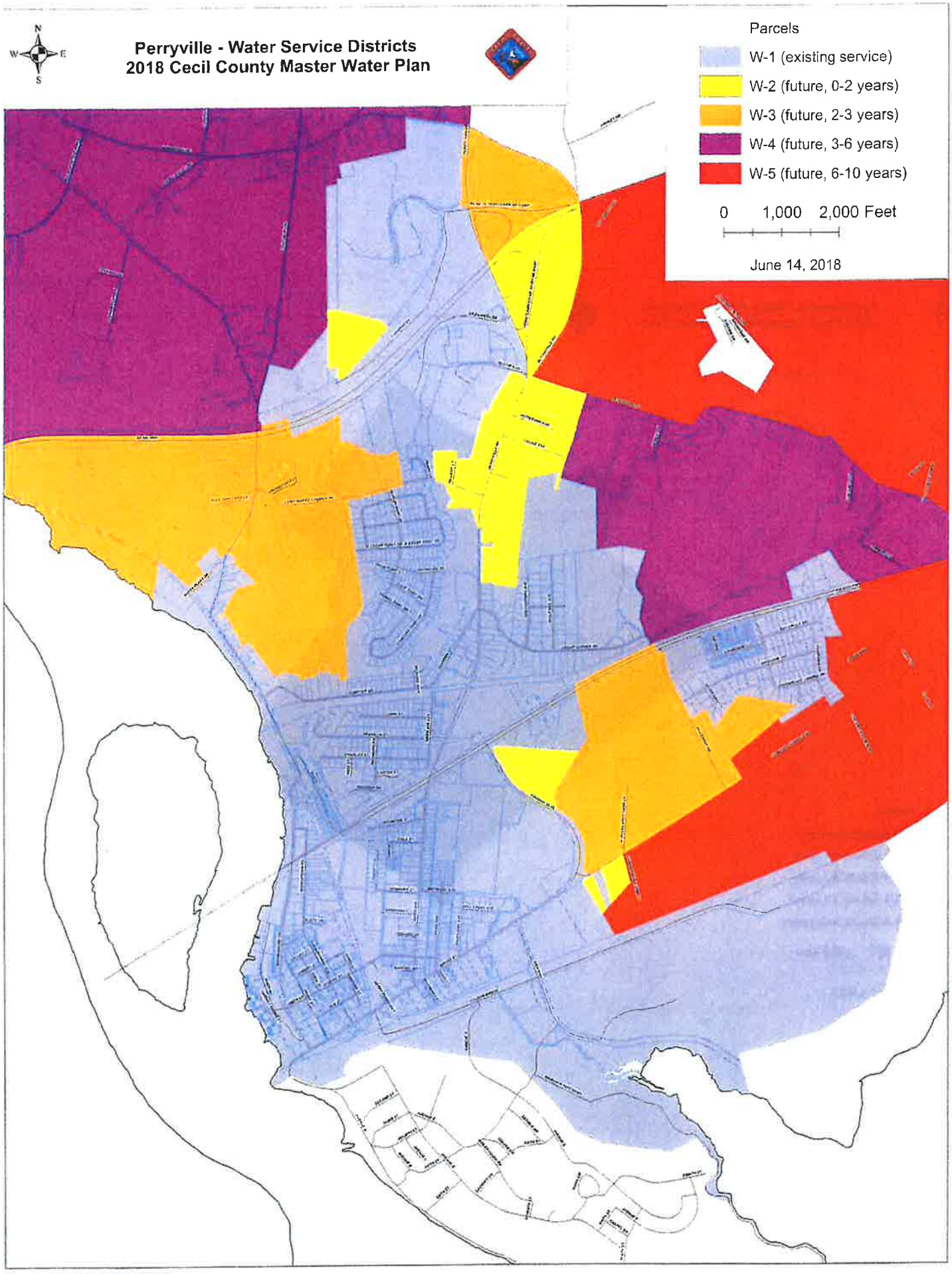

Elk Neck State Park - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 800 1,600 Feet
June 14, 2018


Elkton - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
0 1,500 3,000 Feet
June 14, 2018


Mount Zoar Area - Water Service Districts
2018 Cecil County Master Water Plan
N
W
E
S
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0
300
600 Feet
June 14, 2018

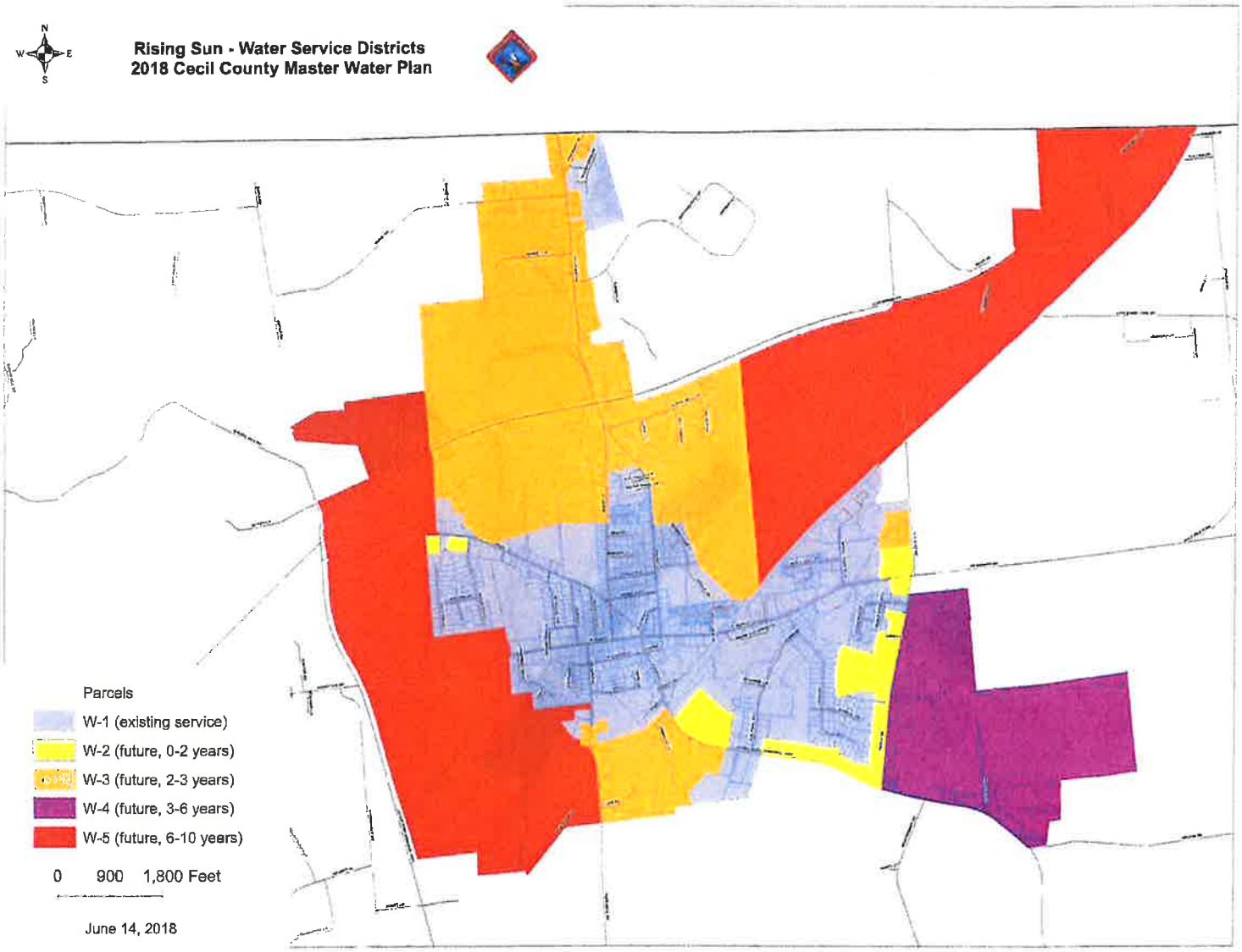

N
W
E
S
North East - Water Service Districts
2018 Cecil County Master Water Plan
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0
1,600
3,200 Feet
June 14, 2018


N
W
E
S
Perry Point - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
0 500 1,000 Feet
June 14, 2018


N
W
E
S
Perryville - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 1,000 2,000 Feet
June 14, 2018


Port Herman - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
W-3 (future, 2-3 years)
W-4 (future, 3-6 years)
W-5 (future, 6-10 years)
0 150 300 Feet
June 14, 2018

Rising Sun - Water Service Districts
2018 Cecil County Master Water Plan




Woodlawn Area - Water Service Districts
2018 Cecil County Master Water Plan
Parcels
W-1 (existing service)
W-2 (future, 0-2 years)
0 600 1,200 Feet
June 14, 2018

APPENDIX E

FINANCIAL STATEMENTS

Cecil County
Financial Statements

CECIL COUNTY, MARYLAND

STATEMENT OF NET POSITION
PROPRIETARY FUNDS
JUNE 30, 2017

	Business-Type Activities - Enterprise Funds				Governmental Activities -
	Wastewater	Landfill	Property Management	Total	Internal Service Funds
ASSETS					
Current Assets:					
Cash and Cash Equivalents (Note 3)	$ -	$ 1,500	$ 191,976	$ 193,476	$ 328,142
Investments (Note 3)	-	-	-	-	7,782,743
Receivables, Net: (Note 4)					
Accounts	1,763,329	643,068	-	2,406,397	6,084
Other	1,368	13,739	-	15,107	170,311
Due from Other Governments	950,632	-	-	950,632	154,650
Inventory	-	-	-	-	40,889
Other Assets	5,569	-	-	5,569	323,218
Restricted Assets					
Cash & Investments (Note 3)	5,565,851	9,065,552	-	14,631,403	1,069,048
Total Current Assets	8,286,749	9,723,859	191,976	18,202,584	9,875,085
Non-Current Assets:					
Accounts Receivable - Non-Current	1,876,562	-	-	1,876,562	-
Capital Assets, Net:					
Land	2,296,988	580,739	490,600	3,368,327	-
Construction in Progress	10,519,705	2,187,028	-	12,706,733	433,349
Vehicles	-	-	-	-	6,946,181
Landfill and Land Improvements	5,993,163	14,856,816	-	20,849,979	-
Wastewater Lines	21,910,791	-	-	21,910,791	-
Wastewater Systems	9,128,128	-	-	9,128,128	-
Buildings	12,747,734	3,150,041	6,570,925	22,468,700	209,289
Machinery & Equipment	24,848,545	1,461,381	-	26,309,926	5,432,494
Total Non-Current Assets	89,321,616	22,236,005	7,061,525	118,619,146	13,021,313
Total Assets	97,608,365	31,959,864	7,253,501	136,821,730	22,896,398
DEFERRED OUTFLOWS OF RESOURCES					
Deferred Charge of Refunding	461,255	50,666	-	511,921	-
Total Deferred Outflows of Resources	461,255	50,666	-	511,921	-
LIABILITIES					
Current Liabilities:					
Accounts Payable	660,519	69,695	21,228	751,442	753,464
Construction Retainage Payable	239,514	-	16,644	256,158	-
Salary & Benefits Payable	59,449	67,111	-	126,560	38,114
Accrued Expenses & Other Liabilities	409,141	239,470	124,964	773,575	5,307,412
Unearned Revenue	1,444,500	-	-	1,444,500	846,344
Capital Leases Payable	-	-	-	-	372,339
Bonds Payable	3,588,196	920,628	257,947	4,766,771	157,532
Compensated Absences	51,088	47,847	-	98,935	24,895
Total Current Liabilities	6,452,407	1,344,751	420,783	8,217,941	7,500,100
Non-Current Liabilities:					
Bonds Payable					
(Net of Unamortized Discounts)	51,136,265	12,124,538	6,793,282	70,054,085	3,915,643
Capital Leases Payable	-	-	-	-	1,503,971
Advances From Other Funds	3,282,676	2,313,813	-	5,596,489	4,121,172
Compensated Absences	25,544	23,924	-	49,468	12,448
Accrued Landfill Closure and Postclosure Costs	-	9,065,552	-	9,065,552	-
Total Non-Current Liabilities	54,444,485	23,527,827	6,793,282	84,765,594	9,553,234
Total Liabilities	60,896,892	24,872,578	7,214,065	92,983,535	17,053,334
NET POSITION					
Net Investment in Capital Assets	38,286,444	9,190,839	10,296	47,487,579	8,140,876
Unrestricted	(1,113,716)	(2,052,887)	29,140	(3,137,463)	(2,297,812)
Total Net Position	$ 37,172,728	$ 7,137,952	$ 39,436	$ 44,350,116	$ 5,843,064

The Notes to the Financial Statements are an integral part of this statement.

CECIL COUNTY, MARYLAND

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET POSITION
PROPRIETARY FUNDS
FOR THE YEAR ENDED JUNE 30, 2017

	Business-Type Activities - Enterprise Funds				Governmental Activities -
	Wastewater	Landfill	Property Management	Total	Internal Service Funds
OPERATING REVENUES					
Charges for Services:					
Sales and User Fees	$ 5,991,052	$ 7,851,546	$ 782,635	$14,625,233	$21,197,513
Intergovernmental	-	12,600	-	12,600	73,848
Miscellaneous Revenue	8,769	13,419	-	22,188	-
Total Operating Revenues	5,999,821	7,877,565	782,635	14,660,021	21,271,361
OPERATING EXPENSES					
Salaries and Related	1,262,727	1,487,905	-	2,750,632	885,088
Materials, Supplies, and Services	2,031,416	2,382,500	140,390	4,554,306	4,950,804
Benefit Payments	-	-	-	-	11,072,050
Depreciation	3,879,663	736,862	168,186	4,784,711	3,085,736
Depletion	-	1,005,918	-	1,005,918	-
Landfill Closure and Postclosure	-	241,550	-	241,550	-
Total Operating Expenses	7,173,806	5,854,735	308,576	13,337,117	19,993,678
Operating Income (Loss)	(1,173,985)	2,022,830	474,059	1,322,904	1,277,683
NON-OPERATING REVENUES (EXPENSES)					
Investment Earnings	48,060	40,381	780	89,221	47,877
Interest Expense	(1,510,309)	(425,721)	(262,418)	(2,198,448)	(161,307)
Bond Issue Expense	(198,349)	(7,156)	-	(205,505)	(24,506)
Gain on Disposal of Capital Assets	-	-	-	-	224,530
Total Non-Operating Revenues (Expenses)	(1,660,598)	(392,496)	(261,638)	(2,314,732)	86,594
Income (Loss) before Contributions and Transfers	(2,834,583)	1,630,334	212,421	(991,828)	1,364,277
Capital Contributions and Transfers:					
Intergovernmental Capital Grant	610,177	-	-	610,177	207,339
Wastewater Connection Fees	512,704	-	-	512,704	-
Developers Capital Contributions	76,716	-	-	76,716	-
Transfers Out	-	-	(186,453)	(186,453)	-
Change in Net Position	(1,634,986)	1,630,334	25,968	21,316	1,571,616
Net Position - Beginning	38,807,714	5,507,618	13,468	44,328,800	4,271,448
Net Position - Ending	$ 37,172,728	$ 7,137,952	$ 39,436	$44,350,116	$ 5,843,064

The Notes to the Financial Statements are an integral part of this statement.

CECIL COUNTY, MARYLAND

STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS
FOR THE YEAR ENDED JUNE 30, 2017

	Business-Type Activities - Enterprise Funds				Governmental Activities -
	Wastewater	Landfill	Property Management	Total	Internal Service Funds
Cash Flows From Operating Activities:					
Receipts from Customers and Users	$ 7,471,098	$ 7,773,852	$ 807,036	$ 15,244,950	$ 21,107,081
Payments to Suppliers	(4,216,693)	(2,451,967)	(105,460)	(6,668,660)	(15,784,843)
Payments to Employees	(1,248,651)	(1,477,073)	-	(2,725,724)	(884,112)
Net Cash from Operating Activities	2,005,754	3,844,812	701,576	5,850,566	4,438,126
Cash Flows From Non-Capital Financing Activities:					
Advances from Other Funds	3,282,676	(2,316,722)	(186,453)	965,954	(1,256,085)
Net Cash from Non-Capital Financing Activities	3,282,676	(2,316,722)	(186,453)	965,954	(1,256,085)
Cash Flows From Capital and Related Financing Activities:					
Proceeds from Bond Issues	-	-	-	-	1,897,134
Proceeds from Capital Grants Received	407,520	-	-	407,520	310,762
Proceeds from Sewage Connection Fees	512,704	-	-	512,704	-
Acquisition and Construction of Capital Assets	(8,763,569)	(15,317)	(194,015)	(8,778,886)	(2,904,066)
Principal Paid on Bond Maturities	(2,843,802)	(885,883)	(248,771)	(3,729,685)	(197,624)
Interest Paid on Bonds	(1,632,900)	(425,721)	(265,246)	(2,058,621)	(161,307)
Proceeds from Sale of Capital Assets	-	-	-	-	88,570
Net Cash from Capital and Related Financing Activities	(12,320,047)	(1,326,921)	(708,032)	(13,646,968)	(966,531)
Cash Flows From Investing Activities:					
Interest on Investments	48,060	40,381	780	88,441	47,877
Net Increase (Decrease) in Cash and Cash Equivalents	(6,983,557)	241,550	(192,129)	(6,742,007)	2,263,388
Cash and Cash Equivalents - June 30, 2016	12,549,408	8,825,502	384,105	21,374,910	6,916,545
(including $12,429,135, $8,824,002 and $264,304 respectively reported in restricted accounts)					
Cash and Cash Equivalents - June 30, 2017	$ 5,565,851	$ 9,067,052	$ 191,976	$ 14,632,903	$ 9,179,933
(including $5,565,851 and $9,065,552 respectively reported in restricted accounts)					

The Notes to the Financial Statements are an integral part of this statement.

CECIL COUNTY, MARYLAND

STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS (Continued)
FOR THE YEAR ENDED JUNE 30, 2017

	Business-Type Activities - Enterprise Funds				Governmental Activities -
	Wastewater	Landfill	Property Management	Total	Internal Service Funds
Reconciliation of Operating Income to Net Cash from Operating Activities:					
Operating Income (Loss)	$(1,173,985)	$ 2,022,830	$ 474,059	$ 848,845	$ 1,277,683
Adjustments to Reconcile Operating Income (Loss) to Net Cash Provided from Operating Activities:					
Depreciation and Depletion	3,879,663	1,742,780	168,186	5,622,443	3,085,736
Increase in Closure/Postclosure Liability	-	241,550	-	241,550	-
Effect of Changes in Non-Cash Operating Assets and Liabilities:					
Accounts Receivable	26,777	(106,110)	24,401	(79,333)	501,250
Other Assets	424	-	-	424	183,798
Accounts Payable	(2,210,837)	(62,437)	34,930	(2,273,274)	(155,006)
Salaries & Benefits Payable	12,084	10,408	-	22,492	1,256
Compensated Absences	12,087	3,599	-	15,686	(281)
Accrued Expenses	15,041	(7,808)	-	7,233	209,220
Deferred Revenue	1,444,500	-	-	1,444,500	(665,530)
Net Cash Provided from Operating Activities	$ 2,005,754	$ 3,844,812	$ 701,576	$ 5,850,566	$ 4,438,126
Schedule of non-cash capital and related financing activites:					
Decrease in Non-current Special Assessment/Connection Fees receivable	$ 55,868	$ -	$ -	$ 55,868	$ -

The Notes to the Financial Statements are an integral part of this statement.

Town of Cecilton
Financial Statements

TOWN OF CECILTON
STATEMENT OF NET ASSETS – PROPRIETARY FUNDS
JUNE 30, 2013

	Total
ASSETS	
Cash & Cash Equivalents	$ 4,194
Service Charges Receivable	128,470
Due From General Fund	52,978
Noncurrent Assets:	
Capital Assets, Net of Accumulated Depreciation	5,754,242
Total Assets	5,939,884
LIABILITIES	
Accounts Payable and Accrued Expenses	75,909
Noncurrent Liabilities:	
Due Within One Year	54,023
Due in More Than One Year	2,496,558
Total Liabilities	2,626,490
NET ASSETS	
Invested in Capital Assets, Net of Related Debt	3,203,661
Unrestricted	109,733
Total Net Assets	$ 3,313,394

The accompanying notes are an integral part of the financial statements.

TOWN OF CECILTON
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS – PROPRIETARY FUNDS
FOR THE FISCAL YEAR ENDED JUNE 30, 2013

OPERATING REVENUES		
Service Charges	$ 338,440	
Total Operating Revenue		$ 338,440
OPERATING EXPENSES		
Contracted Services	101,131	
Depreciation	182,464	
Insurance	3,146	
Legal & Audit Fees	3,750	
Payroll Taxes and Fringe Benefits	543	
Repairs and Maintenance	21,105	
Salaries and Wages	6,448	
Supplies, Materials & Other Expenses	9,582	
Utilities and Telephone	31,228	
Total Operating Expenses		359,397
Operating Income (Loss)		(20,957)
OTHER REVENUE (EXPENSE)		
Interest Income	2	
Hook Up & Connection Fees	-	
Interest Expense	(78,469)	
Total Other Revenue (Expense)		(78,467)
Change in Net Assets		(99,424)
NET ASSETS AT BEGINNING OF YEAR		3,412,818
Net Assets at End of Year		$3,313,394

The accompanying notes are an integral part of the financial statements.

TOWN OF CECILTON
STATEMENT OF CASH FLOWS - PROPRIETARY FUNDS
FOR THE FISCAL YEAR ENDED JUNE 30, 2013

CASH FLOWS FROM OPERATING ACTIVITIES		
Cash Received From Customers	$ 350,078	
Cash Paid to Suppliers & Employees	(169,081)	
Net Cash From (Used By) Operating Activities		$ 180,997
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of Property, Plant & Equipment	-	
USDA WWTP Capital Grant Funds	-	
Hook Up & Connection Fees	-	
Interest Earned	2	
Net Cash From (Used By) Investing Activities		2
CASH FLOWS FROM FINANCING ACTIVITIES		
Loans to General Fund	(57,484)	
Repayment of Long-Term Debt	(52,985)	
Interest Paid on Long-Term Obligations	(78,469)	
Net Cash From (Used By) Financing Activities		(188,938)
Net Increase (Decrease) In Cash		(7,939)
CASH, July 1, 2012		12,133
Cash, June 30, 2013		$ 4,194
RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:		
Operating Income (Loss)		$ (20,957)
Adjustments To Reconcile Operating Income To Net Cash Provided By Operating Activities		
Depreciation	182,464	
(Increase) Decrease In Accounts Receivable	11,638	
Increase (Decrease) In Accounts Payable	7,852	
Total Adjustments		201,954
Net Cash From (Used By) Operating Activities		$ 180,997

The accompanying notes are an integral part of the financial statements.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Town of Cecilton was incorporated in 1864. The Town operates under a Mayor - Council form of government and provides the following services: Public Works - Highways and Streets; Water, Sewer and Sanitation; Recreation - Parks; and General Administrative Services.

The financial statements of the Town have been prepared in conformity with accounting principles generally accepted in the United States of America as applicable to government units. The Government Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. Proprietary funds apply Financial Accounting Standard Board (FASB) pronouncements and Accounting Principles Board (APB) opinions issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements, in which case, GASB prevails. The more significant of the government's accounting policies are described below.

GOVERNMENT-WIDE FINANCIAL STATEMENTS

The government-wide financial statements (the statement of net assets and the statement of activities) report information on all non-fiduciary activities of the Town. For the most part, the effect of interfund activity has been removed from these statements.

The statement of activities demonstrates the degree to which the direct expenses of a given function or segment are offset by program revenues. Direct expenses are those that are clearly identifiable with a specific function or segment. Program revenues include 1) charges to customers or applicants who purchase, use, or directly benefit from goods, services or privileges provided by a given function or segment and 2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment. Taxes and other revenues not properly included among program revenues are reported instead as general revenues.

Separate financial statements are provided for governmental, proprietary and fiduciary funds, even though the latter are excluded from the government-wide financial statements.

MEASUREMENT FOCUS, BASIS OF ACCOUNTING & FINANCIAL STATEMENT PRESENTATION

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting, as are the proprietary fund and fiduciary fund financial statements. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Property taxes are recognized as revenues in the year for which they are levied for. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Governmental fund financial statements are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they become both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the town considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures generally are recorded as a liability when incurred, as under accrual accounting.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES - CONTINUED

The Town maintains the following two funds:

Governmental Fund Type - General Fund

The General Fund is the general operating fund of the Town. It is used to account for all financial resources except those required to be accounted for in another fund.

Proprietary Fund Type - Water and Sewer Enterprise Fund

The Water and Sewer Enterprise Fund is used to account for operations (a) that are financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges, or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred and/or net income is appropriate for capital maintenance, or public policy, management control, accountability or other purposes.

BUDGETARY DATA

Formal budgetary accounting is employed as a management control for all funds of the Town. Annual operating budgets are adopted, after public hearings, by passing of an ordinance prior to the start of each fiscal year. Transfers of appropriations between functions require approval of the Town Council. The budget uses the same basis of accounting as used to reflect actual revenues and expenditures.

RECEIVABLES

All receivables are reported at gross values. No allowance for uncollectible accounts is deemed necessary.

CAPITAL ASSETS

Capital assets, which include property, plant, equipment, and infrastructure assets (e.g., roads, bridges, sidewalks, and similar items) are reported in the government-wide financial statements. Capital assets are defined by the government as assets with an initial cost of more than $2,500 and an estimated useful life in excess of two years. Such items are recorded at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at estimated fair value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend the life of an asset are not capitalized. Major outlays for capital assets and improvements are capitalized as projects are constructed.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES - CONTINUED

Property, plant, and equipment is depreciated using the straight-line method over the following estimated useful lives:

Machinery, equipment and vehicles	5 to 25 years
Buildings and improvements	20 to 50 years
Public domain infrastructure	15 to 50 years
Water & Sewer plants, lines and tanks	25 to 50 years
Water & Sewer improvements	10 to 50 years

COMPENSATED ABSENCES

Since accumulated unpaid vacation and sick leave are relatively immaterial, no accruals have been made with respect to them.

NET ASSETS

In the government-wide financial statements, net assets are classified in the following categories:

Invested in Capital Assets, Net of Related Debt

This category groups all capital assets, including infrastructure, into one component of net assets. Accumulated depreciation and the outstanding balance of the debt that are attributable to the acquisition, construction or improvement of these assets reduces this category.

Unrestricted Net Assets

This category represents the net assets of the Town which are not restricted for any project or other purpose by third parties.

NOTE 2 – CASH AND CASH EQUIVALENTS

Deposits are carried at cost plus accrued interest. The carrying amount of Deposits is separately displayed on the balance sheet as "Cash And Equivalents", and consists of demand deposits and certificates of deposit with short-term (less than six month) maturities.

Deposits, by level of risk, are:

	Carrying Amount	Bank Balance
Insured (FDIC)	$ 20,703	$ 28,323
MD Local Government Investment Pool	1,969	1,969
Total Deposits	$ 22,672	$ 30,292

NOTE 2 – CASH AND CASH EQUIVALENTS - CONTINUED

The Town has adopted a policy to be followed when investing public funds in accordance with the provisions of Article 95, Section 22F of the Annotated Code of Maryland which prescribes the type of investments permissible for Maryland Municipalities. This policy requires that Town funds be invested in obligations for which the United States has pledged its full faith and credit, obligations insured by a federal agency (such as the FDIC), obligations collateralized by federal obligations, and portfolios created under the Maryland Local Government Investment Pool. The Town has adhered to these policies when investing its funds throughout the fiscal year.

NOTE 3 – DEFERRED COMPENSATION PLAN

The Town offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The plan is administered by Nationwide Retirement Solutions. The plan, available to all full-time employees, permits them to defer a portion of their salary until future years. Participation in the plan is optional.

The Town contributes 3% of the annual salary of each participating employee to the plan. For the plan year ended June 30, 2013, covered salaries were $100,312 and the Town's 3% contribution on their behalf was $3,009.

NOTE 4 - RISK MANAGEMENT

The Town has commercial insurance which covers all significant losses. There have been no significant reductions in insurance coverage. Settlement amounts have not exceeded insurance coverage for the current year or for the three prior years.

NOTE 6 – CAPITAL ASSETS

Capital asset activity for the year ended June 30, 2013 is as follows:

COST OF CAPITAL ASSETS:	06/30/12	Additions	Deletions	06/30/13
Governmental Activities				
Land & Improvements	$ 1,371,616	$ 58,853	$ 16,646	$ 1,413,823
Buildings & Improvements	337,356	9,355	-	346,711
Machinery, Equipment & Vehicles	207,237	-	16,590	190,647
Total Governmental Activities	1,916,209	68,208	33,236	1,951,181
Business-Type Activities				
Land	1,000	-	-	1,000
Plants, Tanks, Mains & Improvements	7,407,424	-	-	7,407,424
Machinery, Equipment & Vehicles	69,821	-	-	69,821
Construction In Progress	-	-	-	-
Total Business-Type Activities	7,447,245	-	-	7,478,245
Total Cost	9,394,454	68,208	33,236	9,429,426
LESS: ACCUMULATED DEPRECIATION:				
Governmental Activities				
Land & Improvements	189,222	32,102	-	221,324
Buildings & Improvements	187,110	9,690	-	196,800
Machinery, Equipment & Vehicles	116,549	10,604	16,590	110,563
Total Governmental Activities	492,881	52,396	16,590	528,687
Business-Type Activities				
Land	-	-	-	-
Plants, Tanks, Mains & Improvements	1,486,511	178,702	-	1,665,213
Machinery, Equipment & Vehicles	55,028	3,762	-	58,790
Construction In Progress	-	-	-	-
Total Business-Type Activities	1,541,539	182,464	-	1,724,003
Total Accumulated Depreciation	2,034,420	234,860	16,590	2,252,690
NET CAPITAL ASSETS:				
Governmental Activities	1,423,328	15,812	16,646	1,422,494
Business-Type Activities	5,936,706	(182,464)	-	5,754,242
Total Net Capital Assets	$7,360,034	$ (166,652)	$ 16,646	$7,176,736

Town of Charlestown
Financial Statements

TOWN OF CHARLESTOWN

Statement of Net Position - Proprietary Funds
June 30, 2017

	Major Enterprise Fund Utility Fund	
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 928,414	
Service charges receivable	135,256	
Due from other funds	20,007	
Total Current Assets		$ 1,083,677
CAPITAL ASSETS		
Land, building and equipment	5,735,487	
Less: accumulated depreciation	(2,804,897)	
Total Capital Assets		2,930,590
OTHER ASSETS		
Advances to other funds	646,011	
		646,011
TOTAL ASSETS		4,660,278
LIABILITIES		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	62,938	
Current portion - long term obligations	40,492	
Total Current Liabilities		103,430
NONCURRENT LIABILITIES		
Long term obligations	536,606	
Total Noncurrent Liabilities		536,606
TOTAL LIABILITIES		640,036
NET POSITION		
Invested in capital assets, net of related debt	2,357,816	
Unrestricted	1,662,426	
TOTAL NET POSITION		$ 4,020,242

See accompanying notes to financial statements

TOWN OF CHARLESTOWN

Statement of Revenues, Expenses and Changes in
Fund Net Position - Proprietary Funds
For the Year Ended June 30, 2017

	Major Enterprise Fund Utility Fund	
OPERATING REVENUES		
Service fees	$ 469,701	
Total Operating Revenue		$ 469,701
OPERATING EXPENSES		
Maintenance	51,215	
User fees - county	147,022	
Contracted service	44,568	
Utilities	15,329	
General and administrative	118,412	
Depreciation	139,218	
Total Operating Expenses		515,764
OPERATING LOSS		(46,063)
NONOPERATING REVENUES (EXPENSES)		
Connection fees	112,000	
Interest expense	(17,847)	
Investment income	1,864	
Total Nonoperating Revenue		96,017
CHANGE IN FUND NET POSITION		49,954
TOTAL NET POSITION - BEGINNING		3,970,288
TOTAL NET POSITION - ENDING		$ 4,020,242

See accompanying notes to financial statements

TOWN OF CHARLESTOWN

Statement of Cash Flows - Proprietary Funds
For the Year Ended June 30, 2017

	Major Enterprise Fund Utility Fund	
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash received from customers	$ 458,864	
Cash payments to suppliers for goods and services	(370,184)	
Cash payments to general fund for salaries	558	
NET CASH FLOWS FROM OPERATING ACTIVITIES		$ 89,238
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES		
Transfer from other funds	169,322	
NET CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES		169,322
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Repayments of bonds	(39,791)	
Connection fees received	112,000	
Proceeds from sale of fixed assets		
Interest payments and administrative fees paid on bond	(17,847)	
NET CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		54,362
CASH FLOWS FROM INVESTING ACTIVITIES		
Receipt of interest	1,864	
NET CASH FLOWS FROM INVESTING ACTIVITIES		1,864
NET INCREASE IN CASH AND CASH EQUIVALENTS		314,786
CASH AND CASH EQUIVALENTS - BEGINNING		613,628
CASH AND CASH EQUIVALENTS - END		$ 928,414
Reconciliation of operating loss to net cash flows from operating activities:		
Operating loss		$ (46,063)
Add depreciation expense	$ 139,218	
Add accrued compensated absences	558	
Increase in current assets		
Accounts receivable	(10,837)	
Increase in current liabilities		
Accounts payable	6,362	
Total adjustments		135,301
Net cash provided by operating activities		$ 89,238

See accompanying notes to financial statements

1. Summary of Significant Accounting Policies

The Town of Charlestown, Maryland (the Town) was founded in 1742, under the provisions of the laws of the State of Maryland. The Town operates under the Commissioner form of government. The Town is located in Cecil County and provides the following services as authorized by its charter: General Government, Public Safety, Public Works, Parks and Recreation, and Water and Sewer Services. A substantial portion of the Town's revenue is received from the property and income taxes related to the residents and businesses of the Town and services provided by its water and sewer systems.

In evaluating how to define the Town for financial reporting purposes, management has considered all potential component units. The basis for determining component units is the governing body's ability to exercise oversight responsibility or the existence of special financing relationships, regardless of whether the Town is able to exercise oversight responsibilities. Based on this criteria, the Town has concluded that there are no component unit relationships that are required to be presented in these financial statements.

Measurement Focus, Basis of Accounting, and Financial Statement Presentation

The financial statements of the Town are prepared in accordance with accounting principles generally accepted in the United States of America (GAAP) as applicable to local governments. The Governmental Accounting Standards Board (GASB) is responsible for establishing GAAP for state and local governments through its pronouncements.

The accounts of the Town are organized on the basis of funds, each of which is considered a separate accounting entity. The operation of each fund is accounted for with a separate set of self-balancing accounts that comprise its assets, deferred outflows of resources, liabilities, deferred inflows of resources, fund equity, revenues and expenditures or expenses, as appropriate. Government resources are allocated to and accounted for in individual funds based upon the purposes for which they are to be spent and the means by which spending activities are controlled.

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting as are the proprietary fund financial statements. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flow. Property taxes are recognized in the year for which they are levied, while grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Program revenues include: (1) charges for services which report fees and other charges to users of the Town's services and facilities; (2) operating grants and contributions which finance annual operating activities; and (3) capital grants and contributions which fund the acquisition, construction, or rehabilitation of capital assets, when applicable. These revenues are subject to externally imposed restrictions to these program uses. Taxes and other revenue sources not properly included with program revenues are reported as general revenues.

While government-wide and fund financial statements are presented separately, they are interrelated. The governmental activities column of the government-wide statements incorporates data from governmental funds, while business-type activities incorporate data from the Town's enterprise funds. Separate financial statements are provided for each major governmental and proprietary fund. There are no fiduciary funds held by the Town.

Governmental fund statements are presented using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Available means collectible within the current period, or soon enough thereafter to pay current liabilities. The Town considers revenues to be available if they are collected within 60 days of the end of the fiscal year. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences and claims and judgments, are recorded only when payment is due. General capital asset acquisitions are reported as expenditures in governmental funds. Issuance of long-term debt and acquisitions under capital leases are reported as other financing sources.

Major revenue sources susceptible to year-end accrual include: Income tax receipts, property taxes and capital grants. Expenditure-driven grants are recognized as revenue when the qualifying expenditures have been incurred and all eligibility requirements have been met, and the amount is received during the period or within the availability period for this revenue source (within 60 days of year-end). In general, all other revenues are considered to be measurable and available when cash is received.

1. Summary of Significant Accounting Policies (continued)

Proprietary funds distinguish operating revenues and expenses from non-operating items. Operating income reported in proprietary fund financial statements include revenues and expenses related to the primary, continuing operations of the fund. Principal operating revenues for proprietary funds are charges to customers for services provided. Principal operating expenses are the costs of providing services, including administrative expenses and depreciation of capital assets. Other revenues and expenses are classified as non-operating in the financial statements.

When both restricted and unrestricted resources are available for use, it is the Town's policy to use restricted resources first, then unrestricted resources as needed. Further, when the components of unrestricted fund balance can be used for the same purpose, committed fund balance is depleted first, followed by assigned fund balance. Unassigned fund balance is applied last.

During the course of operations, numerous transactions occur between individual funds for goods provided or services rendered. Short-term interfund loans are classified as "due to/from other funds." All short-term interfund receivables and payables at year-end are planned to be eliminated in the subsequent year. Any residual balances outstanding between governmental activities and business-type activities are reported in the government-wide financial statements as "internal balances." However, internal eliminations do not include water and sewage services provided to the Town Hall. Reimbursements are reported as reductions to expenses. Long-term interfund loans are classified as "advances to/from other funds." Any residual balances outstanding between governmental activities and business-type activities are reported as "advances to (from) other funds."

Fund Types and Major Funds

The accounts of the Town are organized on the basis of funds. A fund is an independent fiscal and accounting entity with a self-balancing set of accounts. Fund accounting segregates funds according to their intended purpose and is used to aid management in demonstrating compliance with finance-related legal and contractual provisions. The minimum number of funds are maintained consistent with legal and managerial requirements. There are no non-major funds in either fund category.

Beginning July 1, 2016, the Commissioners voted to merge the Special Revenue Fund with the General Fund.

The Town reports the following major governmental funds:

The General Fund – This is the primary operating fund of the Town. It accounts for all of the financial resources and the legally authorized activities of the Town except for those required to be accounted for in other specialized funds. The general fund accounts for the normal operating activities of the Town. These activities are financed primarily by taxes, grants from other governments and charges for services.

The Town reports the following major proprietary fund:

The Utility Fund – This fund is used to account for the operations of the Town's water and sewer system. Activities of the fund include administration, operation and maintenance of the water and sewer system and billing and collection activities. All costs are financed through charges made to utility customers with rates reviewed regularly and adjusted if necessary to ensure integrity of the Fund.

Budgetary Data

Formal budgetary accounting is employed as a management control for all funds of the Town. Annual operating budgets are adopted, after public hearings, by passing of a resolution prior to the start of each fiscal year. Transfers of appropriations between functions require approval of the Commissioners. The budget uses the same basis of accounting as used to reflect actual revenues and expenditures.

Cash and Cash Equivalents

Cash and Cash Equivalents include demand deposits, money market and savings accounts, and investments in the Maryland Local Government Investment Pool.

Town of Chesapeake City
Financial Statements

TOWN OF CHESAPEAKE CITY
STATEMENT OF CASH FLOWS - PROPRIETARY FUNDS
FOR THE FISCAL YEAR ENDED JUNE 30, 2017

CASH FLOWS FROM OPERATING ACTIVITIES		
Cash Received From Customers	$ 629,410	
Cash Paid To Suppliers & Employees	(661,346)	
Net Cash From (Used By) Operating Activities		$ (31,936)
CASH FLOWS FROM INVESTING ACTIVITIES		
Interest Earned	1,526	
Net Cash From (Used By) Investing Activities		1,526
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Connection Fees Received	26,000	
Acquisition of Property, Plant & Equipment	-	
Interest Paid	(31,291)	
Principal Paid On Long-Term Obligations	(67,327)	
Net Cash From (Used By) Capital and Related Financing Activities		(72,618)
Net Change In Cash		(103,028)
CASH, JULY 1, 2016		369,561
Cash, June 30, 2017		$ 266,533

RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:		
Operating Income (Loss)		$ (235,801)
Adjustments To Reconcile Operating Income To Net Cash Provided By Operating Activities		
Depreciation	215,683	
(Increase) Decrease In Accounts Receivable	89	
Increase (Decrease) In Accounts Payable	(11,907)	
Total Adjustments		203,865
Net Cash From (Used By) Operating Activities		$ (31,936)

The accompanying notes are an integral part of the financial statements.

TOWN OF CHESAPEAKE CITY
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION – PROPRIETARY FUNDS
FOR THE FISCAL YEAR ENDED JUNE 30, 2017

OPERATING REVENUES		
Service Charges & Misc.		$ 629,321
OPERATING EXPENSES		
Contracted Services & Engineering	249,797	
Administrative Fees	168,209	
Depreciation	215,683	
Supplies, Repairs, Chemicals, Sludge Fee…	78,435	
Purchased Water	113,337	
Utilities and Telephone	39,661	
Total Operating Expenses		865,122
Operating Income (Loss)		(235,801)
NON-OPERATING REVENUES (EXPENSES)		
Connection Fees	26,000	
Interest Income	1,526	
Interest Expense	(30,893)	
Total Non-Operating Revenues (Expenses)		(3,367)
Change in Net Position		(239,168)
NET ASSETS AT BEGINNING OF YEAR		5,052,831
Net Position at End of Year		$4,813,663

The accompanying notes are an integral part of the financial statements.

TOWN OF CHESAPEAKE CITY
STATEMENT OF NET POSITION – PROPRIETARY FUNDS
JUNE 30, 2017

	Total
ASSETS	
Cash & Cash Equivalents	$ 266,533
Service Charges Receivable	146,633
Noncurrent Assets:	
Capital Assets, Net of Accumulated Depreciation	6,079,316
Total Assets	6,492,482
LIABILITIES	
Accounts Payable and Accrued Expenses	5,193
Accrued Interest Payable	7,455
Due to General Fund	366,880
Noncurrent Liabilities:	
Due Within One Year	71,768
Due in More Than One Year	1,227,523
Total Liabilities	1,678,819
NET POSITION	
Invested in Capital Assets, Net of Related Debt	4,780,025
Unrestricted	33,638
Total Net Position	$ 4,813,663

The accompanying notes are an integral part of the financial statements.

Town of Elkton
Financial Statements

TOWN OF ELKTON, MARYLAND
STATEMENT OF NET POSITION – PROPRIETARY FUNDS
JUNE 30, 2017

	Business-type Activities - Enterprise Funds			
	Major Facility	Water	Sewer	Total
ASSETS				
Current Assets:				
Cash and Cash Equivalents	$ 3,391,833	$ 2,691,931	$ 7,224,320	$ 13,308,084
Receivables, Net	29,161	643,367	1,253,330	1,925,858
Prepaid Expenses	-	-	-	-
Due from Other Funds	1,382,698	711,902	-	2,094,600
Total Current Assets	4,803,692	4,047,200	8,477,650	17,328,542
Noncurrent Assets:				
Capital Assets, Net	-	9,611,933	48,688,062	58,299,995
Total Assets	4,803,692	13,659,133	57,165,712	75,628,537
LIABILITIES				
Current Liabilities:				
Accounts Payable	-	122,912	418,828	541,740
Accrued Expenses	-	9,503	43,250	52,753
Other Liabilities	-	-	71,471	71,471
Due to Other Funds	208,651	-	1,881,852	2,090,503
Due Within One Year	-	9,376	1,109,986	1,119,362
Total Current Liabilities	208,651	141,791	3,525,387	3,875,829
Noncurrent Liabilities:				
Due in More Than One Year	-	81,505	10,796,120	10,877,625
Total Liabilities	208,651	223,296	14,321,507	14,753,454
NET POSITION				
Net Investment in Capital Assets	-	9,611,933	36,891,079	46,503,012
Unrestricted	4,595,041	3,823,905	5,953,126	14,372,072
Total Net Position	$ 4,595,041	$ 13,435,838	$ 42,844,205	$ 60,875,084

See accompanying Notes to Financial Statements.

TOWN OF ELKTON, MARYLAND
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION – PROPRIETARY FUNDS
YEAR ENDED JUNE 30, 2017

	Business-type Activities - Enterprise Funds			
	Major Facility	Water	Sewer	Total
OPERATING REVENUES				
Charges for Services	$ 250,929	$ 2,597,804	$ 5,279,863	$ 8,128,596
Other Operating Revenues	-	2,012	-	2,012
Miscellaneous	-	90,641	134,398	225,039
Total Operating Revenues	250,929	2,690,457	5,414,261	8,355,647
OPERATING EXPENSES				
Cost of Service	1,120	2,129,925	3,777,115	5,908,160
Depreciation	-	312,172	1,417,094	1,729,266
Total Operating Expenses	1,120	2,442,097	5,194,209	7,637,426
Operating Income	249,809	248,360	220,052	718,221
NON-OPERATING REVENUES (EXPENSES)				
Investment Earnings	11,581	5,444	15,521	32,546
Interest Expense	-	-	(124,084)	(124,084)
Total Non-Operating Revenues (Expenses)	11,581	5,444	(108,563)	(91,538)
Income Before Transfers and Capital Contributions	261,390	253,804	111,489	626,683
Capital Contributions - Grants	-	-	91,500	91,500
Transfers In	-	1,275,598	365,453	1,641,051
Transfers out	(1,641,051)	-	-	(1,641,051)
CHANGES IN FUND NET POSITION	(1,379,661)	1,529,402	568,442	718,183
Total Net Position - Beginning of Year	5,974,702	11,906,436	42,275,763	60,156,901
TOTAL NET POSITION - END OF YEAR	$ 4,595,041	$ 13,435,838	$ 42,844,205	$ 60,875,084

See accompanying Notes to Financial Statements.

TOWN OF ELKTON, MARYLAND
STATEMENT OF CASH FLOWS – PROPRIETARY FUNDS
YEAR ENDED JUNE 30, 2017

	Business-type Activities - Enterprise Funds			
	Major Facility	Water	Sewer	Totals
CASH FLOWS FROM OPERATING ACTIVITIES				
Receipts from Customers and Users	$ 275,379	$ 2,666,579	$ 5,393,084	$ 8,335,042
Payments to Suppliers	2,499	(1,597,058)	(3,259,679)	(4,854,238)
Payments to Employees	-	(518,240)	(575,909)	(1,094,149)
Net Cash Provided by Operating Activities	277,878	551,281	1,557,496	2,386,655
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES				
(Advances) Receipts from Other Funds	-	-	-	-
Proceeds from Grants	-	-	91,500	91,500
Interest Paid on Capital Debt	-	-	(124,084)	(124,084)
Acquisition and Construction of Capital Assets	-	(1,449,119)	(103,759)	(1,552,878)
Principal Payments of Loans	-	-	(1,090,961)	(1,090,961)
Net Cash Used by Capital and Related Financing Activities	-	(1,449,119)	(1,227,304)	(2,676,423)
CASH FLOWS FROM NONCAPITAL AND RELATED FINANCING ACTIVITIES				
(Advances) Receipts from Other Funds	(1,641,051)	-	-	(1,641,051)
CASH FLOWS FROM INVESTING ACTIVITIES				
Proceeds from Investment Earnings	11,581	5,444	15,521	32,546
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(1,351,592)	(892,394)	345,713	(257,222)
Cash and Cash Equivalents - Beginning of Year	4,743,425	2,308,727	6,513,154	13,565,306
CASH AND CASH EQUIVALENTS - END OF YEAR	$ 3,391,833	$ 1,416,333	$ 6,858,867	$ 13,308,084

See accompanying Notes to Financial Statements.

TOWN OF ELKTON, MARYLAND
STATEMENT OF CASH FLOWS – PROPRIETARY FUNDS
YEAR ENDED JUNE 30, 2017

	Business-type Activities - Enterprise Funds			
	Major Facility	Water	Sewer	Totals
RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES				
Operating Income	$ 249,809	$ 248,360	$ 220,052	$ 718,221
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:				
Depreciation	-	312,172	1,417,094	1,729,266
Other Adjustments	-	-	6,620	6,620
Effects of Changes in Operating Assets and Liabilities:				
Accounts Receivable	24,450	(23,878)	(21,177)	(20,605)
Prepaid Expenses	-	38,532	-	38,532
Accounts Payable	(166)	19,698	84,804	104,316
Accrued Expenses	-	61,939	(737)	61,202
Other Liabilities	-	-	10,191	10,191
Interfund Receivables	3,805	(114,872)	(170,037)	(281,104)
Compensated Absences Liability	-	2,220	2,364	4,584
Accrued Liability for OPEB Benefits	-	7,110	8,322	15,432
Net Cash Provided by Operating Activities	$ 277,878	$ 551,281	$ 1,557,496	$ 2,386,655

See accompanying Notes to Financial Statements.

Town of North East
Financial Statements

Town of North East

Statement of Net Position - Proprietary Fund
June 30, 2017

	Major Enterprise Fund Water Fund	
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 1,330,623	
Restricted cash	1,075,300	
Service charges receivable	528,025	
Prepaid expenses	27,281	
Inventory	47,794	
Total Current Assets		$ 3,009,023
CAPITAL ASSETS		
Land - nondepreciable	960,450	
Building and equipment	37,128,751	
Less: accumulated depreciation	(12,022,922)	
Total Capital Assets		26,066,279
TOTAL ASSETS		29,075,302
LIABILITIES		
CURRENT LIABILITIES		
Accounts payable	109,425	
Accrued expenses	51,632	
Due to general fund	450,811	
Current portion, long term obligations	593,313	
Total Current Liabilities		1,205,181
NONCURRENT LIABILITIES		
Total OPEB liability	106,840	
Long term obligations	11,495,196	
Total Noncurrent Liabilities		11,602,036
TOTAL LIABILITIES		12,807,217
NET POSITION		
Net investment in capital assets	14,023,621	
Restricted for capital projects	1,075,300	
Unrestricted	1,169,164	
TOTAL NET POSITION		$ 16,268,085

See accompanying notes to financial statements

Town of North East

Statement of Revenues, Expenses and Changes in Fund Net Position - Proprietary Fund
For the Year Ended June 30, 2017

	Major Enterprise Fund Water Fund	
OPERATING REVENUES		
Service fees	$ 2,234,052	
Connection charges	15,000	
Miscellaneous revenue	21,458	
Service charge penalties	67,806	
Major facilities fees	21,000	
Total Operating Revenue		$ 2,359,316
OPERATING EXPENSES		
Salaries	500,784	
Employee benefits and payroll taxes	149,129	
Repairs and maintenance	306,152	
Supplies	242,988	
Utilities	207,533	
Insurance	43,569	
Professional fees	181,044	
Office expense	38,891	
Miscellaneous	10,491	
Depreciation and amortization	991,585	
Total Operating Expenses		2,672,166
OPERATING LOSS		(312,850)
NONOPERATING REVENUES (EXPENSES)		
Interest expense	(74,061)	
Interest earned	12,157	
Insurance proceeds	2,088	
Total Nonoperating Revenue (Expenses)		(59,816)
INCOME BEFORE CAPITAL CONTRIBUTION		(372,666)
Capital contributions		786,437
CHANGE IN NET POSITION		413,771
TOTAL NET POSITION - BEGINNING		
As previously reported		15,988,292
Adjustments affecting prior periods		(133,978)
TOTAL NET POSITION - BEGINNING - AS RESTATED		15,854,314
TOTAL NET POSITION - ENDING		$ 16,268,085

See accompanying notes to financial statements

Town of North East

Statement of Cash Flows - Proprietary Fund
For the Year Ended June 30, 2017

	Major Enterprise Fund Water Fund	
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash received from customers	$ 2,401,361	
Cash payments to suppliers for goods and services	(1,184,270)	
Cash payments to employees for salaries	(550,903)	
NET CASH FLOWS FROM OPERATING ACTIVITIES		$ 666,188
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES		
Transfer from other funds	99,039	
NET CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES		99,039
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Repayments of bonds	(591,223)	
Capital expenditures	(51,350)	
Insurance proceeds	2,088	
Interest paid on bonds	(74,743)	
NET CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		(715,228)
CASH FLOWS FROM INVESTING ACTIVITIES		
Interest income received	12,157	
NET CASH FLOWS FROM INVESTING ACTIVITIES		12,157
NET DECREASE IN CASH AND CASH EQUIVALENTS		62,156
EQUITY IN POOLED CASH, CASH AND CASH EQUIVALENTS - BEGINNING		2,343,767
EQUITY IN POOLED CASH, CASH AND CASH EQUIVALENTS - END		$ 2,405,923
Reconciliation of operating loss to net cash flows from operating activities:		
Operating loss		$ (312,850)
Adjustments to reconcile operating loss to net cash flows from operating activities:		
Depreciation and amortization expense		991,585
(Increase) decrease in current assets:		
Service charges receivable		42,045
Prepaid expenses		6,914
Inventory		(3,450)
Increase (decrease) in current liabilities:		
Accounts payable		19,201
Accrued expensess		(50,119)
Decrease in total OPEB liability		(27,138)
Net cash flows from operating activities		$ 666,188
SUPPLEMENTAL DISCLOSURE OF NON-CASH CAPITAL AND RELATED FINANCING ACTIVITIES:		
Contributed capital		$ 786,437

See accompanying notes to financial statements

Town of Perryville
Financial Statements

TOWN OF PERRYVILLE, MARYLAND

STATEMENT OF NET POSITION - PROPRIETARY FUNDS

JUNE 30, 2017

	Water Fund	Sewer Fund	Total Proprietary Funds
ASSETS			
CURRENT ASSETS			
Pooled Cash and Cash Equivalents			
Unrestricted	$ 632,592	$ 15,632	$ 648,224
Non-Pooled Cash and Cash Equivalents			
Unrestricted	9,542	536,039	545,581
Restricted	-	58,468	58,468
Accounts Receivable	118,040	110,447	228,487
Local Impact Grant Receivable	27,676	39,709	67,385
Unbilled Services	217,571	247,133	464,704
Due from Other Funds	-	33,993	33,993
TOTAL CURRENT ASSETS	**1,005,421**	**1,041,421**	**2,046,842**
NON-CURRENT ASSETS			
Due from Other Funds	-	590,000	590,000
Property and Equipment			
Land and Land Rights	16,647	4,175	20,822
Buildings and Improvements	15,421,526	24,976,107	40,397,633
Equipment	629,933	1,339,600	1,969,533
Infrastructure	1,348,034	714,923	2,062,957
Vehicles	18,277	55,392	73,669
	17,434,417	27,090,197	44,524,614
Less: Accumulated Depreciation	4,004,249	9,606,736	13,610,985
Net Property and Equipment	13,430,168	17,483,461	30,913,629
TOTAL NON-CURRENT ASSETS	**13,430,168**	**18,073,461**	**31,503,629**
TOTAL ASSETS	**14,435,589**	**19,114,882**	**33,550,471**
DEFERRED OUTFLOWS OF RESOURCES	-	-	-

See Accompanying Notes

TOWN OF PERRYVILLE, MARYLAND

STATEMENT OF NET POSITION - PROPRIETARY FUNDS

JUNE 30, 2017

	Water Fund	Sewer Fund	Total Proprietary Funds
LIABILITIES			
CURRENT LIABILITIES			
Accounts Payable and Accrued Expenses	12,186	49,730	61,916
Accrued Payroll and Related Benefits	7,452	7,254	14,706
Accrued Interest Payable	34,431	40,879	75,310
Due to Other Funds	36,889	-	36,889
Current Portion of Bonds and Loans Payable	438,890	342,860	781,750
Payable from Restricted Assets			
Due to Other Governments	-	58,468	58,468
TOTAL CURRENT LIABILITIES	**529,848**	**499,191**	**1,029,039**
NON-CURRENT LIABILITIES			
Due to Other Funds	590,000	-	590,000
Accrued Compensated Absences	33,723	30,952	64,675
Accrued Other Postemployment Benefits	15,748	16,240	31,988
Bonds and Loans Payable	8,075,859	3,819,793	11,895,652
TOTAL NON-CURRENT LIABILITIES	**8,715,330**	**3,866,985**	**12,582,315**
TOTAL LIABILITIES	**9,245,178**	**4,366,176**	**13,611,354**
DEFERRED INFLOWS OF RESOURCES	-	-	-
NET POSITION			
Net Investment in Capital Assets	4,915,419	13,320,808	18,236,227
Unrestricted	274,992	1,427,898	1,702,890
TOTAL NET POSITION	**$ 5,190,411**	**$ 14,748,706**	**$ 19,939,117**

See Accompanying Notes

TOWN OF PERRYVILLE, MARYLAND

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET POSITION - PROPRIETARY FUNDS

FOR THE YEAR ENDED JUNE 30, 2017

	Water Fund	Sewer Fund	Total Proprietary Funds
OPERATING REVENUES			
Charges for Services	$ 865,175	$ 1,006,080	$ 1,871,255
Reading and Related Fees	6,206	11,802	18,008
TOTAL OPERATING REVENUES	871,381	1,017,882	1,889,263
OPERATING EXPENSES			
Contracted Services	17,187	16,106	33,293
Depreciation	388,542	581,420	969,962
Insurance	21,629	31,205	52,834
Other Administrative Expenses	22,288	49,695	71,983
Payroll Taxes and Fringe Benefits	112,914	111,436	224,350
Repairs and Maintenance	83,488	193,268	276,756
Salaries and Wages	383,120	376,140	759,260
Supplies and Materials	34,927	74,264	109,191
Utilities	96,286	172,096	268,382
TOTAL OPERATING EXPENSES	1,160,381	1,605,630	2,766,011
OPERATING LOSS	(289,000)	(587,748)	(876,748)
NON-OPERATING REVENUES (EXPENSES)			
Connection Charges	5,000	6,000	11,000
Loss on Disposal of Assets	(2,467)	-	(2,467)
Interest Expense	(65,681)	(78,512)	(144,193)
Interest Income	734	4,698	5,432
Rental Income	109,313	-	109,313
TOTAL NON-OPERATING REVENUES (EXPENSES)	46,899	(67,814)	(20,915)
NET LOSS BEFORE CAPITAL CONTRIBUTIONS	(242,101)	(655,562)	(897,663)
Capital Contributions - Local Income Grant	305,328	438,080	743,408
Capital Contributions - Other	-	118,262	118,262
CHANGES IN NET POSITION	63,227	(99,220)	(35,993)
Net Position - Beginning of Year	5,127,184	14,847,926	19,975,110
NET POSITION - END OF YEAR	$ 5,190,411	$ 14,748,706	$ 19,939,117

See Accompanying Notes

TOWN OF PERRYVILLE, MARYLAND

STATEMENT OF CASH FLOWS - PROPRIETARY FUNDS

FOR THE YEAR ENDED JUNE 30, 2017

	Water Fund	Sewer Fund	Total Proprietary Funds
CASH FLOWS FROM OPERATING ACTIVITIES			
Inflows			
Cash Received From Customers	$ 825,723	$ 994,736	$ 1,820,459
Outflows			
Cash Paid to Suppliers	279,412	515,273	794,685
Cash Paid to Employees	487,787	479,090	966,877
	767,199	994,363	1,761,562
NET CASH PROVIDED BY OPERATING ACTIVITIES	**58,524**	**373**	**58,897**
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES			
Inflows			
Net Cash Received from Other Funds	694,741	-	694,741
Other Revenues	109,313	-	109,313
	804,054	-	804,054
Outflows			
Net Cash Paid to Other Funds	-	604,916	604,916
NET CASH PROVIDED (USED) BY NON-CAPITAL FINANCING ACTIVITIES	**804,054**	**(604,916)**	**199,138**
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES			
Inflows			
Capital Contributions and Grants	326,394	597,494	923,888
Connection Fees	5,000	6,000	11,000
	331,394	603,494	934,888
Outflows			
Interest Paid	65,681	78,512	144,193
Purchase of Capital Assets	199,537	446,798	646,335
Payments on Long-Term Debt	435,459	337,666	773,125
	700,677	862,976	1,563,653
NET CASH USED BY CAPITAL AND RELATED FINANCING ACTIVITIES	**(369,283)**	**(259,482)**	**(628,765)**

See Accompanying Notes

TOWN OF PERRYVILLE, MARYLAND

STATEMENT OF CASH FLOWS - PROPRIETARY FUNDS

FOR THE YEAR ENDED JUNE 30, 2017

	Water Fund	Sewer Fund	Total Proprietary Funds
CASH FLOWS FROM INVESTING ACTIVITIES			
Inflows			
Interest Received	734	4,698	5,432
NET CASH PROVIDED BY INVESTING ACTIVITIES	**734**	**4,698**	**5,432**
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**494,029**	**(859,327)**	**(365,298)**
Cash and Cash Equivalents - Beginning of Year	148,105	1,469,466	1,617,571
CASH AND CASH EQUIVALENTS - END OF YEAR	**$ 642,134**	**$ 610,139**	**$ 1,252,273**
RECONCILIATION OF CASH AND CASH EQUIVALENTS TO THE STATEMENT OF NET POSITION			
CURRENT ASSETS			
Pooled Cash and Cash Equivalents			
Unrestricted	$ 632,592	$ 15,632	$ 648,224
Non-Pooled Cash and Cash Equivalents			
Unrestricted	9,542	536,039	545,581
Restricted	-	58,468	58,468
CASH AND CASH EQUIVALENTS - END OF YEAR	**$ 642,134**	**$ 610,139**	**$ 1,252,273**

See Accompanying Notes

Town of Port Deposit
Financial Statements

Note: The Town of Port Deposit no longer owns or operates the water and sewer systems located within town limits.

Town of Rising Sun
Financial Statements

ANNUAL CASH FLOW (BUDGET)

FISCAL YEAR 2017

Travis Marion, Mayor

Members of the Board of Commissioners

David Warnick, Vice Mayor

Allen Authenreath

Brian Leishear

Joseph Shephard

V. PROPRIETARY FUNDS:

The Proprietary Funds are made up of water and sewer utility services. The revenues are collected from persons or properties utilizing the respective utilities. These revenues are set aside to pay for the delivery of such services and to provide for their maintenance, repair, and upgrades. The Town currently maintains all of the infrastructure related to the Town's water distribution system, including various well fields, a 500,000-gallon water tank, and public service mains supplying water to the residents. In addition, the Town also maintains all of the infrastructure related to the Town's sewage treatment system, including a 275,000-gallon-per-day sewage treatment plant and all public drains, manholes, and piping that conveys the sewage to the treatment facility. As documented in various recent studies, the Town does not have sufficient water for both current and future water demands. The Town is currently constructing a new 500,000-gallon-per-day sewage treatment facility to handle all current and projected future needs.

1. **Revenue Summary:**

   The revenue for the Town Proprietary Funds is generated primarily from service charges associated with the water and sewer services.

   For the fiscal year ending June 30, 2017, revenues projected for the Proprietary Fund are estimated to be $1,514,186.67, which is a 17.50% increase over the adopted FY 2016 budget.

2. **Expenditure Summary:**

   For the fiscal year ending June 30, 2017, expenditures projected for the Proprietary Fund are estimated to be $2,229,646.66, which is a 31.98% increase from the adopted FY 2016 budget. However this includes 862,679.82 of depreciation

3. **Items Proposed in This Year's Budget:**

   - The Town is focused on upgrading the Town's water infrastructure, with this being the linchpin to future economic development and community revitalization.
   - The Sewer Fund will get an $839,000 grant from MDE to cover some past expenses of the sewer plant. These funds will be returned to the Town's reserve fund in order to replenishes the expenses that were paid out during the construction of the plant

4. **Revenue versus Expenses:**

   The budget, as it currently stands, estimates an end-of-the-year surplus of $147,219.83[(a)].

   Footnote:

   (a) Calculation based upon revenue versus expense, with deprecation removed from the calculation

5. **Revenue Action Items:**

There are no required revenue action items proposed in this budget. It is important to note however, that although the Mayor and Commissioners have reduced the monthly utility bill by $32.03 as detailed on page 8, however there are still significant expenditures need to upgrade the Town's water infrastructure. This issue has plagued the Town for over a decade, and will result in rate increases that will likely take effect in late 2017

Overall, the Proprietary Fund Budget projects a surplus of $147,219.83[(a)].

Footnote:

(a) Calculation based upon revenue versus expense, with deprecation removed from the calculation

PROPRIETARY FUND CASH FLOW BUDGET

	A		B	C	D	E	F	G	H	I
	WATER FUND ACCOUNT #		ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
			REVENUE			SET POINTS	10	2	1.00	
1	70-4001	R	WATER USAGE CHG	546,702.31	450,863.59	455,585.00	(4,721.41)	541,036.31	**589,839.66**	
2	70-4002	R	WATER SUR CHG	63,872.94	53,221.98	53,227.40	(5.42)	63,866.38	**63,866.38**	
3	70-4009	R	FOIA CHARGES	-	-		-	-	**100.00**	
4	70-4250	R	CELL TOWER RENT	19,044.00	15,870.00	15,870.00	-	19,044.00	**19,044.00**	
5	70-4251	R	FEES FOR LATE BILL	-	-	-	-	-	**9,398.47**	
6	70-4401	R	WATER IMPROVEMENTS	10.00	-	8.32	(8.32)	-	-	
7	70-4404	R	WATER MERCHANT FEE CHARGES	1,556.50	3,363.45	1,297.08	2,066.37	4,036.14	**4,036.14**	
8	70-4405	R	WATER METER SALES & MISCELLANEOUS	500.00	280.00	416.66	(136.66)	336.00	**336.00**	
9	70-4501	R	INTEREST INCOME	200.00	531.33	166.66	364.67	637.60	**637.60**	
10	70-4902	R	TRANSFER FROM RESERVE - FOR BUDGET ONLY	185,000.00	-	154,166.66	(154,166.66)	-	-	
11			GENERAL SERVICES TOTAL REVENUE	**816,685.75**	**524,130.35**	**680,737.78**	**(156,607.43)**	**828,956.42**	**687,058.24**	

	A		B	C	D	E	F	G	H	I
	WATER FUND ACCOUNT #		EXPENSES ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
12	70-6011	E	ELECTION EXPENSE	1,056.00	780.83	660.00	(99.17)	937.00	-	
13	70-6034	E	CONSULTING EXPENSE MAYOR	-	-	-	-	-	-	
14	70-6050	E	W DUES, ETC-TRAINING/CONF	-	300.00	-	300.00	360.00	**324.00**	
15	70-6101	E	AUTO EXPENSE-FUEL	6,564.84	3,739.07	5,470.70	(1,731.63)	4,486.88	**3,200.00**	
16	70-6102	E	AUTO EXP-MAINTENANCE	1,201.27	-	1,001.07	(1,001.07)	-	**2,800.00**	
17	70-6105	E	AUTO EXPENSE-MISC	100.00	8.25	83.34	(75.09)	9.90	**60.00**	
18	70-6150	E	DEPRECIATION	132,365.20	103,669.85	110,304.34	(6,634.49)	124,403.82	**124,403.82**	
19	70-6180	E	ADVERTISING	-	-	-	-	-	-	
20	70-6201	E	INTEREST ON LOAN	-	5,241.22	-	5,241.22	6,289.46	**12,273.46**	
21	70-6202	E	LOAN ADMIN FEES	-	3,145.92	-	3,145.92	3,775.10	**3,397.59**	
22	70-6270	E	ACCOUNTING SERVICE	26,400.00	36,770.45	22,000.00	14,770.45	44,124.54	**40,000.00**	
23	70-6271	E	AUDITING SERVICE	7,260.00	14,640.31	6,050.00	8,590.31	17,568.37	**10,000.00**	
24	70-6275	E	LEGAL COUNCIL	35,000.00	78,657.50	29,166.68	49,490.82	94,389.00	**5,000.00**	
25	70-6284	E	HEALTH INSURANCE	31,179.09	24,851.77	25,982.59	(1,130.82)	29,822.12	**48,766.55**	
26	70-6288	E	W/C	13,782.66	8,685.01	11,485.56	(2,800.55)	10,422.01	**17,639.32**	
27	70-6300	E	PW BLDG MAINT-REPAIRS	-	62.66	-	62.66	75.19	**100.00**	
28	70-6301	E	EQUIP-MAINTENANCE & REPLACE	5,520.00	1,981.27	4,600.00	(2,618.73)	2,377.52	**2,500.00**	
29	70-6302	E	BLDG MAINT-UPGRADES	-	-	-	-	-	**340.00**	
30	70-6304	E	BLDG MAINT-REPAIRS	990.00	42.44	825.00	(782.56)	50.93	**255.00**	
31	70-6305	E	BLDG MAINT-UPGRADES (Duplicate account)	-	58.52	-	58.52	70.22	-	
32	70-6306	E	PIPING MAINT/REPAIRS/REPLACE	-	2,854.65	-	2,854.65	3,425.58	**3,000.00**	
33	70-6308	E	BLDG - WORK/SPACE UPGRADES-SH	-	373.84	-	373.84	448.61	**255.00**	
34	70-6309	E	MAINTENANCE-MISC	-	2,022.18	-	2,022.18	2,426.62	**500.00**	
35	70-6310	E	BLDG MAINT-PARKING LOT	2,640.00	489.07	2,200.00	(1,710.93)	586.88	**680.00**	
36	70-6311	E	CONTRACTED LAWN MAINTENANCE	165.00	-	137.50	(137.50)	-	-	
37	70-6312	E	LAWN MAINT EQUIP REPAIRS/REPLACE & UPGRADES	1,000.00	-	833.34	(833.34)	-	-	
38	70-6313	E	PW EQUIP-MISC							
39	70-6314	E	PW BLDG-UPGRADES							
40	70-6315	E	BLDG MAINT-SUPPLIES	100.00	-	83.34	(83.34)	-	**85.00**	
41	70-6316	E	EQUIP-REPAIRS	4,200.00	-	3,500.00	(3,500.00)	-	**5,000.00**	
42	70-6317	E	WATER FACILITY BLDG MAINT/REPAIRS & REPLACE	10,000.00	-	8,333.34	(8,333.34)	-	**10,000.00**	New roof on well house
43	70-6318	E	WATER FACILITY EQUIP MAINT/REPAIRS & REPLACE	4,000.00	-	3,333.34	(3,333.34)	-	**200.00**	
44	70-6319	E	WATER FACILITY-BLDG & EQUIP UPGRADES	1,000.00	-	833.34	(833.34)	-	**200.00**	
45	70-6324	E	WATER BLDG & FACIL-SUPPLIES	-	-	-	-	-	**200.00**	
46	70-6325	E	MAINTENANCE-MISC	-	-	-	-	-	**200.00**	
47	70-6333	E	GEN SAFETY EQUIP NEW REPAIRS & REPLACE	165.00	363.97	137.50	226.47	436.76	**85.00**	
48	70-6340	E	CONTRACTED LAWN MAINTENANCE	-	-	-	-	-	**165.00**	
49	70-6341	E	LAWN MAINT EQUIP REPAIRS/REPLACE & UPGRADES	-	-	-	-	-	**165.00**	
50	70-6342	E	PIPING MAINT/REPAIRS/REPLACE	-	-	-	-	-	**200.00**	
51	80-6350	E	PW BLDG MAINT & EQUIP REPAIRS & REPLACE	200.00	-	166.68	(166.68)	-	**100.00**	
52	80-6351	E	PW BLDG & EQUIP UPGRADES	200.00	-	166.68	(166.68)	-	**100.00**	
53	80-6352	E	PW BLDG-PARTS & SUPPLIES						**100.00**	
54	70-6353	E	PW BLDG-UPGRADES duplicate	-	-	-	-	-	-	
55	70-6354	E	PW EQUIP-MISC duplicate	-	-	-	-	-	-	
56	70-6363	E	WATER PIPING CONTRACTED SERVICES	10,000.00	-	8,333.34	(8,333.34)	-	**10,000.00**	
57	70-6365	E	STONE & FILL	5,917.43	-	4,931.21	(4,931.21)	-	**5,000.00**	
58	70-6370	E	PAVINGS REPAIRS & REPLACE	1,000.00	-	833.34	(833.34)	-	**1,000.00**	

	A		B	C	D	E	F	G	H	I
	WATER FUND ACCOUNT #		EXPENSES ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
59	70-6400	E	MISS UTILITY	12,500.00	-	10,416.68	(10,416.68)	-	250.00	
60	70-6401	E	UTILITIES-ELECTRIC	40,549.99	42,415.01	33,791.67	8,623.34	50,898.01	45,808.21	
61	70-6402	E	UTILITIES-HEATING FUEL	581.73	133.73	484.79	(351.06)	160.48	144.43	
62	70-6406	E	UTILITIES-HEATING FUEL	-	117.08	-	117.08	140.50	126.45	
63	70-6481	E	COMMUNICATIONS-PHONES	1,888.89	1,541.37	1,574.09	(32.72)	1,849.64	1,664.68	
64	70-6482	E	COMMUNICATIONS-CELL PHONES	500.00	672.78	416.68	256.10	807.34	3,670.44	
65	70-6483	E	COMMUNICATIONS-INTERNET	606.76	436.02	505.64	(69.62)	523.22	470.90	
66	70-6501	E	SUPPLIES & MATERIALS-HARDWARE	2,300.00	17.55	1,916.68	(1,899.13)	21.06	18.95	
67	70-6502	E	GENERAL HAND & POWER EQUIP DUPLICATE	-	-	-	-	-	-	
68	70-6503	E	GEN SAFETY EQUIP REPAIRS & REPLACE DUPLICATE	-	-	-	-	-	-	
69	70-6504	E	SUPPLIES & MATERIALS-HARDWARE	-	-	-	-	-	500.00	
70	70-6508	E	GENERAL HAND & POWER TOOLS	200.00	-	166.68	(166.68)	-	85.00	
71	70-6510	E	UNI'S, SHOES, HATS & ID duplicate	-	-	-	-	-	-	
72	70-6600	E	MISCELLANEOUS	-	-	-	-	-	500.00	
73	70-6601	E	TRAINING/CONFERENCE	-	-	-	-	-	500.00	
74	70-6602	E	MISCELLANEOUS	687.06	492.45	572.55	(80.11)	590.94	531.85	
75	70-6609	E	W DUES, ETC-TRAINING/CONF	31.50	100.00	26.26	73.74	120.00	108.00	
76	70-6611	E	ADVERTISING	-	-	-	-	-	200.00	
77	70-6620	E	BANK CHARGES	651.26	601.00	542.72	58.28	721.20	649.08	
78	70-6621	E	MERCHANT CHARGES (CREDIT CARD FEES)	1,027.17	3,133.04	855.99	2,277.05	3,759.65	1,800.00	
79	70-6650	E	PERSONAL PROTECT EQUIP	100.00	-	83.34	(83.34)	-	127.50	
80	70-6651	E	UNI'S, SHOES, HATS & ID	200.00	-	166.68	(166.68)	-	170.00	
81	70-6701	E	CHEMICALS	19,000.00	18,690.66	15,833.34	2,857.32	22,428.79	22,428.79	
82	70-6702	E	WATER TESTING/SAMPLING	1,498.64	1,164.25	1,248.88	(84.63)	1,397.10	1,257.39	
83	70-6800	E	CONTRACT SERVICE	10,000.00	8,319.50	8,333.34	(13.84)	9,983.40	10,000.00	
84	70-6803	E	ENGINEERING	100,000.00	59,584.91	83,333.34	(23,748.43)	71,501.89	10,000.00	
85	70-6804	E	WEBSITE	1,650.00	1,298.55	1,375.00	(76.45)	1,558.26	5,544.00	
86	70-6805	E	RECORDATION OF MEETINGS	4,158.00	2,428.80	3,465.00	(1,036.20)	2,914.56	900.00	
87	70-6806	E	UTILITY TAX BILLING	2,068.87	3,591.20	1,724.07	1,867.13	4,249.44	3,900.00	
88	70-6807	E	VIRTUAL CLERK (change SENSUS METERING ??)	1,383.00	1,030.00	1,152.50	(122.50)	1,236.00	8,190.00	
89	70-6808	E	COMPUTER TECH SUPPORT	2,039.20	824.81	1,699.34	(874.53)	989.77	1,350.00	
90	70-6809	E	COPY MACHINE	1,650.00	1,564.80	1,375.00	189.80	1,877.76	2,400.00	
91	70-6811	E	W CONTRACT SERV-REPAIRS/WELLS ETC	5,000.00	-	4,166.68	(4,166.68)	-	2,000.00	
92	70-6812	E	W CONTRACT SERV-W TOWER INSP/MAINT	1,000.00	830.00	833.34	(3.34)	996.00	896.40	
93	70-6813	E	W CONTRACT SERV-MISC	50,000.00	-	41,666.68	(41,666.68)	-	1,000.00	Rate Study but will be capitalized and USDA reimbursable
94	70-6814	E	BACKUP SYSTEM	989.80	2,709.53	824.84	1,884.69	3,251.44	1,684.44	Cloud Based Sensus Storage and upgrades
95	70-6816	E	WATER PIPING CONTRACTED SERVICES	-	-	-	-	-	5,000.00	
96	70-6818	E	RECORDS RETENTION	1,562.40	1,259.25	1,302.00	(42.75)	1,511.10	1,359.99	
97	70-6820	E	EMAIL HOSTING ANNUAL LICENSE	1,843.38	-	1,536.16	(1,536.16)	-	793.80	
98	70-6822	E	GENERAL CODE UPDATE	3,500.00	-	2,916.68	(2,916.68)	-	900.00	
99	70-6826	E	FEES-MISC	-	-	-	-	-	200.00	
100	70-6827	E	EMP HEALTH DEDUCTIBLE ACCT (NEW ACCT)	-	-	-	-	-	-	
101	70-6828	E	FEES-MISC	-	-	-	-	-	-	
102	70-6901	E	SALARIES	164,172.00	124,984.78	136,810.00	(11,825.22)	149,981.74	210,975.27	
103	70-6902	E	PAYROLL TAX	12,791.72	9,847.07	10,659.78	(812.71)	11,816.48	16,135.25	
104	70-6903	E	RETIREMENT	7,908.30	4,586.94	6,590.26	(2,003.32)	5,504.33	10,360.44	
105	70-6958	E	RETIRE ADMIN FEES	891.00	962.19	742.50	219.69	1,154.63	1,200.00	
106	70-6959	E	HAS SHOULD DELETE AND MOVE EMP TO 6827	396.00	-	330.00	(330.00)	-	800.00	
107	70-7777	E	WORK FLOW MANAGEMENT SOFTWARE						750.00	
108			WATER FUND TOTAL EXPENSE	757,333.15	582,026.05	631,111.42	(49,085.37)	698,431.26	685,646.04	

WATER FUND CASH FLOW ANALYSIS

		CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
109	INFLOW OF REVENUE ACCOUNT PROCEEDS	631,485.75	524,130.35	680,737.78	(156,607.43)	628,956.42	687,058.24	
110	RESERVE FUND TRANSFERS	185,000.00	-	154,166.66	(154,166.66)	-	-	
	TOTAL OF INFLOW PROCEEDS (REVENUE)	816,485.75	524,130.35	834,904.44	(310,774.09)	628,956.42	687,058.24	
111	TOTAL EXPENSES	757,333.15	582,026.05	631,111.42	(49,085.37)	698,431.26	685,646.04	
112	WATER FUND CASH FLOW WITH DEPRECIATION	59,552.59	(57,895.70)	203,793.02	(261,688.72)	(69,474.84)	1,412.20	
113	WATER FUND CASH FLOW IF DEPRECIATION IS SUBTRACTED FROM THE EXPENSE	191,917.79	45,774.15	314,097.36	(268,323.21)	54,928.98	125,816.02	

PROPRIETARY FUND CASH FLOW BUDGET

	A		B	C	D	E	F	G	H	I
	SEWER FUND ACCOUNT #		ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
			REVENUE			SET POINTS	10	2	1.00	
1	80-4001	R	SEWER USAGE CHG	560,180.00	459,257.06	466,816.66	(7,518.70)	551,157.55	661,650.27	
2	80-4002	R	SEWER SUR CHG	94,075.24	78,468.50	78,396.00	72.50	94,162.20	94,162.20	
3	80-4009	R	FOIA CHARGES	-	-	-	-	-	-	
4	80-7777	R	FEES FOR LATE BILL (new account)	-	-	-	-	-	11,635.84	
5	80-4251	R	MISC SUBSIDIES	-	-	-	-	-	-	
6	80-4301	R	MDE GRANT	-	-	-	-	-	-	
7	80-7777		MDE ENR ANNUAL OPERATORS GRANT (NEW ACCOUNT)						5,000.00	
8	80-4404	R	SEWER MERCHANT FEE CHARGES	1,058.30	-	881.90	(881.90)	-	2,000.00	
9	80-4501	R	INTEREST INCOME	1,451.87	2,233.43	1,209.89	1,023.54	2,680.12	2,680.12	
10	80-4902	R	TRANSFER FROM RESERVE - FOR BUDGET ONLY	85,590.13	-	71,325.08	(71,325.08)	-	50,000.00	
11			SEWER FUND TOTAL REVENUE	742,355.54	539,999.09	618,629.53	(78,629.54)	647,999.87	827,128.43	

	A		B	C	D	E	F	G	H	I
	SEWER FUND ACCOUNT #		EXPENSES ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
12	80-6011	E	ELECTION EXPENSES	1,056.00	780.83	880.00	(99.17)	937.00	-	
13	80-6034	E	CONSULTING EXPENSE MAYOR	-	-	-	-	-	-	
14	80-6051	E	WW DUES, ETC-MRWA	-	-	-	-	-	350.00	
15	80-6052	E	WW DUES, ETC-MRW CONF COMM	-	-	-	-	-	350.00	
16	80-6101	E	AUTO EXPENSE-FUEL	6,072.18	3,493.80	5,060.16	(1,566.36)	4,192.56	3,200.00	
17	80-6102	E	AUTO EXP-MAINTENANCE	1,386.87	710.00	1,155.73	(445.73)	852.00	2,800.00	
18	80-6106	E	AUTO EXPENSE-MISC	-	8.25	-	8.25	9.90	60.00	
19	80-6150	E	DEPRECIATION	242,100.00	397,358.35	201,750.00	195,608.35	397,358.35	738,276.00	
20	80-6180	E	ADVERTISING	-	-	-	-	-	-	
21	80-6200	E	USDA LOAN INTEREST	-	7,904.36	-	7,904.36	9,485.23	292,000.00	
22	80-6201	E	WW MDE LOAN-INTEREST This should be USDA	192,339.38	-	160,282.84	(160,282.84)	-	-	
23	80-6202	E	LOAN ADMIN FEES	-	-	-	-	-	-	
24	80-6203	E	LOAN ADMIN FEES	-	-	-	-	-	-	
25	80-6270	E	ACCOUNTING SERVICE	26,400.00	36,770.45	22,000.00	14,770.45	44,124.54	26,000.00	
26	80-6271	E	AUDITING SERVICE	7,260.00	10,395.21	6,050.00	4,345.21	12,474.25	6,500.00	
27	80-6275	E	LEGAL COUNCIL	5,350.00	8,182.51	4,458.34	3,724.17	9,819.01	2,000.00	
28	80-6284	E	HEALTH INSURANCE	29,196.10	23,726.17	24,330.10	(603.93)	28,471.40	32,316.90	
29	80-6288	E	W/C	12,798.94	9,162.35	10,665.80	(1,503.45)	10,994.82	11,024.90	
30	80-6300	E	PW BLDG MAINT-REPAIRS DISCONTINUE	-					-	
31	80-6301	E	BLDG MAINT-REPAIRS	5,520.00	348.20	4,600.00	(4,251.80)	417.84	255.00	
32	80-6302	E	BLDG MAINT-UPGRADES	990.00	-	825.00	(825.00)	-	340.00	
33	80-6303	E	BLDG MAINT-PARKING LOT	2,640.00	-	2,200.00	(2,200.00)	-	600.00	
34	80-6304	E	CONTRACTED LAWN MAINTENANCE	170.00	15.96	141.68	(125.72)	19.15	-	
35	80-6305	E	LAWN MAINT EQUIP REPAIRS/REPLACE & UPGRADES	7,500.00	58.52	6,250.00	(6,191.48)	70.22	-	
36	80-6306	E	PW EQUIP-MISC	200.00	-	166.68	(166.68)	-	100.00	
37	80-6307	E	PW BLDG-UPGRADES	200.00	-	166.68	(166.68)	-	100.00	
38	80-6308	E	BLDG - WORK/SPACE UPGRADES-SH	-	373.83	-	373.83	448.60	255.00	
39	80-6309	E	BLDG MAINT-SUPPLIES	100.00	1,055.00	83.34	971.66	1,266.00	85.00	
40	80-6310	E	SEWER FACILITY0BLDG MAINT/REPAIRS & REPLACE	500.00	-	416.68	(416.68)	-	-	
41	80-6311	E	SEWER FACILITY-BLDG MAINT/REPAIRS & REPLACE	3,000.00	-	2,500.00	(2,500.00)	-	-	
42	80-6312	E	SEWER FACILITY-BLDG & EQUIP UPGRADES	5,000.00	-	4,166.68	(4,166.68)	-	-	
43	80-6313	E	SEWER FACILITY BLDG-PARTS & SUPPLIES-SH	1,000.00	-	833.34	(833.34)	-	-	
44	80-6314	E	PIPING MAINT/REPAIRS/REPLACE	500.00	-	416.68	(416.68)	-	-	
45	80-6315	E	SEWER SYSTEM PIPING UPGRADES	500.00	-	416.68	(416.68)	-	-	
46	80-6316	E	EQUIP-MAINTENANCE & REPLACE	200.00	-	166.68	(166.68)	-	-	
47	80-6318	E	PAVING/PATCHING/REPAIRS/REPLACE	500.00	-	416.68	(416.68)	-	-	
48	80-6320	E	SEWER FACILITY-BLDG MAINT/REPAIRS & REPLACE	-	-	-	-	-	-	
49	80-6321	E	SEWER FACILITY0BLDG MAINT/REPAIRS & REPLACE	-	-	-	-	-	300.00	
50	80-6322	E	SEWER FACILITY-BLDG & EQUIP UPGRADES	-	-	-	-	-	300.00	
51	80-6323	E	SEWER FACILITY BLDG-PARTS & SUPPLIES-SH	-	-	-	-	-	300.00	
52	80-6333	E	GEN SAFETY EQUIP NEW REPAIRS & REPLACE	165.00	-	137.50	(137.50)	-	300.00	
53	80-6340	E	CONTRACTED LAWN MAINTENANCE	-	-	-	-	-	85.00	
54	80-6341	E	LAWN MAINT EQUIP REPAIRS/REPLACE & UPGRADES	-	-	-	-	-	165.00	
55	80-6342	E	PIPING MAINT/REPAIRS/REPLACE	-	-	-	-	-	165.00	
56	80-6343	E	PAVING/PATCHING/REPAIRS/REPLACE	-	-	-	-	-	1,000.00	
57	80-6350	E	PW BLDG MAINT & EQUIP REPAIRS & REPLACE	-	-	-	-	-	500.00	
58	80-6351	E	PW BLDG & EQUIP UPGRADES	-	62.66	-	62.66	75.19	100.00	
59	80-6352	E	PW BLDG-PARTS & SUPPLIES	-					100.00	
60	80-6353	E	PW BLDG-UPGRADES duplicate	-					100.00	
61	80-6354	E	PW EQUIP-MISC duplicate	-	-	-	-	-	-	
62	80-6365	E	STONE & FILL	500.00	-	416.68	(416.68)	18	-	
63	80-6400	E	MISS UTILITY	12,500.00	-	-	-	-	250.00	
									250.00	

	A		B	C	D	E	F	G	H	I
	SEWER FUND ACCOUNT #		EXPENSES ACCOUNT DESCRIPTION	CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
54	80-6401	E	UTILITIES-ELECTRIC	20,000.00	87,906.12	16,916.66	70,989.44	97,687.34	100,000.00	
55	80-6402	E	UTILITIES-HEATING FUEL	671.26	152.85	559.48	(406.55)	183.42	165.08	
56	80-6406	E	UTILITIES-HEATING FUEL	-	137.80	-	133.80	160.56	144.50	
57	80-6481	E	COMMUNICATIONS-PHONES	2,013.68	1,599.55	1,678.08	(78.53)	1,919.46	1,727.51	
58	80-6482	E	COMMUNICATIONS-CELL PHONES	2,500.00	2,225.66	2,083.34	142.54	2,671.06	2,399.83	
59	80-6483	E	COMMUNICATIONS-INTERNET	594.42	436.02	495.36	(59.34)	523.22	470.90	
70	80-6500	E	SUPPLIES & MATERIALS	200.00	-	166.66	(166.66)	-	500.00	
71	80-6501	E	SUPPLIES & MATERIALS-HARDWARE	1,888.00	17.55	1,500.00	(1,482.45)	21.06	500.00	
72	80-6502	E	GENERAL HAND & POWER EQUIP DUPLICATE	-	-	-	-	-	-	
73	80-6503	E	GEN SAFETY EQUIP REPAIRS & REPLACE DUPLICATE	-	-	-	-	-	-	
74	80-6564	E	PERSONAL PROTECT EQUIP	-	-	-	-	-	-	
75	80-6505	E	UNI'S, SHOES, HATS & ID duplicate	-	-	-	-	-	-	
76	80-6509	E	GENERAL HAND & POWER TOOLS	200.00	-	166.66	(166.66)	-	65.00	
77	80-6600	E	MISCELLANEOUS	-	-	-	-	-	-	
78	80-6601	E	TRAINING/CONFERENCE	900.00	-	750.00	(750.00)	-	-	
79	80-6602	E	MISCELLANEOUS	1,500.00	557.43	1,250.00	(692.57)	668.92	750.00	
80	80-6608	E	WW MDE FINES	8,000.00	-	6,666.68	(6,666.68)	-	-	
81	80-6620	E	BANK CHARGES	420.00	41.75	350.00	(308.25)	50.10	45.09	
82	80-6621	E	MERCHANT CHARGES (CREDIT CARD FEES)	1,058.30	-	881.92	(881.92)	-	1,200.00	
83	80-6622	E	WW DUES, ETC-MRWA	400.00	-	333.34	(333.34)	-	-	
84	80-6623	E	WW DUES, ETC-MRW CONF COMM	400.00	100.00	333.34	(233.34)	120.00	108.00	
85	80-6631	E	ADVERTISING	-	-	-	-	-	200.00	
86	80-6650	E	PERSONAL PROTECT EQUIP	100.00	-	83.34	(83.34)	-	127.50	
87	80-6651	E	UNI'S, SHOES, HATS & ID	200.00	-	166.68	(166.68)	-	170.00	
88	80-6701	E	CHEMICALS	25,000.00	40,184.56	20,833.34	19,351.22	48,221.47	50,000.00	
89	80-6800	E	CONTRACT SERVICE	-	-	-	-	-	-	
90	80-6801	E	3RD PARTY PLANT OPERATOR	95,000.00	21,507.42	79,166.68	(57,659.26)	25,808.90	91,202.40	1st couple of months service were covered by USDA Loan - now need to show 12 months
91	80-6802	E	PIPING CONTRACTED SERVICES	5,000.00	-	4,166.68	(4,166.68)	-	-	
92	80-6803	E	ENGINEERING	5,000.00	315.00	4,166.68	(3,851.68)	500.00	450.00	
93	80-6804	E	WEBSITE	1,650.00	1,298.55	1,375.00	(76.45)	1,558.26	3,850.00	
94	80-6805	E	RECORDATION OF MEETINGS	4,158.00	2,428.80	3,465.00	(1,036.20)	2,914.56	900.00	
95	80-6806	E	UTILITY TAX BILLING	2,131.57	3,945.94	1,776.31	2,169.63	4,735.13	2,600.00	
96	80-6807	E	SENSUS MONITORING	1,383.00	1,030.00	1,152.50	(122.50)	1,236.00	5,450.00	
97	80-6808	E	COMPUTER TECH SUPPORT	2,039.20	659.85	1,699.34	(1,039.49)	791.82	1,260.00	
98	80-6809	E	COPY MACHINE	1,650.00	1,564.80	1,375.00	189.80	1,877.76	1,560.00	
99	80-6811	E	WW CONTRACT SERVICE-INFRAS REPAIRS	-	-	-	-	-	-	
100	80-6812	E	SEWER WASTE REMOVAL FEE	-	300.00	-	300.00	360.00	324.00	
101	80-6813	E	WW CONTRACT SERVICE-MISC	1,000.00	-	833.34	(833.34)	-	1,000.00	
102	80-6814	E	BACKUP SYSTEM	1,989.80	2,213.89	1,658.18	555.71	2,656.67	1,169.75	
103	80-6818	E	RECORDS RETENTION	652.61	863.25	543.85	319.40	1,035.90	932.31	
104	80-6820	E	EMAIL HOSTING ANNUAL LICENSE	1,843.38	-	1,536.16	(1,536.16)	-	740.88	
105	80-6822	E	GENERAL CODE UPDATE	3,500.00	-	2,916.68	(2,916.68)	-	900.00	
106	80-6826	E	FEES-MISC	-	-	-	-	-	-	
107	80-6827	E	EMP HEALTH DEDUCTIBLE ACCT	-	-	-	-	-	-	
108	80-6828	E	FEES-MISC	-	-	-	-	-	-	
109	80-6901	E	SALARIES	152,864.80	116,459.19	127,387.34	(10,928.15)	139,751.03	133,668.25	
110	80-6902	E	PAYROLL TAX	11,912.95	9,164.73	9,927.47	(762.74)	10,997.68	10,222.77	
111	80-6903	E	RETIREMENT	7,342.94	4,140.92	6,119.12	(1,978.20)	4,969.10	6,559.05	
112	80-6958	E	RETIRE ADMIN FEES	891.00	962.19	742.50	219.69	1,154.63	780.00	
113	80-6959	E	HAS SHOULD BE MOVED TO ACT 6827 -MATCH GEN F	396.00	-	330.00	(330.00)	-	520.00	
114	80-7???	E	WORK FLOW MANAGEMENT SOFTWARE						700.00	
115			SEWER FUND TOTAL EXPENSE	932,007.38	794,116.49	760,006.64	34,109.85	873,590.12	1,544,000.62	

SEWER FUND CASH FLOW ANALYSIS

		CURRENT OPERATING BUDGET	10 MONTHS ACTUAL ENDED 4/30/16	10 MONTHS PRO-RATED BUDGET ENDED 4/30/16	VARIANCE	PROJECTED FINAL ACTUALS	PROPOSED BUDGET ALLOCATION	COMMENTS
116	INFLOW OF REVENUE ACCOUNT PROCEEDS	656,765.41	539,999.89	618,629.53	(78,629.64)	647,999.87	827,128.43	
117	RESERVE FUND TRANSFERS	85,590.13	-	71,325.08	(71,325.08)	-	-	
118	TOTAL OF INFLOW PROCEEDS (REVENUE)	742,355.54	539,999.89	689,954.61	(149,954.72)	647,999.87	827,128.43	
119	TOTAL EXPENSES	932,007.38	794,116.49	760,006.64	34,109.85	873,590.12	1,544,000.62	
120	SEWER FUND CASH FLOW WITH DEPRECIATION	(189,651.84)	(254,116.60)	(70,052.03)	(184,064.57)	(225,590.25)	(716,872.19)	
121	CASH FLOW - DEPRECIATION ADDED BACK	52,488.16	142,241.75	132,697.97	11,543.78	171,768.10	21,403.51	

APPENDIX F

AGREEMENTS INCORPORATED BY REFERENCE

Agreements Incorporated by Reference

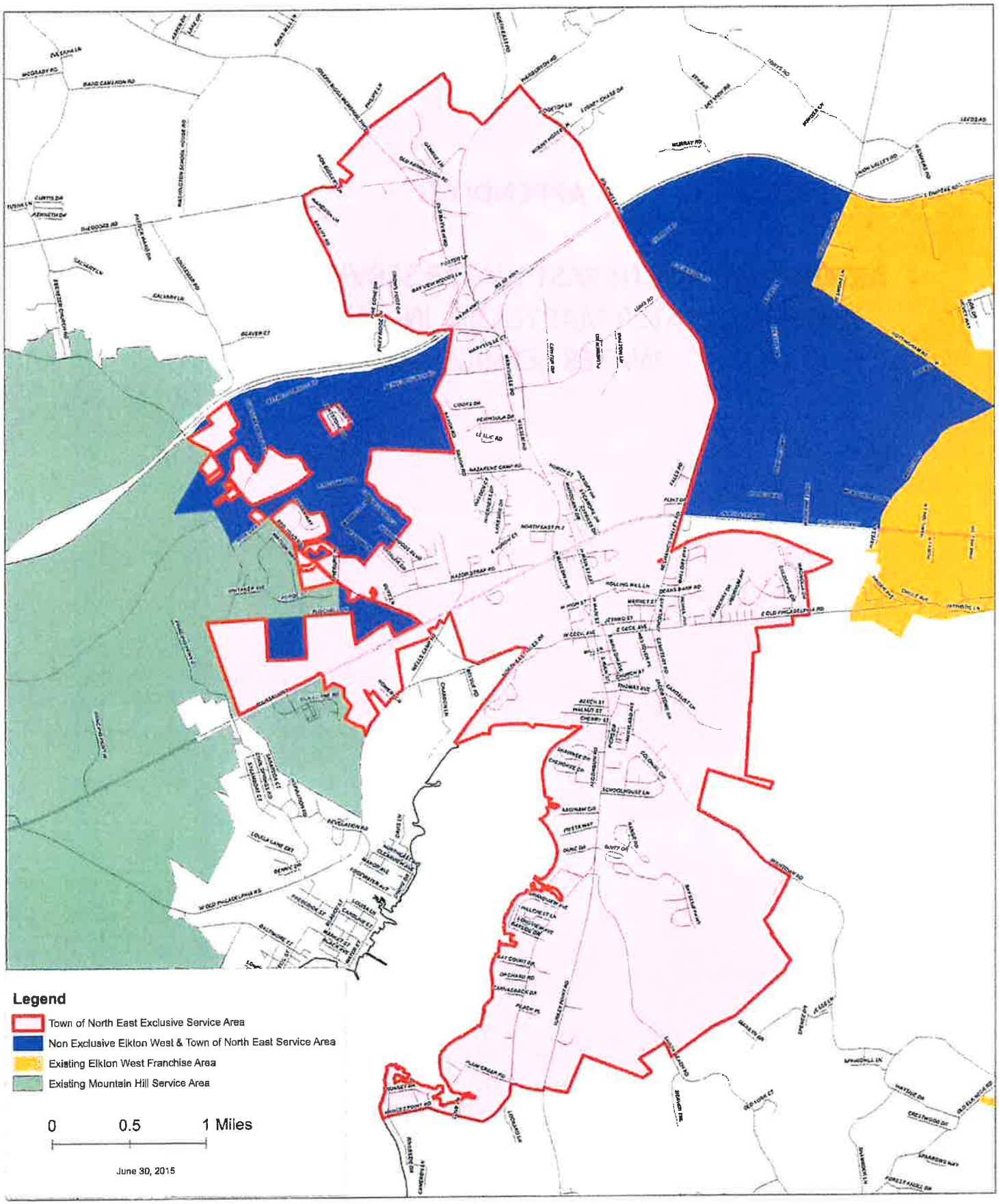
The following agreements are hereby incorporated into, and made an integral part of, the Cecil County 2018 Master Water & Sewer Plan:

- Artesian Resources – Delaware Public Service Commission, Delaware Water Supply Self Sufficiency Report, dated June 30, 2009, 138 pages.
- Artesian Water Company, Inc. – Artesian Water Maryland, Inc., Interconnection Agreement, dated November 23, 2009, 11 pages.
- Artesian Water Maryland, Inc. – Board of County Commissioners of Cecil County, Asset Purchase Agreement, dated October 7, 2008, as amended on December 15, 2009 and November 16, 2010, 114 pages.
- Chester Water Authority - Artesian Water Company, Inc., Interconnection Agreement, dated June 6, 1990, as amended on August 1, 1997, 33 pages.
- Chester Water Authority – Town of Rising Sun, Bulk Water Supply and Connection Agreement, dated September 28, 2016, 75 pages.
- Cecil County, Maryland - Artesian Water Maryland, Inc., Franchise for Water Services and Water Service Agreement, dated August 19, 2008, 67 pages. *(original and all amendments)*
- Mayor and Town Commissioners of the Town of Charlestown - Artesian Water Company, Inc., Emergency Interconnection Agreement, dated March 9, 2010.
- Mayor and Commissioners of the Town of North East – Board of County Commissioners for Cecil County, Water Service Agreement, dated March 5, 2002, eight pages, recorded in WLB 1136/734 *(original and all amendments)*.
- Mayor and Town Commissioners of Perryville – Board of County Commissioners of Cecil County, Operating Agreement, dated July 25, 1995, eight pages.
- Town of Elkton, Maryland - Artesian Water Company, Inc., Interconnection Agreement, dated March 17, 2006, as amended on October 8, 2007 and June 1, 2009, 21 pages.
- Wilmington Suburban Water Company - Board of County Commissioners of Cecil County, Interconnection Agreement, dated February 3, 1993, six pages.

APPENDIX G

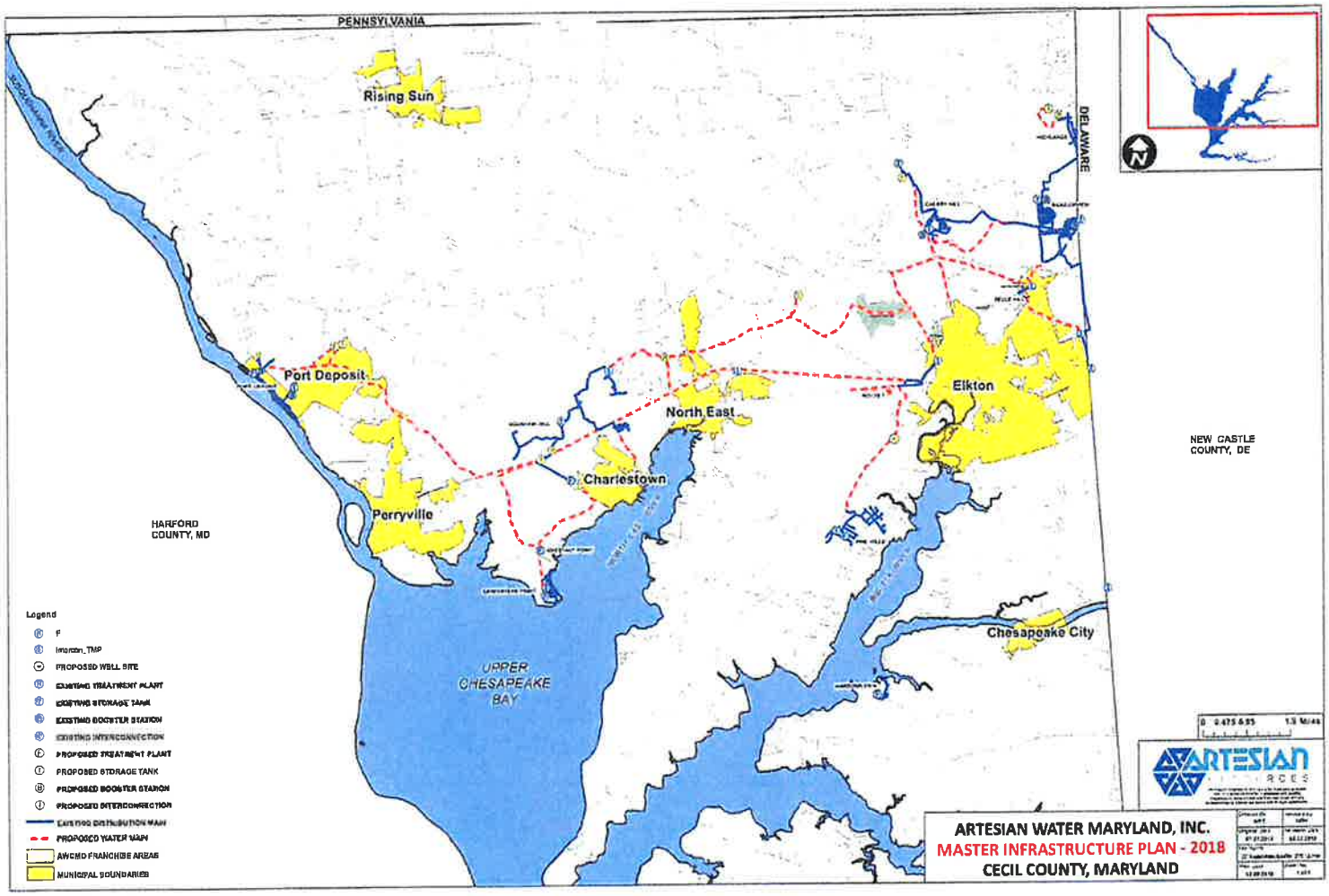
TOWN OF NORTH EAST WATER SERVICE AREA AND ARTESIAN WATER MARYLAND, INC. NON EXCLUSIVE WATER SERVICE AREAS

Town of North East Water Service Area & Artesian Water Maryland, Inc. Non-Exclusive Water Service Areas



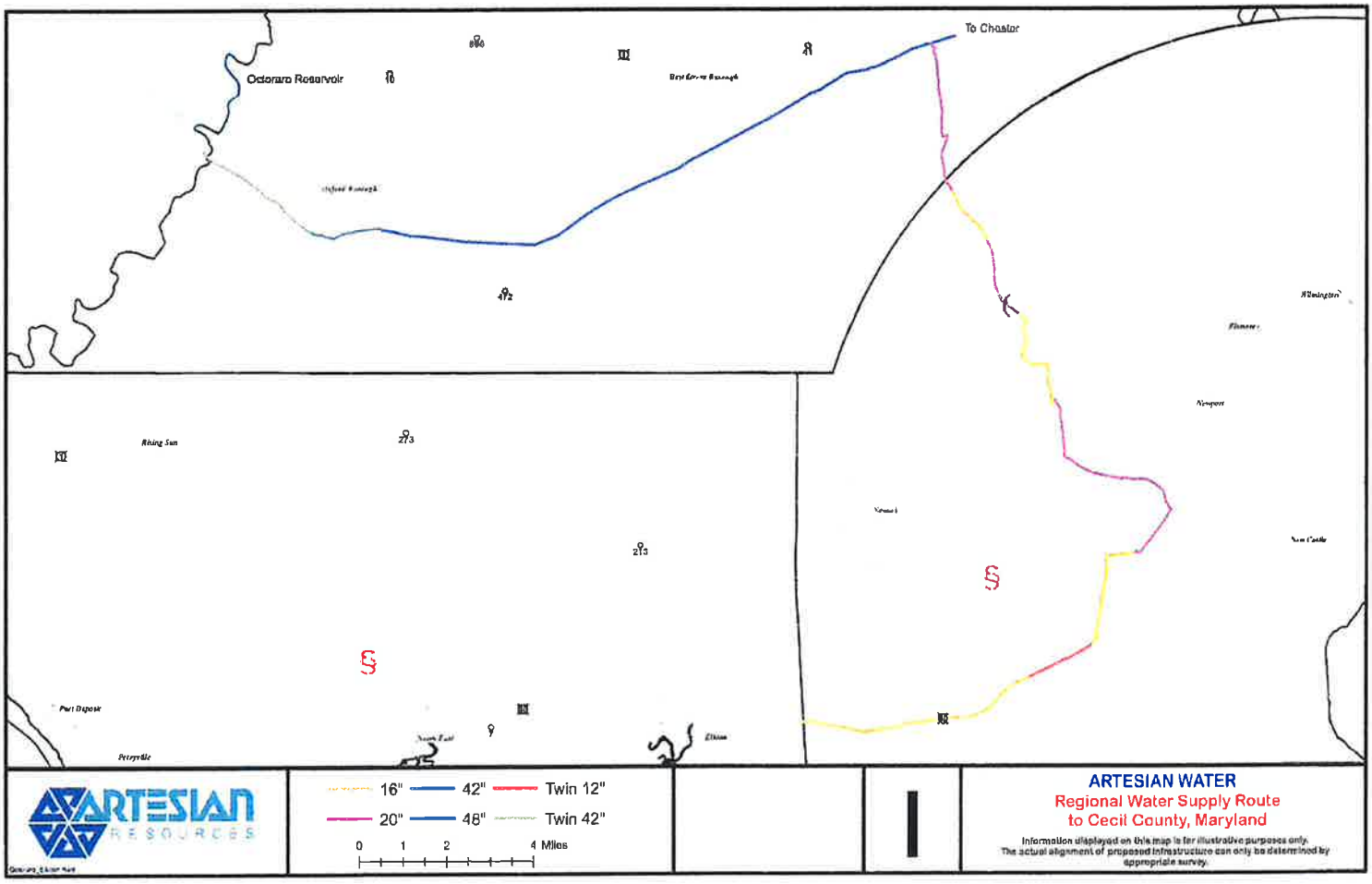
APPENDIX H

ARTESIAN RESOURCES' MASTER INFRASTRUCTURE PLAN


PENNSYLVANIA
Rising Sun
DELAWARE
Port Deposit
Elkton
North East
Charlestown
Perryville
HARFORD
COUNTY, MD
NEW CASTLE
COUNTY, DE
Chesapeake City
UPPER
CHESAPEAKE
BAY
Legend
PROPOSED WELL SITE
PROPOSED STORAGE TANK
PROPOSED BOOSTER STATION
PROPOSED INTERCONNECTION
AWCMD FRANCHISE AREAS
MUNICIPAL BOUNDARIES
ARTESIAN WATER MARYLAND, INC.
MASTER INFRASTRUCTURE PLAN - 2018
CECIL COUNTY, MARYLAND

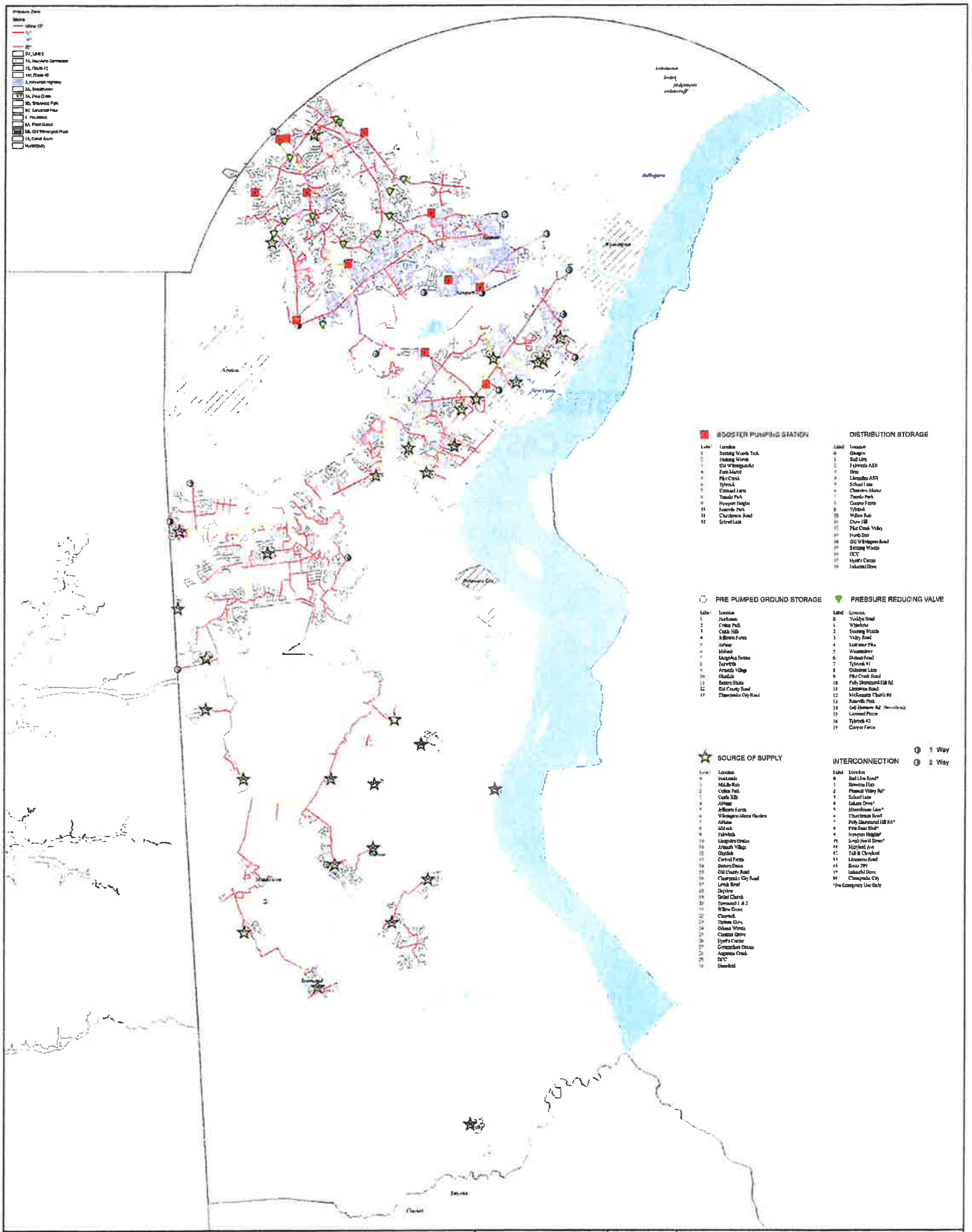
APPENDIX I

ARTESIAN WATER MAP – REGIONAL SUPPLY ROUTE TO CECIL COUNTY


To Chester
Octoraro Reservoir
Rising Sun
Port Deposit
Perryville
Elkton
Newport
16"
20"
42"
48"
Twin 12"
Twin 42"
0 1 2 4 Miles
ARTESIAN WATER
Regional Water Supply Route
to Cecil County, Maryland
Information displayed on this map is for illustrative purposes only.
The actual alignment of proposed infrastructure can only be determined by
appropriate survey.

APPENDIX J

ARTESIAN WATER SYSTEM MAP
NEW CASTLE COUNTY



ARTESIAN WATER

Artesian Water System
New Castle County

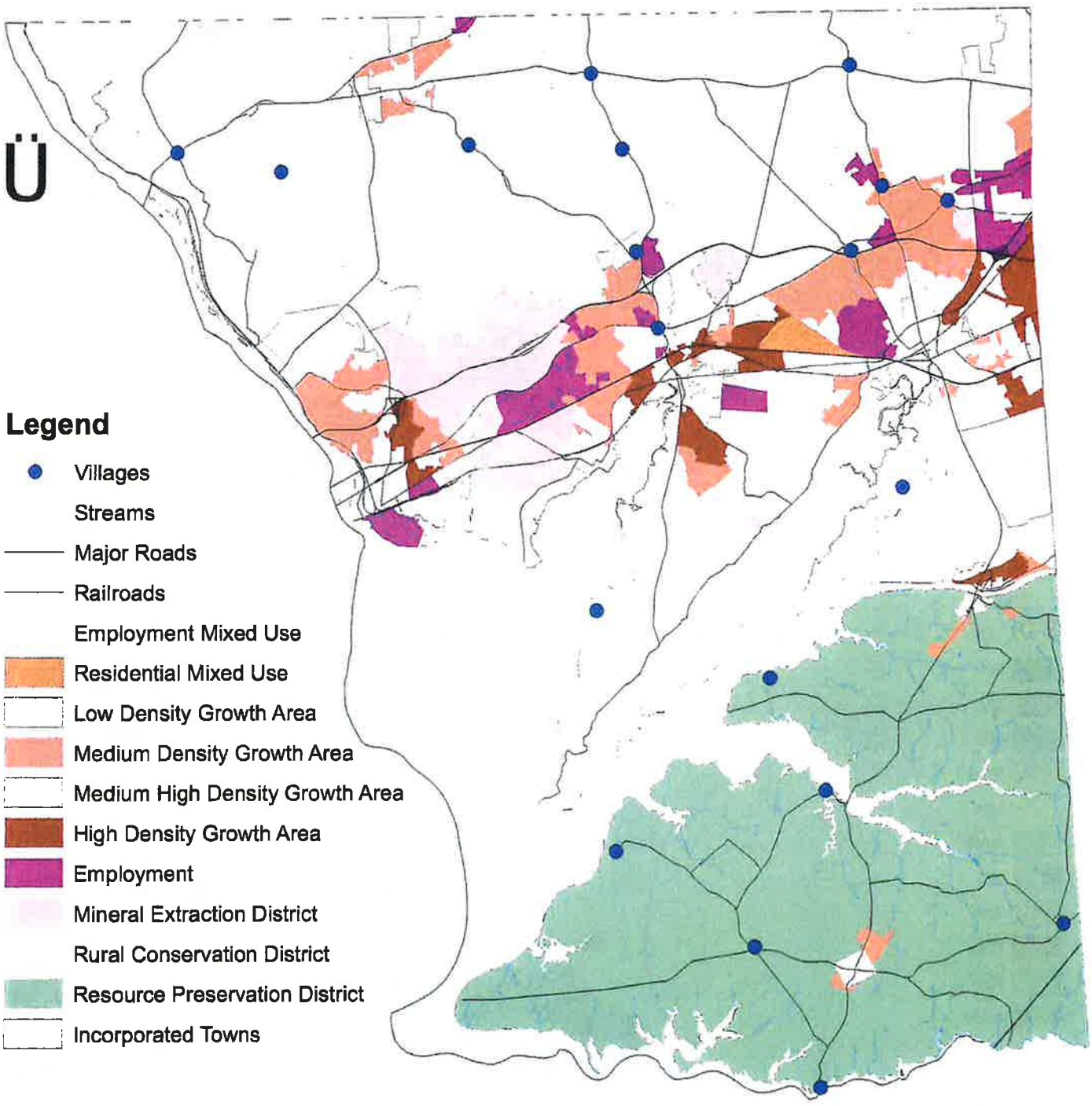
Information displayed on this map is for illustrative purposes only. The actual alignment of proposed infrastructure can only be determined by appropriate survey.

APPENDIX K

GENERAL REFERENCE MAPS AND CHARTS

Cecil County 2018 Master Water & Sewer Plan
Appendix K – General Reference Maps and Charts - Table of Contents

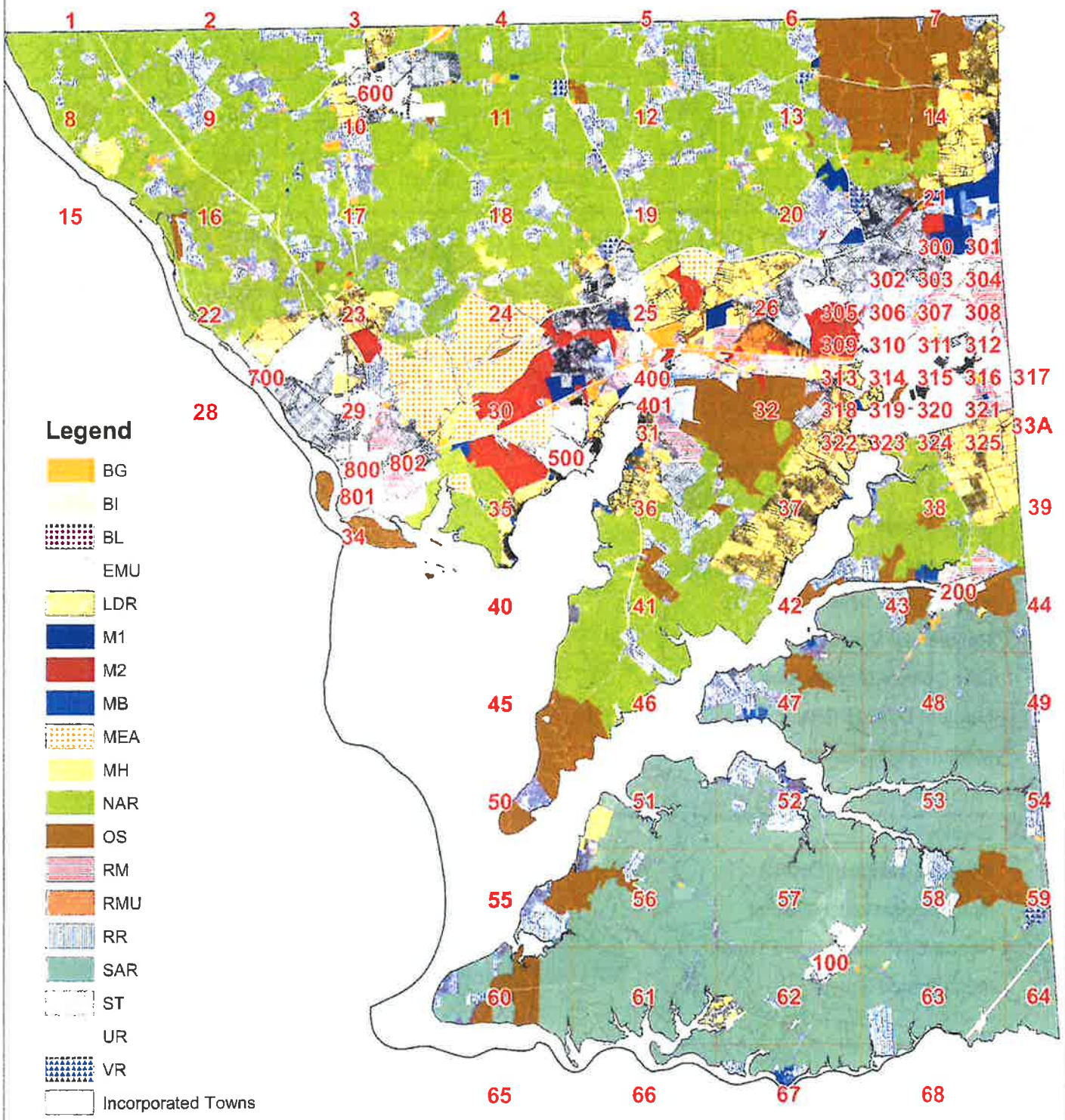
CECIL COUNTY LAND USE MAP
2010 COMPREHENSIVE PLAN



Cecil County
Office of Planning & Zoning
April 13, 2010

0 2.5 5 10 Miles

Cecil County 2011 Zoning Districts
(adopted April 19, 2011, effective May 1, 2011)



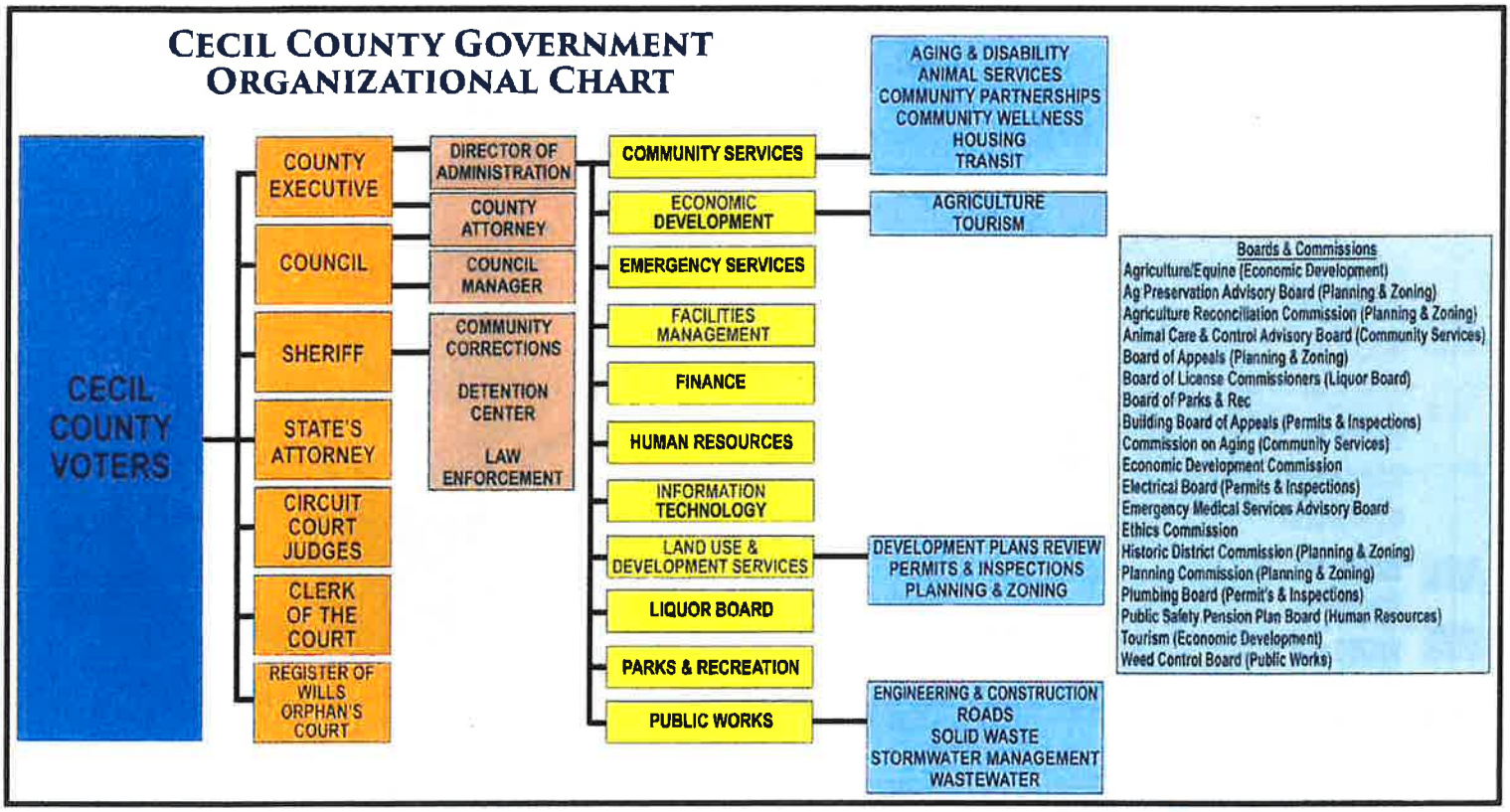
Legend

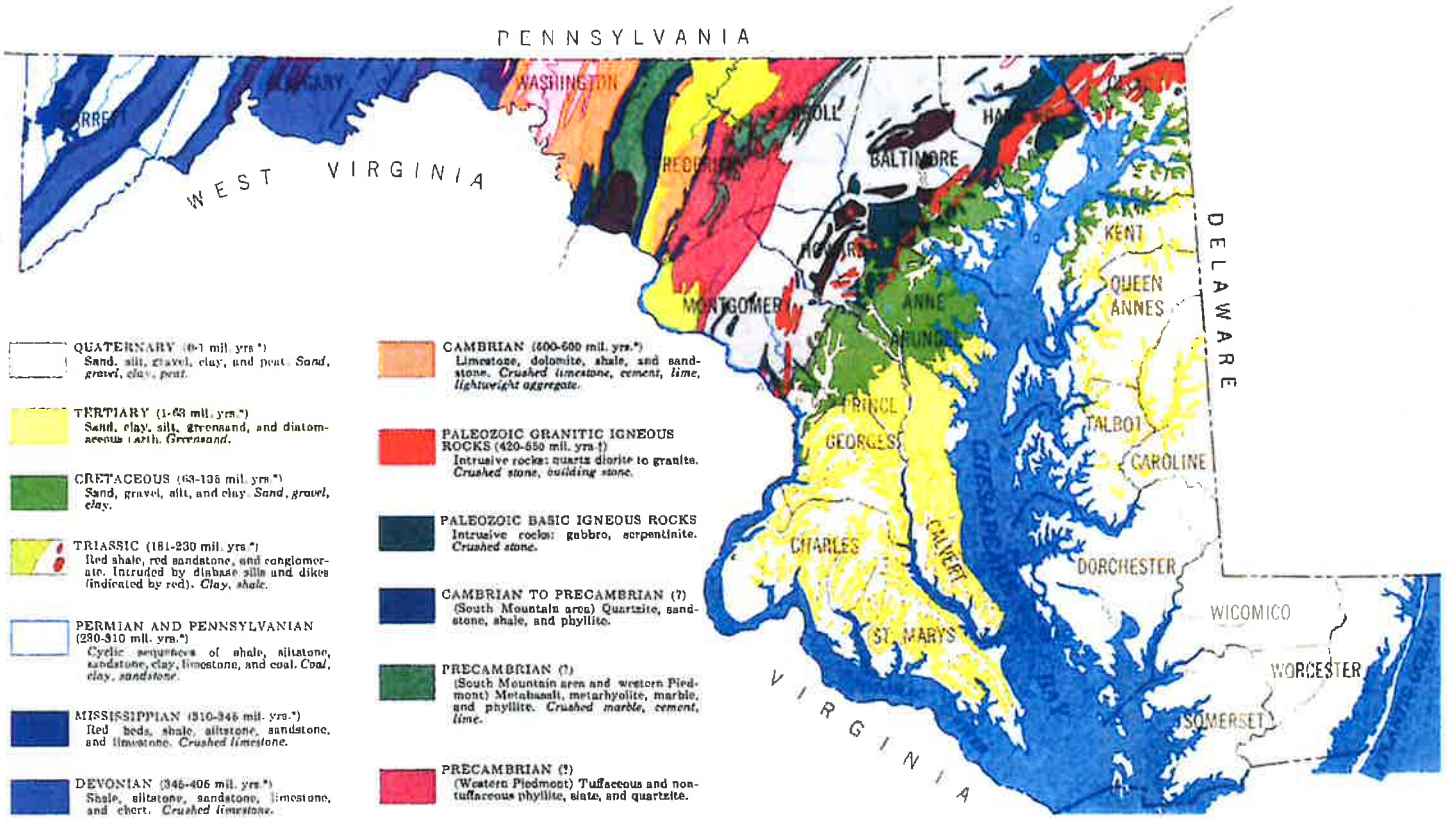
- BG
- BI
- BL
- EMU
- LDR
- M1
- M2
- MB
- MEA
- MH
- NAR
- OS
- RM
- RMU
- RR
- SAR
- ST
- UR
- VR
- Incorporated Towns
- Tax Map Index

Cecil County
Office of Planning & Zoning
April 5, 2011
(updated December 28, 2017
through Rezoning 2017-08)

0 2 4 8 Miles

CECIL COUNTY GOVERNMENT ORGANIZATIONAL CHART





QUATERNARY (0-1 mil. yrs.*)
Sand, silt, gravel, clay, and peat. *Sand, gravel, clay, peat.*

TERTIARY (1-63 mil. yrs.*)
Sand, clay, silt, greensand, and diatomaceous earth. *Greensand.*

CRETACEOUS (63-136 mil. yrs.*)
Sand, gravel, silt, and clay. *Sand, gravel, clay.*

TRIASSIC (181-230 mil. yrs.*)
Red shale, red sandstone, and conglomerate. Intruded by diabase sills and dikes (indicated by red). *Clay, shale.*

PERMIAN AND PENNSYLVANIAN (230-310 mil. yrs.*)
Cyclic sequences of shale, siltstone, sandstone, clay, limestone, and coal. Coal, clay, sandstone.

MISSISSIPPIAN (310-345 mil. yrs.*)
Red beds, shale, siltstone, sandstone, and limestone. *Crushed limestone.*

DEVONIAN (345-405 mil. yrs.*)
Shale, siltstone, sandstone, limestone, and chert. *Crushed limestone.*

SILURIAN (405-425 mil. yrs.*)
Shale, mudstone, sandstone, and limestone. *Glass sand, crushed limestone.*

ORDOVICIAN (425-500 mil. yrs.*)
Limestone, dolomite, shale, siltstone, and red beds. Slate and conglomerate in northern Harford County. *Crushed limestone, cement, clay, lime.*

CAMBRIAN (500-600 mil. yrs.*)
Limestone, dolomite, shale, and sandstone. *Crushed limestone, cement, lime, lightweight aggregate.*

PALEOZOIC GRANITIC IGNEOUS ROCKS (420-550 mil. yrs.†)
Intrusive rocks: quartz diorite to granite. *Crushed stone, building stone.*

PALEOZOIC BASIC IGNEOUS ROCKS
Intrusive rocks: gabbro, serpentinite. *Crushed stone.*

CAMBRIAN TO PRECAMBRIAN (?)
(South Mountain area) Quartzite, sandstone, shale, and phyllite.

PRECAMBRIAN (?)
(South Mountain area and western Piedmont) Metabasalt, metarhyolite, marble, and phyllite. *Crushed marble, cement, lime.*

PRECAMBRIAN (?)
(Western Piedmont) Tuffaceous and nontuffaceous phyllite, slate, and quartzite.

PRECAMBRIAN (?)
(Eastern Piedmont) Schist, metagraywacke, quartzite, marble, and metavolcanic rocks. *Crushed stone, crushed marble, building stone.*

PRECAMBRIAN BASEMENT COMPLEX (1100 mil yrs.†)
Gneiss, migmatite, and augen gneiss.

Most important mineral products in italics.
* Age ranges from Kulp, J. L., 1961, Geologic time scale: Science, v. 133, no. 3459, p. 1105-1114.
† Radiometric dates made on Maryland rocks.

MARYLAND GEOLOGICAL SURVEY
Kenneth N. Weaver, Director

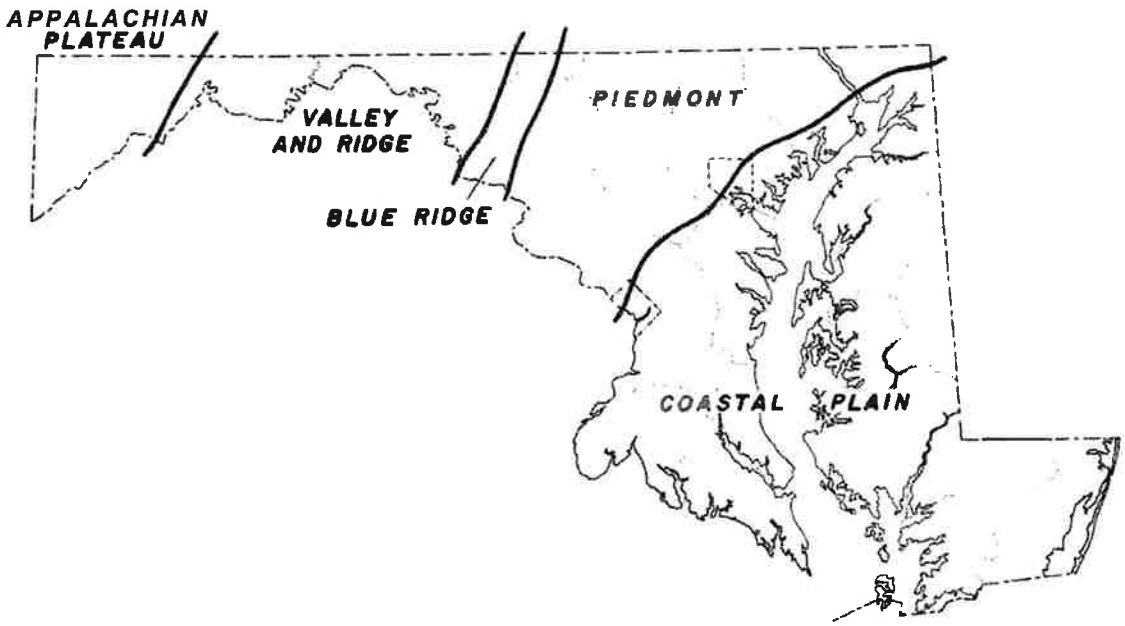
GENERALIZED GEOLOGIC MAP OF MARYLAND‡

1967

10 0 10 20 30 40
1 inch equals 25 miles

‡ A detailed Geologic Map of Maryland, 1968 at a scale of 1 inch equals 4 miles, is also available.

A BRIEF DESCRIPTION OF THE GEOLOGY OF MARYLAND



Maryland is part of three distinct physiographic regions: (1) the Coastal Plain Province, (2) the Piedmont Province, and (3) the Blue Ridge, Valley and Ridge, and Appalachian Plateau Provinces. These extend in belts of varying width along the eastern edge of the North American continent from Newfoundland to the Gulf of Mexico.

The Coastal Plain Province is underlain by a wedge of unconsolidated sediments including gravel, sand, silt, and clay, which overlaps the rocks of the eastern Piedmont along an irregular line of contact known as the Fall Zone. Eastward, this wedge of sediments thickens to more than 8,000 feet at the Atlantic coast line. Beyond this line is the Continental Shelf, the submerged continuation of the Coastal Plain, which extends eastward for at least another 75 miles where the sediments attain a maximum thickness of about 40,000 feet.

The sediments of the Coastal Plain dip eastward at a low angle, generally less than one degree, and range in age from Triassic to Quaternary. The younger formations crop out successively to the southeast across Southern Maryland and the Eastern Shore. A thin layer of Quaternary gravel and sand covers the older formations throughout much of the area.

Mineral resources of the Coastal Plain are chiefly sand and gravel, and are used as aggregate materials by the construction industry. Clay for brick and other ceramic uses is also important. Small deposits of iron ore are of historical interest. Plentiful supplies of ground water are available from a number of aquifers throughout much of the region.

The Piedmont Province is composed of hard, crystalline igneous and metamorphic rocks and extends from the inner edge of the Coastal Plain westward to Catoctin Mountain, the eastern boundary of the Blue Ridge Province. Bedrock in the eastern part of the Piedmont consists of schist, gneiss, gabbro, and other highly metamorphosed sedimentary and igneous rocks of probable volcanic origin. In several places these rocks have been intruded by granitic plutons and pegmatites. Deep drilling has revealed that similar metamorphic and igneous rocks underlie the sedimentary rocks of the Coastal Plain. Several domal uplifts of Precambrian gneiss mantled with quartzite, marble, and schist are present in Baltimore County and in parts of adjacent counties. Differential erosion of these contrasting rock types has produced a distinctive topography in this part of the Piedmont.

The rocks of the western part of the Piedmont are diverse and include phyllite, slate, marble, and moderately to slightly metamorphosed volcanic rocks. In central Frederick County the relatively flat Frederick Valley is developed on Cambrian and Ordovician limestone and dolomite. Gently undulating plains underlain by unmetamorphosed bedrock of Triassic red shale, siltstone, and sandstone occur in three areas in the western Piedmont.

The Piedmont Province contains a variety of mineral resources. Formerly, building stone, slate, and small deposits of non-metallic minerals, base-metal sulfides, gold, chromite, and iron ore were mined. Currently, crushed stone is important for aggregate, cement, and lime. Small to moderate supplies of ground water are available throughout the region, but favorable geological conditions locally may provide larger amounts.

Unlike the Coastal Plain and Piedmont Provinces, the Blue Ridge, Valley and Ridge, and Appalachian Plateau Provinces are underlain mainly by folded and faulted sedimentary rocks. The rocks of the Blue Ridge Province in western Frederick County are exposed in a large anticlinal fold whose limbs are represented by Catoctin Mountain and South Mountain. These two ridges are formed by Lower Cambrian quartzite, a rock which is very resistant to the attack of weathering and erosion. A broad valley floored by Precambrian gneiss and volcanic rock lies in the core of the anticline between the two ridges.

The Valley and Ridge Province between South Mountain in Washington County and Dans Mountain in western Allegany County contains strongly folded and faulted sedimentary rocks. In the eastern part of the region, a wide, open valley called the Great Valley, or in Maryland, the Hagerstown Valley, is formed on Cambrian and Ordovician limestone and dolomite. West of Powell Mountain, a more rugged terrain has developed upon shale and sandstone bedrock which ranges in age from Silurian to Mississippian. Some of the valleys in this region are underlain by Silurian and Devonian limestones.

For many years the limestone formations have been used as local sources of agricultural lime and building stone. Modern uses include crushed stone for aggregate and cement. A pure, white sandstone in the western region of the province is suitable for glass manufacturing.

The Appalachian Plateau Province includes that part of Allegany County west of Dans Mountain and all of Garrett County, the westernmost county in Maryland. The bedrock of this region consists principally of gently folded shale, siltstone, and sandstone. Folding has produced elongated arches across the region which expose Devonian rocks at the surface. Most of the natural gas fields in Maryland are associated with these anticlinal folds in the Appalachian Plateau. In the intervening synclinal basins, coal-bearing strata of Pennsylvanian and Permian ages are preserved.

The sedimentary rocks of the Blue Ridge, Valley and Ridge, and Appalachian Plateau Provinces yield small to moderate supplies of ground water. Under favorable conditions large amounts may occur.

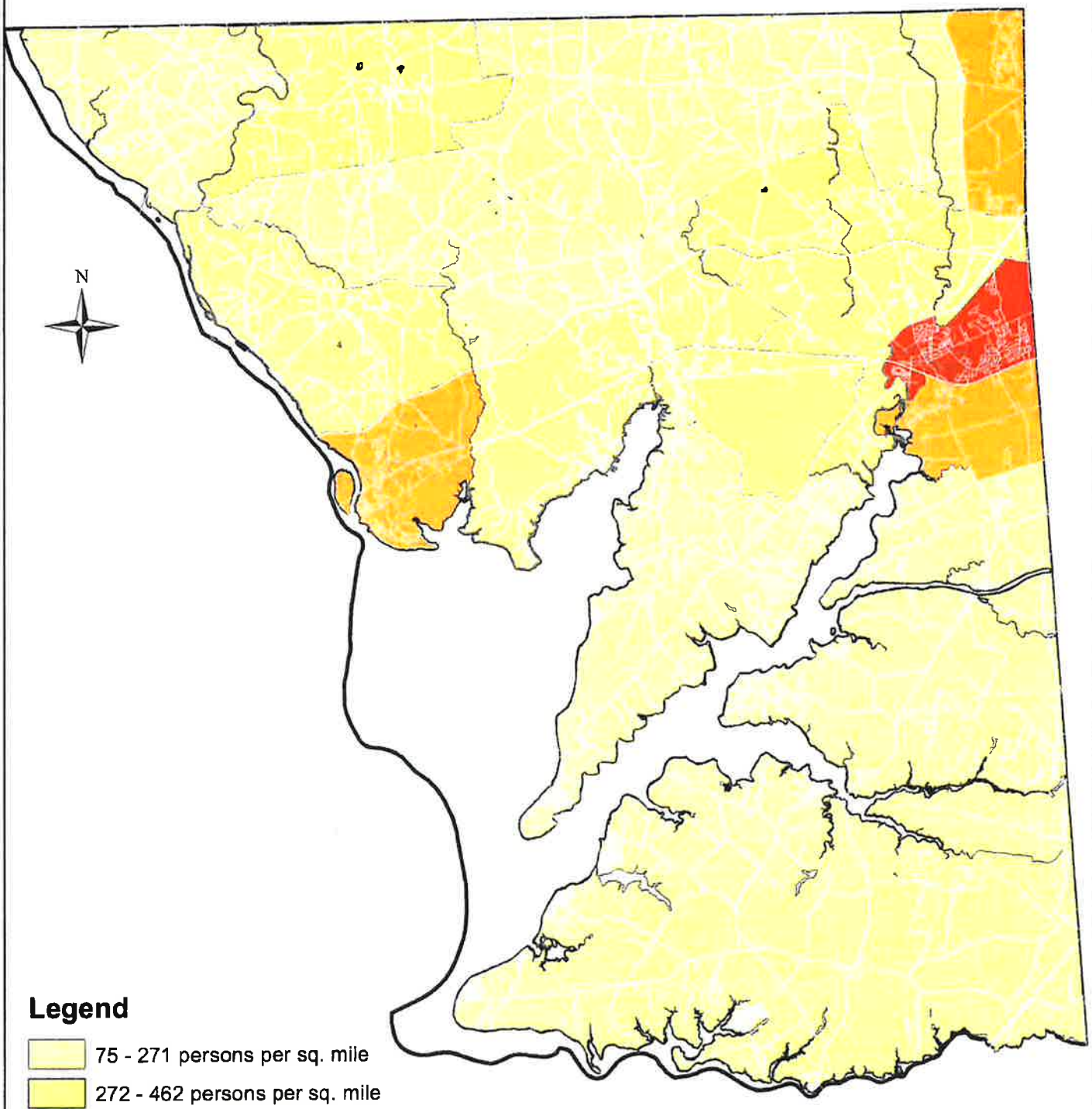
Jonathan Edwards, Jr. 1981
Geologist

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES

Prepared by the
MARYLAND GEOLOGICAL SURVEY

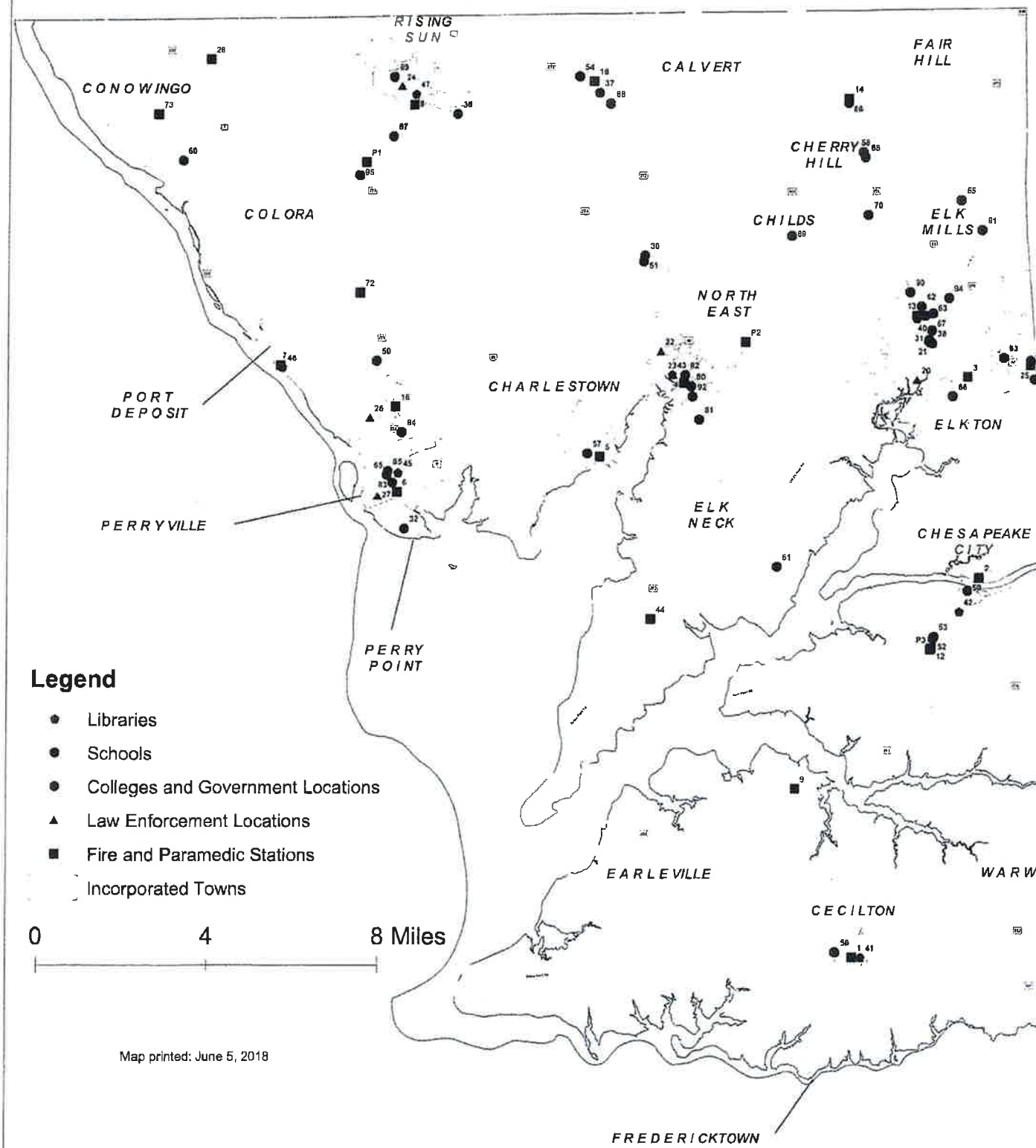
Baltimore, Maryland 21218

Cecil County Population Density
Total Persons per Square Mile



Data Source: 2010 US Census
July 13, 2012

Cecil County, Maryland
Existing Major Public Institutions



Map printed: June 5, 2018

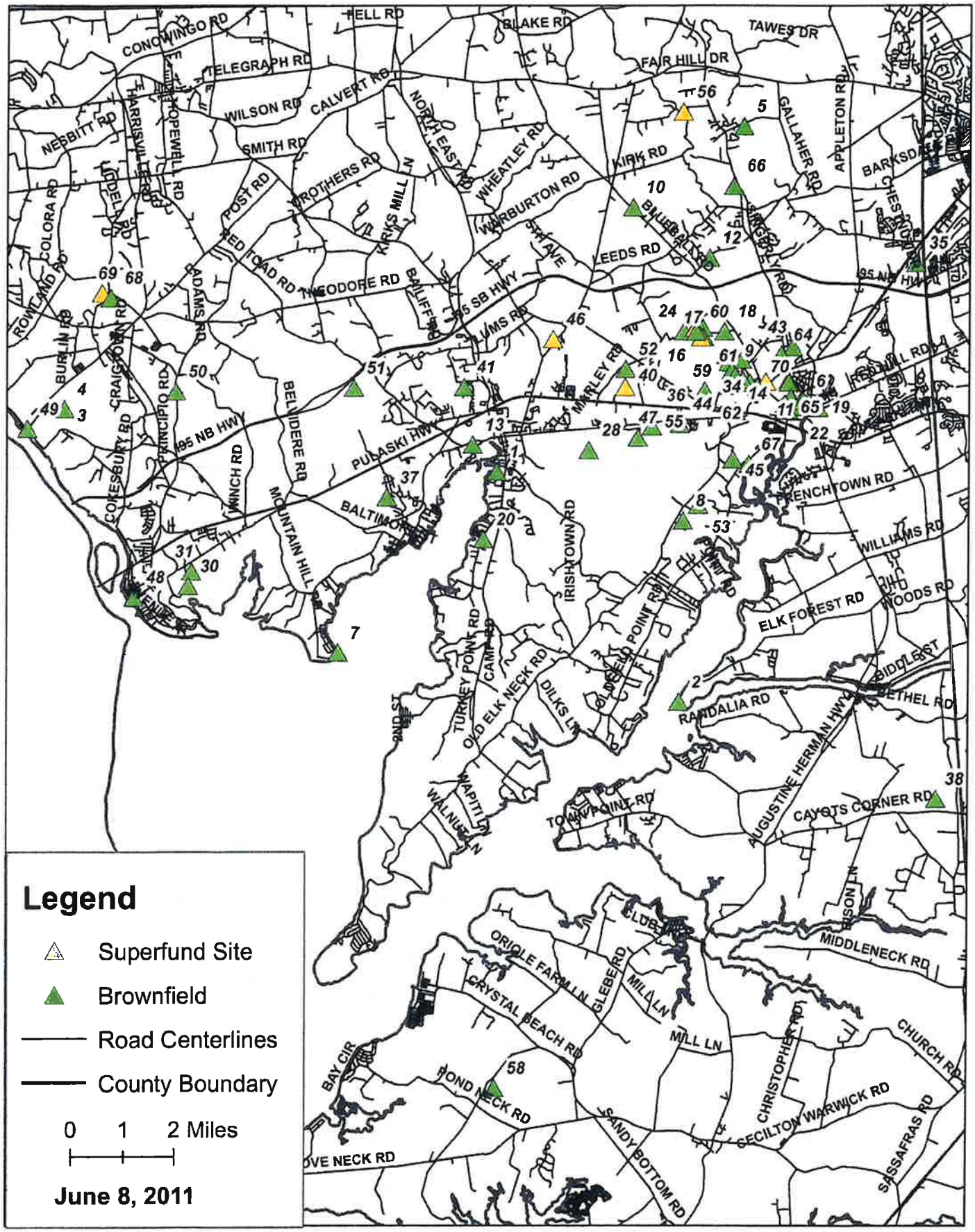
Map key - Existing Major Public Instutions, Cecil County, Maryland

ID	Name	Address	City	Type
1	CECILTON VOL. FIRE DEPARTMENT	110 E MAIN ST	Cecilton	Fire and Paramedic Stations
2	CHESAPEAKE CITY VOL. FIRE DEPARTMENT	215 LOCK ST	Chesapeake City	Fire and Paramedic Stations
3	SINGERLY VOL. FIRE DEPARTMENT	399 E PULASKI HWY	Elkton	Fire and Paramedic Stations
4	NORTH EAST VOL. FIRE DEPARTMENT	210 S MAULDIN AVE	North East	Fire and Paramedic Stations
5	CHARLESTOWN VOL. FIRE DEPARTMENT	307 MARKET ST	Charlestown	Fire and Paramedic Stations
6	PERRYILLE VOL. FIRE DEPARTMENT	920 PRINCIPIO FURNACE RD	Perryville	Fire and Paramedic Stations
7	WATER WITCH VOL. FIRE DEPARTMENT	15 N MAIN ST	Port Deposit	Fire and Paramedic Stations
8	Community Fire Co of Rising Sun	300 Joseph Biggs Memorial Hwy	Rising Sun	Fire and Paramedic Stations
9	HACKS POINT VOL. FIRE DEPARTMENT	1185 GLEBE RD	Earleville	Fire and Paramedic Stations
12	CHESAPEAKE CITY VOL. FIRE DEPARTMENT	2859 AUGUSTINE HERMAN HWY	Chesapeake City	Fire and Paramedic Stations
13	SINGERLY VOL. FIRE DEPARTMENT	300 NEWARK AVE	Elkton	Fire and Paramedic Stations
14	SINGERLY VOL. FIRE DEPARTMENT	3074 SINGERLY RD	Elkton	Fire and Paramedic Stations
16	PERRYILLE VOL. FIRE DEPARTMENT	16 GR DAWSON DR	Perryville	Fire and Paramedic Stations
18	Community Fire Co of Rising Sun	2846 NORTH EAST RD	North East	Fire and Paramedic Stations
20	Cecil County Detention Center	500 LANDING LANE	Elkton	Law Enforcement
21	ELKTON POLICE DEPARTMENT	100 RAILROAD AVENUE	Elkton	Law Enforcement
22	MARYLAND STATE POLICE - BARRACK F	2433 PULASKI HWY	North East	Law Enforcement
23	NORTH EAST POLICE DEPARTMENT	104 W CECIL AVENUE	North East	Law Enforcement
24	RISING SUN POLICE DEPARTMENT	1 E MAIN STREET	Rising Sun	Law Enforcement
25	Cecil County Sheriff's Office	107 Chesapeake Boulevard	Elkton	Law Enforcement
26	JFK BARRACK STATE POLICE	15 Turnpike Drive	Perryville	Law Enforcement
27	Perryville Police Department	2 Perryville Town Center Drive	Perryville	Law Enforcement
28	Community Fire Co of Rising Sun	32 BRER RABBIT RD	Rising Sun	Fire and Paramedic Stations
30	Cecil College (main campus)	1 Seahawk Dr	North East	Colleges and Government Facilities
31	Cecil College (Elkton Station)	107 Railroad Ave	Elkton	Colleges and Government Facilities
32	Perry Point VAMC	1200 block Avenue D	Perry Point	Colleges and Government Facilities
33	Elkton Veterans Center	103 Chesapeake Blvd, Suite A	Elkton	Colleges and Government Facilities
34	Health Department	401 Bow St	Elkton	Colleges and Government Facilities
35	Cecil County Parks & Recreation (admin offices)	200 Chesapeake Blvd, Suite 1200	Elkton	Colleges and Government Facilities
36	Cecil County Parks & Recreation (Cecil Community	17 Wilson Rd	Rising Sun	Colleges and Government Facilities
37	Cecil County Parks & Recreation (Cecil Arena)	2706 North East Rd	North East	Colleges and Government Facilities
38	Elkton Parks and Recreation	219 North St	Elkton	Colleges and Government Facilities

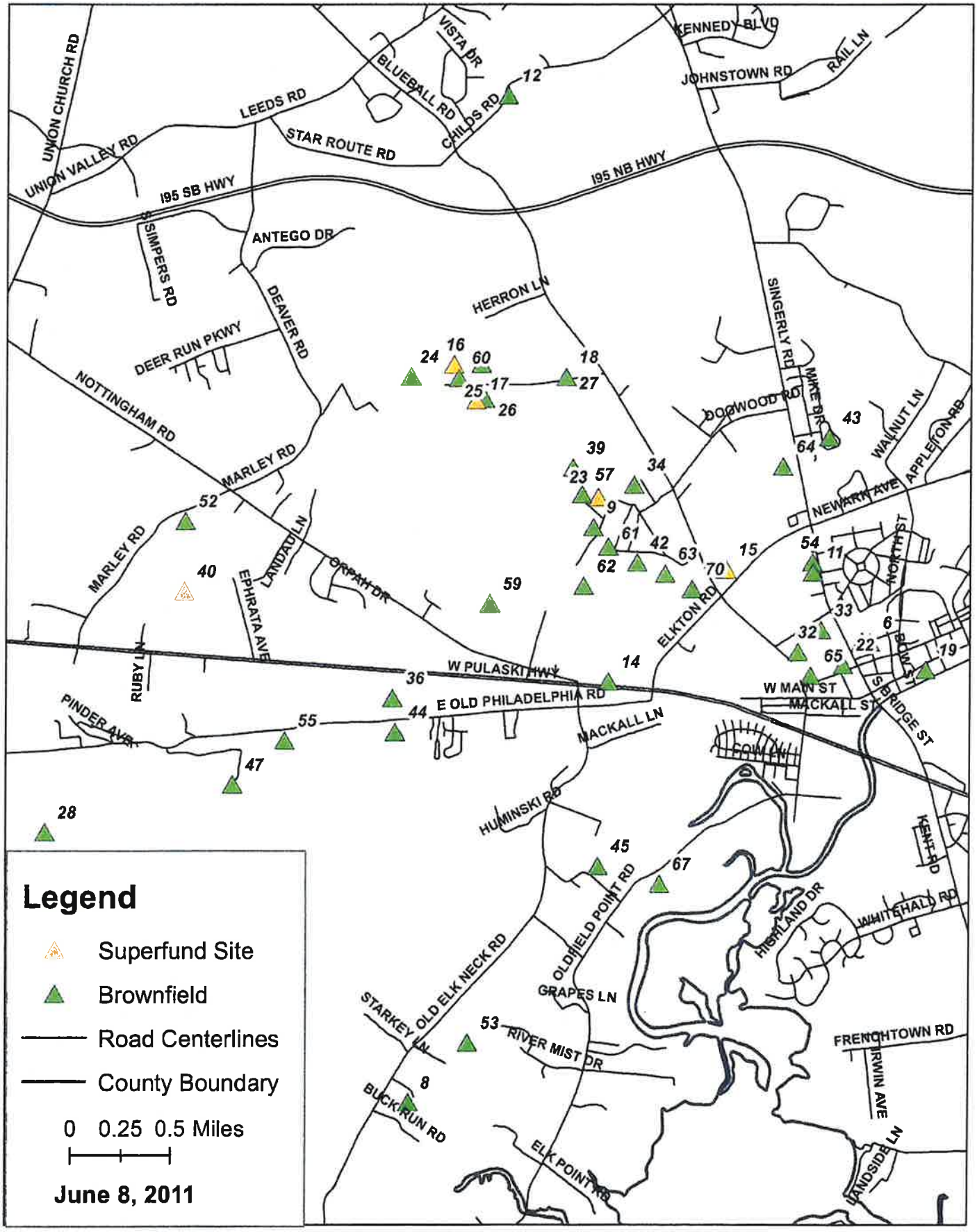
40	Elkton Central Branch Library	301 Newark Ave	Elkton	Library
41	Cecilton Library	215 E Main St	Cecilton	Library
42	Chesapeake City Library	2527 Augustine Herman Hwy	Chesapeake City	Library
43	North East Library	106 W Cecil Ave	North East	Library
44	NORTH EAST VOL. FIRE DEPARTMENT	2993 TURKEY POINT RD	North East	Fire and Paramedic Stations
45	Perryville Library	500 Coudon Blvd	Perryville	Library
46	Port Deposit Library	13 S Main St	Port Deposit	Library
47	Rising Sun Library	111 Colonial Way	Rising Sun	Library
50	Bainbridge Elementary School	41 Preston Dr	Port Deposit	School
51	Bay View Elementary School	1000 N East Road	North East	School
52	Bohemia Manor High School	2755 Augustine Herman Hwy	Chesapeake City	School
53	Bohemia Manor Middle School	2755 Augustine Herman Hwy	Chesapeake City	School
54	Calvert Elementary School	79 Brick Meetinghouse Rd	Rising Sun	School
55	Cecil Manor Middle School	971 Elk Mills Road	Elkton	School
56	Cecilton Elementary School	251 W Main Street	Cecilton	School
57	Charlestown Elementary	550 Baltimore Street	North East	School
58	Cherry Hill Middle School	2535 Singerly Road	Elkton	School
59	Chesapeake City Elementary	214 3rd Street	Chesapeake City	School
60	Conowingo Elementary School	471 Rowlandsville Road	Conowingo	School
61	Elk Neck Elementary School	41 Racine School Road	Elkton	School
62	Elkton High School	110 James Street	Elkton	School
63	Elkton Middle School	615 North Street	Elkton	School
64	Gilpin Manor Elementary School	203 Newark Avenue	Elkton	School
65	Good Shepherd School	810 Aiken Avenue	Perryville	School
66	Holly Hall Elementary School	233 Whitehall Road	Elkton	School
67	Immaculate Conception	452 Bow Street	Elkton	School
68	Kenmore Elementary School	2475 Singerly Road	Elkton	School
69	Leeds Elementary School	615 Deaver Road	Elkton	School
70	Mount Aviat Academy	399 Childs Avenue	Childs	School
72	WATER WITCH VOL. FIRE DEPARTMENT	1 BILL AMOSS WAY	Port Deposit	Fire and Paramedic Stations
73	WATER WITCH VOL. FIRE DEPARTMENT	409 ROCK SPRINGS RD	Conowingo	Fire and Paramedic Stations
80	North East Elementary School	301 E Thomas Avenue	North East	School
81	North East High School	300 Irishtown Road	North East	School
82	North East Middle School	200 E Cecil Ave	North East	School
83	Perryville Elementary School	901 Maywood Avenue	Perryville	School

84	Perryville High School	1696 Perryville Road	Perryville	School
85	Perryville Middle School	850 Aiken Avenue	Perryville	School
86	Providence/ Cecil Co. High School	3035 Singerly Road	Elkton	School
87	Rising Sun Elementary School	500 Hopewell Road	Rising Sun	School
88	Rising Sun High School	100 Tiger Road	North East	School
89	Rising Sun Middle School	289 Pearl Street	Rising Sun	School
90	Shorehaven	1040 Singerly Rd	Elkton	School
91	Technical High School	912 Appleton Rd	Elkton	School
92	The Jacob Tome Institute	581 S Maryland Avenue	North East	School
93	Thomson Estates Elementary School	203 E Thomson Drive	Elkton	School
94	Tri-State Christian Academy	146 Appleton Rd	Elkton	School
95	West Nottingham Academy	1079 Firetower Road	Colora	School
DES	DEPARTMENT OF EMERGENCY SERVICES	107 CHESAPEAKE BLVD	Elkton	Fire and Paramedic Stations
P1	PARAMEDIC STATION 1	191 HARRISVILLE RD	Colora	Fire and Paramedic Stations
P2	PARAMEDIC STATION 2	34 FAIR ACRES RD	Elkton	Fire and Paramedic Stations
P3	PARAMEDIC STATION 3	2865 AUGUSTINE HERMAN HWY	Chesapeake City	Fire and Paramedic Stations

Brownfields & Superfund Sites in Cecil County



Brownfields & Superfund Sites in Cecil County (Elkton Vicinity)



Legend

- Superfund Site
- Brownfield
- Road Centerlines
- County Boundary

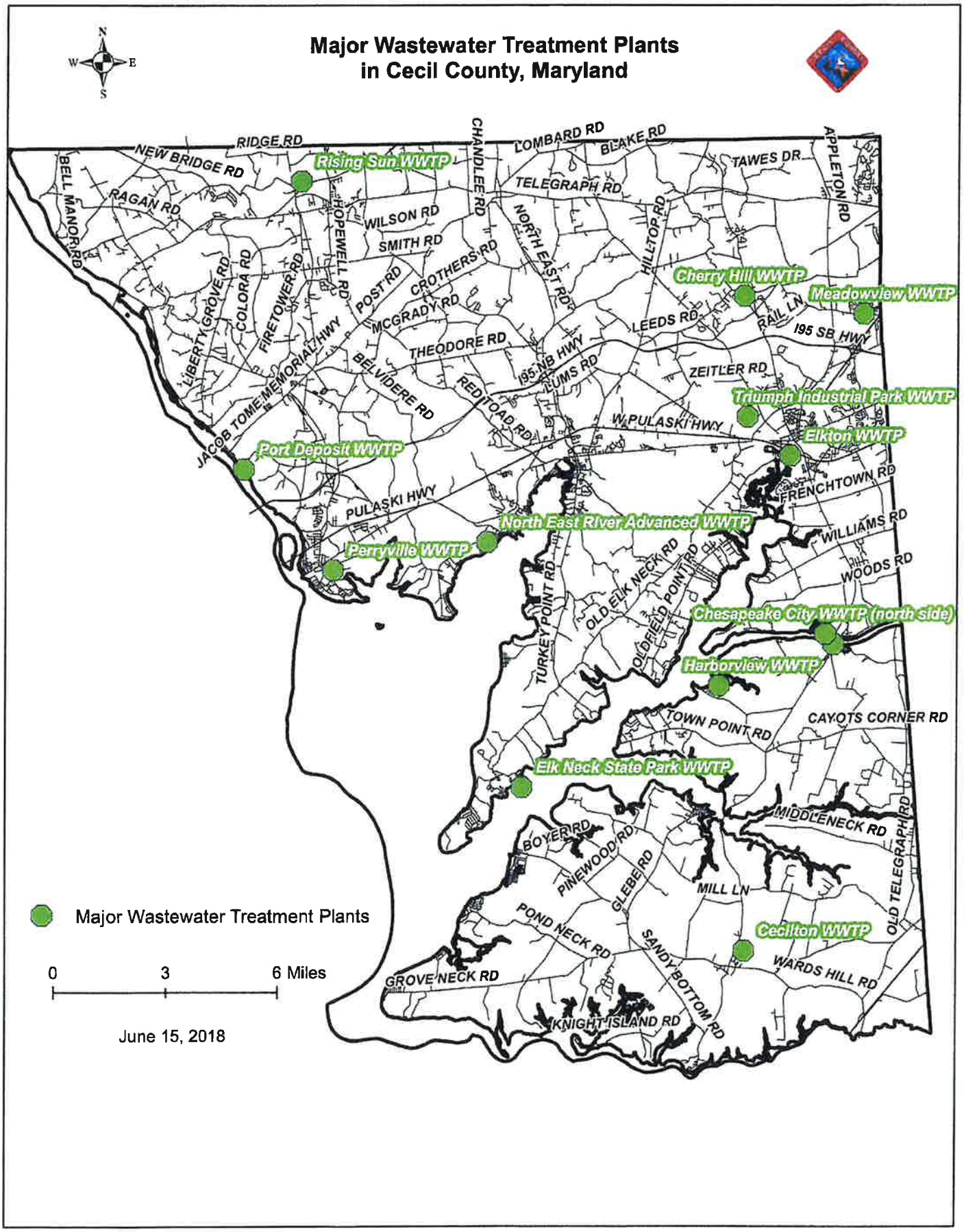
0 0.25 0.5 Miles

June 8, 2011

List of Brownfields and Superfund Sites in Cecil County – as of June 7, 2011

Id #	Site Name
1	Anchor Marina Assessment - Rt 272 & Iroquois Dr
2	Back Creek Rear Range Structure
3	Bainbridge Naval Training Center
4	Bainbridge Naval Training Center, Phase 1A
5	Big Elk Chapel Road Landfill
6	Blue Chip - 301 Singerly Ave, Elkton
7	Carpernters Point Proof Range
8	Cecil City Landfill/Cecil County Landfill
9	Central Chemical - Triumph Industrial Park
10	Charles Baker Property
11	Chesapeake Publishing Company
12	Childs Property - 180 Childs Rd
13	Cowentown Dump
14	Crouse Bros. Excavating - Route 7 & Route 40
15	Dwyer Property - Route 279 & Route 545
16	Elkton Farm - 183 Zeitler Rd
17	Elkton Farm Firehole
18	Elkton Farm, Area 4
19	Elkton Gas Light Co. - Water St, Elkton
20	Elkton Sparkler Co.
21	Former Jim's Care Care - 119 Railroad Ave, Elkton
22	Former Peco Elkton Service Building
23	GE Railcar Repair Services - Triumph Ind. Park
24	Herron Area 1
25	Herron Area 2
26	Herron Area 3
27	Herron Area 4
28	Hog Hill Landfill
29	Hopkins Quarry
30	Ikea Industrial Park (aka Occidental Chemical)
31	Ikea Industrial Park (fka Woodland-Coudon, Inc.)
32	Ioncis/Pirelli Cable (off-site plume)
33	Ionics, Incorporated - 801 Elkton Blvd
34	IP Inc. - Triumph Industrial Park
35	Iron Hill Road Drum Site - 117 Iron Hill Rd
36	Keystyone Fireworks
37	Louisa Lane Dump Site
38	Malmo Farms - 1435 Cayots Corner Rd, Ches City
39	Maryland Cork
40	MD Sand, Gravel, & Stone

41 Montgomery Brothers Dump - Lakeside Park
42 Morton Thiokol Ammunition Plant
43 National Fireworks - Fairhill Rd
44 New Jersey Fireworks/Route 7 Dump
45 Old Elkton Dump - Jones Chapel Rd
46 Ordnance Products - Mechanics Valley Rd
47 Patriotic Fireworks
48 Perryville Rail Yard
49 Port Deposit MGP - Main St, Port Deposit
50 Principio Road - 551 Principio Rd
51 Red Toad Road Disposal Site
52 Reeves Site - 400 Marley Rd, Elkton
53 Reginald Thompson Property
54 RMR/JMR Corporation - 655 N Bridge St, Elkton
55 Route 7 Chem Dump Site
56 Spectron - 111 Providence Rd
57 Stauffer Chemical - Triumph Industrial Park
58 Stemmers Run Landfill
59 Thiokol Corp., - Elkton
60 Thiokol Motor Recovery Area
61 Trinco Industrial Park - 18 Lots
62 Triumph Explosives Burn Pit
63 Triumph Insustrial Park/WL Gore
64 Vicon Property - Rt 213 & Dogwood Rd
65 Victory Sparkler
66 W.L. Gore, Cherry Hill - 2401 Singerly Rd
67 Whittaker Trojan Yacht - Oldfield Point Rd
68 Woodlawn II - East of Waibel Rd
69 Woodlawn Landfill - Firetower Rd & Waibel Rd
70 W.L. Gore /IMS - Blue Ball Rd & Elkton Rd


Major Wastewater Treatment Plants
in Cecil County, Maryland
N
W
E
S
Rising Sun WWTP
Cherry Hill WWTP
Meadowview WWTP
Triumph Industrial Park WWTP
Elkton WWTP
Port Deposit WWTP
North East River Advanced WWTP
Perryville WWTP
Chesapeake City WWTP (north side)
Harborview WWTP
Elk Neck State Park WWTP
Cecilton WWTP
RIDGE RD
NEW BRIDGE RD
BELL MANOR RD
RAGAN RD
LIBERTY GROVE RD
COLORA RD
FIRETOWER RD
HOPEWELL RD
WILSON RD
SMITH RD
POST RD
CROTHERS RD
MCGRADY RD
THEODORE RD
BELVIDERE RD
JACOB TOME MEMORIAL HWY
PULASKI HWY
CHANDLEE RD
LOMBARD RD
BLAKE RD
TELEGRAPH RD
NORTH EAST RD
HILLTOP RD
TAWES DR
APPLETON RD
LEEDS RD
RAIL LN
195 SB HWY
195 NB HWY
LUMS RD
ZEITLER RD
REDTOAD RD
W PULASKI HWY
FRENCHTOWN RD
WILLIAMS RD
WOODS RD
TURKEY POINT RD
OLD ELK NECK RD
OLDFIELD POINT RD
TOWN POINT RD
CAYOTS CORNER RD
MIDDLE NECK RD
OLD TELEGRAPH RD
BOYER RD
PINEWOOD RD
GLEBE RD
MILL LN
POND NECK RD
SANDY BOTTOM RD
WARDS HILL RD
GROVE NECK RD
KNIGHT ISLAND RD
Major Wastewater Treatment Plants
0
3
6 Miles
June 15, 2018