Town of Frederica
Comprehensive Plan Update 2015

draft **JULY 2015**

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TOWN, COUNTY, AND STATE OFFICIALS

TOWN OF FREDERICA

Mayor and Council	William Glanden, Mayor
	Amanda Hudson
	Jesus Davilla
	Peter Rager
	Virginia Simpler
Planning and Zoning Commission	Virginia Cole
	Fay Glanden
	Phil Green
	Mandy Slody
	Andrea Johnson

KENT COUNTY

Levy Court Commissioners	P. Brooks Banta, President, 1st District
	Bradley S. Eaby, Vice President, 2nd District
	Allan F. Angel, 3rd District
	Eric L. Buckson, 4th District
	George Jody Sweeney, 5th District
	Glen M. Howell, 6th District
	Terry L. Pepper, At-Large
County Administrator	Michael J. Petit de Mange, AICP
Director of Planning Services	Sarah E. Keifer, AICP

STATE OF DELAWARE

Governor	Jack A. Markell
Senate	Colin R. J. Bonini, Senator, 16th District
House of Representatives	Harold J. Peterman, Representative, 33rd District
Office of State Planning	Constance C. Holland, AICP, Director

COMPREHENSIVE PLANNING

2014 COMPREHENSIVE PLANNING TEAM

The 2014 Comprehensive Plan Update is being facilitated by the Town of Frederica Planning and Zoning Commission with technical and administrative assistance from the Town's planning consultant AECOM, formally URS.

Town officials and staff extend their sincere gratitude to the Office of State Planning Coordination for their assistance on updating the population and demographic sections per the 2010 US Census, as well as their assistance with agency coordination and community outreach. The Town also offers a special thanks to the Delaware Coastal Programs and the Division of Energy and Climate of DNREC for their extensive knowledge share and technical assistance on addressing sea level rise and coastal storm issues related to climate change, and integrating adaptation strategies into the Plan.

The Sea Level Rise component of this Update was made possible through grants funded by the Coastal Management Assistance Grant administered by the Coastal Program.

2004 COMPREHENSIVE PLANNING TEAM

The 2004 Plan was prepared by the Institute for Public Administration (IPA), a unit within the College of Human Services, Education & Public Policy at the University of Delaware. IPA coordinated the planning process with the Town Comprehensive Plan Committee and the Town Council. The Office of State Planning Coordination also provided guidance in developing the Plan.

COMPREHENSIVE PLAN AMENDMENTS

The 2004 Comprehensive Plan was amended three times; in 2005, 2007, and 2009. The 2005 Amendment were the result of refinement of the Town's growth-management strategy as well as changes and corrections of existing land uses occurring since plan adoption. The purpose of the 2007 amendment was to expand the annexation boundary to include a 340-acre annexation proposal, known as the Northwest Annexation Area (NWAA), and to provide a framework with recommendations to accommodate the growth. The 2009 Plan Amendment evaluated the Town's priorities and provided an action program of implementation by providing specific guidance to systematically carry-out the recommendations of the 2004 Plan. The planning process for these documents incorporated a public outreach process to varying extents, including public opinion questionnaires, open houses and community workshops, all designed to disseminate information, collect public feedback, and integrate public comment into the Plan's goals and recommendations

COMPREHENSIVE DEVELOPMENT PLAN
FREDERICA, DELAWARE
January 2015 – *DRAFT*

INTRODUCTION

The Town of Frederica Comprehensive Development Plan is Frederica's authoritative statement of land use policy. This plan brings Frederica into compliance with Title 22, § 702 of the Delaware Code, which requires all municipalities to prepare comprehensive plans to direct land use. This Plan complies with the State requirements for a town with population of less than 2,000 people.

The Plan is a legal document serving as a foundation for Frederica's land use decisions and annexation policy. It also serves as a consolidated reference guide, containing demographic, economic, environmental, and historical information about Frederica.

The Plan Update generally follows the format of the 2004 Plan and expands on each section. It is divided into three main chapters: 1) Background 2) Municipal Development Strategy and 3) Implementation.

CHAPTER 1: BACKGROUND provides information on the planning process, a history and overview of the community, the public participation process, and the overall position, vision, and goals on growth and development.

CHAPTER 2: MUNICIPAL DEVELOPMENT STRATEGY first provides an overview of the Town's demographics and housing, and projects future housing and population growth along with a build-out analysis. This Chapter sets forth a background of each issue, followed by goals and objective statements, and specific recommendations. The Chapter also serves to define the community's strategy and desires for future land use, expansion through annexations and provisions for utilities, community facilities, services, transportation and environmental protection, among others.

CHAPTER 3: IMPLEMENTATION provides a work plan that summarizes recommendations and provides timeframes for implementing the plan.

CHAPTER 1. BACKGROUND

1-1. THE AUTHORITY TO PLAN

Delaware law requires municipalities to engage in comprehensive planning to encourage "the most appropriate uses of the physical and fiscal resources of the municipality and the coordination of municipal growth, development, and infrastructure investment actions with those of other municipalities, counties and the state…"

The municipal comprehensive plan for small communities (such as Frederica) with fewer than 2,000 people is to be a "document in text and maps, containing at a minimum, a municipal development strategy setting forth the jurisdiction's position on population and housing growth within the municipality, expansion of its boundaries, development of adjacent areas, redevelopment potential, community character, and the general uses of land within the community, and critical community development

and infrastructure issues." In addition, the Town's comprehensive planning process must demonstrate coordination with other municipalities, the county, and the state during plan preparation. (22 Del.C. 1953, § 702; 49 Del. Laws, c. 415, § 1.)

State law requires that planning be an ongoing process and that municipalities identify future planning activities. This document is Frederica's Municipal Comprehensive Development Plan as required by state law. It is intended to cover a ten-year planning period and be reviewed at least every five years.

1-2. Overview of the Community

The Town of Frederica is located in Kent County, Delaware, southeast of Dover on the banks of the Murderkill River near Andrews Lake and Killen's Pond State Park, and covers a total area of about 1,098 acres.

The Town of Frederica is part of a grant of land originally deeded to Mr. Boneny Bishop by William Penn in 1681 and designated on survivors' records as St. Collom. The bend on the Murderkill River that later became the port was first called Indian Point. As its importance to the early settlers grew, it came to be referred to as Johnny Cake Landing. A detailed survey of the waterfront was conducted in 1758, and the plot where most of the shipping activity occurred was named Goforth's Landing. This parcel provided a nucleus around which the rest of the Town was surveyed and laid out in lots by Jonathan Emerson in 1772. In 1796, one of his daughters, who was concerned that a town located so close to Barratt's Chapel, even then recognized as an historical Methodist landmark, bore the rather informal name of Johnny Cake Landing, proposed that it be renamed Frederica Landing. This name stuck, and the Town of Frederica was formally incorporated as such by an act of the state legislature in 1826. In 1855, the 1826 incorporation act was repealed. However, the section delineating the Town's boundaries was retained. Ten years later, in 1865, the Town of Frederica was reincorporated. At this time, Frederica's population was slightly fewer than 600 people. Almost 100 years later, in 1950, the Town was again reincorporated. Between reincorporation's, Frederica's population grew by nearly 100 people.

Like several other Kent County river towns, the Town of Frederica was located on the first relatively firm land to be found inland along the banks of Murderkill River, at a point where it was still navigable. This is approximately six miles from the Delaware Bay shore, where at that time it was surrounded by fertile fields and dense stands of pine, white oak, spruce, and walnut trees. The Town's location among wetlands leads to the nickname "Frogtown" because of the large number of frogs that made the area their home. The nickname has stuck into the present day and is depicted on the trucks of the Frederica Volunteer Fire Company. These geographic factors gave rise to the shipping and shipbuilding activities that dominated the Town's economy. Another factor was the proximity of the dynamic and prosperous city of Philadelphia and the ease with which ships and boats could reach its wharves and docks at a time when roads were often impassable. For decades, Frederica's fortunes would be as firmly linked to Philadelphia as they were to the other towns of Kent County because of the convenient water route between them.

The early settlers were not slow to capitalize on these opportunities. The most important cargos shipped on the Murderkill in colonial times comprised of bacon, beef, corn, wheat flour, cedar shingles, cheese, butter, tar, pitch and hardwood boards.

The Town of Frederica's port prosperity diminished slightly in 1857, when the railroad took over the transport of lumber and bark. The railroads brought efficient overland transportation to Kent County, which resulted in an increasingly larger share of grain, produce,

and bulk-fertilizer business being diverted away from river shipping. The improvement of the county road system worked more to the advantage of the railroads than it did to the ports, particularly when the trains could offer refrigerated transportation in insulated cars with ice bunkers. The Town of Frederica's shipping interests had fought hard to prevent the Delaware Railroad from passing near the Town, with the result that growth was halted and the community became even more isolated from neighboring towns. Once they realized their mistake, the citizens of Frederica launched a major campaign to get a railroad connection, at one time even going so far as to charter a line that would connect Dover directly to Milford by a route that passed through the Town. This never came to pass, sharing the fate of another scheme to connect the Town of Frederica to Felton by a seven-mile-long branch. After 40 years of futile efforts, the Town gave up on the railroad. Currently, the nearest railroad stations are in Felton (approximately six miles west), Milford (approximately seven miles south), and Dover (approximately ten miles north).

In about 1890, the last shipyard closed, but important sources of profit and employment could be found in other industries. By 1887, Frederica had three canneries, including the Reynolds' and Postle's tomato cannery, at that time the largest in the United States. Other businesses included Rodgers and Son fertilizer manufacturing, the Lewis hat factory, two brush factories, a cooper, a butcher, a hotel, a clothing house, and ten general stores. The steamship service of Frederica, owned and managed by the Frederica and Philadelphia Navigation Company, provided transport at a price and speed competitive with the railroad, allowing the Town to hold into its Philadelphia markets well into the 20th century.

With the onset of the Great Depression, the steamer found its prospects for the future diminished. The improvement of U.S. Route 113 in the mid-1920s had resulted in the construction of a causeway across the Murderkill at Barratt's Chapel, which effectively cut the Town off from the bay. The improvement of local roads meant that the citizens of Frederica could get to Harrington, Dover, and Wilmington more easily and were not so dependent on their connection with Philadelphia. Business for the steamer fell off, with the railroads getting the last of the produce shipments. Shortly afterwards, the railroad was supplanted by heavy highway trucks. Maritime activity fell off until it consisted only of some small-scale oyster and sturgeon fishing, which has now disappeared.

Today the port is quiet, the canneries are closed, and so are many of the formerly thriving businesses. Auto and truck traffic on the Coleman DuPont Highway and U.S. Route 113 bypass the Town, carrying the passengers and freight that would have once been transported by Frederica ships. Protected from change brought about in other parts of the county, first by rail, then by highway transport, Frederica offers a rare look at one of Kent County's earliest water based economies.

1-3. Local Government

The Town of Frederica has its own government structure and provides water and police services to its residents, as well as issuing its own building permits. These services are financed with taxes and user fees. Volunteers, such as the fire department personnel, and the county, state, and federal levels of government provide the remaining services to the citizens.

1-3.1. Town Council

The Town Council meets on the first and third Wednesday of every month in the Town Hall, currently located at 2 West David Street. A mayor and four council members are elected and serve two-year terms with no term limit.

1-3.2. EMPLOYEES

The Town of Frederica currently has four employees. Figure 2 lists each employee and the number of hours worked per week.

Figure 1. Town of Frederica Employees

Job Title	Hours per Week
Town Clerk / Treasurer (2)	24
Police Officer (2)	40
Water Technician / Maintenance	35
Code Enforcement	20

1-3.3. TOWN CHARTER

Frederica's town charter was originally adopted in 1949, and the last known revision was in 2007 (144th Assembly). It is very important that the Town charter be kept up-to-date, especially when dealing with annexation.

1-3.4. LAND USE PLANNING & REGULATION PROCESS

The Town Council and the Planning and Zoning Commission collectively administer the land use planning and regulation process in Frederica. The Town Council is a five-member body that includes the mayor. The Planning and Zoning Commission is a five-person group with a chair, and the Comprehensive Plan Committee is a five-member group that includes the mayor.

The Town's first comprehensive plan was completed in 1988, and then most recently in 2004, which was amended in 2005, 2007, and 2009. The document addresses community goals, existing demographic and environmental conditions in the Town, and future growth projections among other information.

LAND DEVELOPMENT ORDINANCE: The Town has a land development ordinance and zoning map which was prepared in 2005, and most recently amended in 2011. The land development ordinance ensures the soundness of future land use planning and regulation in Frederica by delineating where certain land uses can take place within the Town and how properties should be prepared for specific development and land uses.

COORDINATION: The Town currently coordinates with Kent County for sewer, stormwater management, and building permit approvals and inspections. The Town also coordinates with state agencies to ensure common land use and future growth policies through the Office of State Planning Coordination's PLUS review process for development applications and planning document updates. More specific coordination initiatives are summarized in Chapter 3.

ANNEXATION PROCESS: All annexations are required by state law to be consistent with an adopted Comprehensive Plan, follow a multi-jurisdictional public process, and be zoned at the time of annexation. Annexation approval procedures include Municipal Plan of Services for the parcel to ensure adequate provision of all needed public services, which is reviewed by the Office of State Planning Coordination and Kent County for compliance with state and county land use policies and plans.

CODE ENFORCEMENT: Kent County has the responsibility for building inspections within the Town of Frederica. Currently, the county utilizes International Code Council (2012). The Town also adopted the International Property Maintenance Code (2012). The Town continues to coordinate with Kent County's Division of Inspections and Enforcements to ensure that adequate inspections are conducted in town.

PROGRESS REPORTS: State law requires that municipalities annually provide the Office of State Planning Coordination with a report by July 1 that describes the implementation of their comprehensive plan and identifies development issues and trends since the plan was adopted.

1-4. Public Participation

The Town of Frederica has and continues to employ an extensive public participation process in its comprehensive planning endeavors. The drafting of the 2004 Comprehensive Plan and associated Amendments utilized a public opinion questionnaire and work sessions to integrate citizen feedback into the planning process and to identify overall community vision and goals. The key findings are provided in the 2004 Comprehensive Plan and subsequent Amendments.

This public participation process for this 2014 Plan Update sought to re-evaluate, affirm and prioritize the 2004 issues, vision, and goals, and then garner support on the implementation objectives and strategies aimed to support these goals.

In this 2014 Plan Update, the Comprehensive Planning Team conducted a similar, multi-faceted outreach strategy. The team administered a public-opinion questionnaire, a community workshop, and multiple Planning Commission Special Meetings. Two Special Meetings geared towards specific topics and agency coordination; being Sea Level Rise with DNREC and Transportation with DelDOT. In addition, the issues and alternatives raised in this planning process were thoroughly evaluated and discussed at many Planning and Zoning Commission and Town Council meetings, where attendees were provided an opportunity to ask questions and present concerns. Also, a public hearing was held on [Date].

Community Questionnaire:

In May 2014, the Comprehensive Planning Team administered a community questionnaire, which was designed to help prioritize community issues, goals and strategies related to future growth and development in and around the Town of Frederica. See Appendix A- Frederica Comprehensive Plan Community Questionnaire. The questionnaire results offer a glimpse of public opinion on issues that currently impact, and will likely continue to impact, life in Frederica. The questionnaires were mailed out to all household, and 57 were returned, which is a respectable 22% return rate. The majority of respondents, 88%, owned property in Frederica- 90% of whom use the property as their primary residence. Only 5% of the respondents work within the Frederica town limits, and 5% are retired.

Public Opinion Workshop:

The purpose of the Public Opinion Workshop was to reveal the results of the community questionnaire, inform residents of the comprehensive plan process, and to elicit public opinion on numerous issues integral to the drafting of the Plan. It also provided a chance for citizens, interest, and State government agencies groups to provide additional guidance and feedback. The results of these two activities have been summarized below and integrated throughout the Plan.

1-4.1. *Summary of Key Findings*

Community Features

Items ranked as important community features included neighborhood shopping and having community features such as a community center, library, or farmers market, nearby.

Housing

A majority of respondents felt there were not enough single-family homes on large or more modest-sized lots within town. A majority of respondents felt there were far too many large, older homes that had been converted to apartments and more than enough manufactured homes within town.

Services

Crime and safety, shopping opportunities, and property maintenance were identified by respondents as issues of high importance within the Town.

There was general agreement among respondents that there is not adequate public

transportation linking Frederica to larger towns in the area. In addition, it was mentioned that there is too much summer traffic and year-round truck traffic within the Town.

Respondents were generally most satisfied with firefighting services, trash removal, emergency management, and sewer service.

Land Use

The most desirable future land use parcels within the current town boundaries uses were public places (such as a community center, library or farmers market), Parks, Commercial uses, and Agricultural uses. The least desirable future land use was industrial. Respondents generally favored local-commercial and highway-commercial uses over warehousing, construction storage, and heavy manufacturing uses.

The most important potential new facilities to respondents, in order, were a town park and active recreation, a community center, new opportunities for shopping, more businesses and jobs in town, and housing and facilities for senior citizens.

When how vacant and agricultural land just outside of Town boundaries should be managed in the community questionnaire, a majority of respondents preferred balancing development with farmland and open space, preserving the small town atmosphere, and linking roads and sidewalks in new developments to town.

1-5. Vision & Position on Growth

The Town of Frederica desires economic redevelopment within the Town historic core as well as extension of town boundaries through annexation and housing growth that is phased, balanced, and well planned. The Town would like new development on large parcels within current town boundaries as well as the annexation area that implements the visions, goals and recommendations provided throughout this Plan. New development will mesh with the Town's existing community character and will be an adequate tax base to provide sufficient services to residents.

The Town will also focus redevelopment towards the historic core and promote compatible infill on vacant and underutilized properties in town. The redevelopment process will aim to stimulate growth, attract developers, and promote the Town's geographical, historical and environmental assets. The Town's redevelopment strategies focus on the Town center and waterfront area, and includes strategies for historic preservation and adaptive reuse, environmental clean-up and protection of natural resources, creation of a community park, and promotion of place-making urban design principles for a compact, walkable environment.

Developing in accordance with the development strategies herein and the Town's Land Development Ordinance will assist to ensure connectivity and extension of town, preservation of environmental resources and open space, and creation of a healthy, vibrant, and attractive downtown. Working towards achieving this position and vision, the Town developed community character, housing, redevelopment, infrastructure, and environmental protection goals and strategies.

1-6. GOALS & OBJECTIVES

GOAL: Maintain and ensure Frederica's small-town historic character and traditions.

OBJECTIVE: Maintain the amenities of the residential environment while maintaining and establishing land uses that are conducive to preserving the character of the Town.

GOAL: Provide affordable, quality, and safe housing for all residents.

OBJECTIVE: Rehabilitate or replace substandard housing and preserve historic buildings.

GOAL: Ensure development that maximizes the use of land while minimizing the costs.

OBJECTIVE: Promote development within designated areas that is capable of being served by the existing infrastructures and services.

GOAL: Maintain and ensure a decent quality of life for present and future residents.

OBJECTIVE: Resolve existing problems in preparation for the projected growth of population and housing.

GOAL: Provide adequate and suitable open space and facilities for recreational purposes.

OBJECTIVE: Create open space and/or recreational facilities in designated areas for present and future residents.

GOAL: Protect wetlands, floodplains, ground water, and other natural environments.

OBJECTIVE: Promote private and public efforts towards conservation and maintenance of the natural environment.

GOAL: Reduce vulnerability to natural hazards, particularly flooding and sea level rise.

OBJECTIVE: Balance land use and economic development goals with Sea Level Rise adaptation strategies.

CHAPTER 2. MUNICIPAL DEVELOPMENT STRATEGY

2-1. DEMOGRAPHICS, FUTURE POPULATION, & HOUSING GROWTH

The following section offers a demographic profile of the Town of Frederica. Most of the data from this section has been drawn from the U.S. Census. It should be noted that there is some surveying error in these figures, so the data should not be taken as an absolute measure of the demographic conditions within the Town.

2-1.1. POPULATION

According to the U.S. Census 2010, the Town of Frederica had a population of 774 residents in 2010. This is a notable 13% increase from the 2000 census population of 648, following a long period of population decline. During the same time period, Kent County's population increased 23% and the State of Delaware's population increased 11%. **Figure 1** depicts the population trends for the Town of Frederica for most of the past century. **Figure 2** depicts population trends for Kent County and the State of Delaware over the same time span.

Figure 1: Town of Frederica Population Trends (1940-2010)

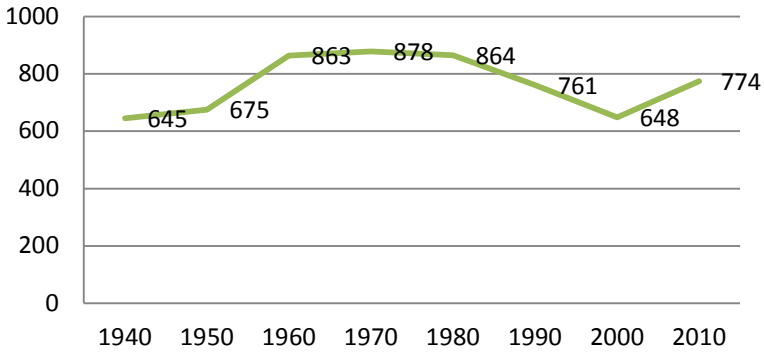
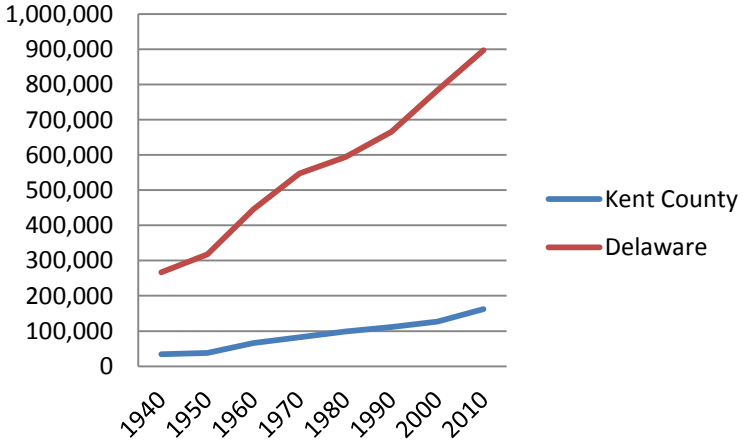


Figure 2: Kent County and Delaware Population Trends (1940-2010)



2-1.2. POPULATION PROJECTIONS

Frederica's growth policies are aligned with State and County growth policies and initiatives, which direct development toward Frederica and the surrounding area, since infrastructure to support growth is either already in place or can be relatively easily provided for. See Section 2.3 herein. Given these policies, its strategic location on Delaware State Route 1 and Route 12, and its proximity to Dover and the Delaware Beaches, the Town is well-positioned for growth. Growth management planning for Frederica and the surrounding area should be based on population projections that are consistent with the Town's designated and accepted role as a growth center with reasonable expectations that adequate development infrastructure to support Town growth can be provided and will ultimately be in place.

Projections for populations as small as Frederica are very difficult to prepare accurately. The small size of the population makes it likely that slight inaccuracies or data errors in the current U.S. Census figures can become very large errors when projected into the future. Further, the annexation or subdivision of a large parcel for a residential development would significantly increase the number of homes in town. These

projections should not be considered accurate or binding and should be relied upon with caution. Due in part to the uncertainties which may result from the exclusive use of any one single population projection, as well as the uncertainties involved in projecting future population levels in general, several population projections were prepared for the Town of Frederica. Town population projections were prepared to the year 2030 by using three different methods representing alternative scenarios. These projections were numerically graphed and the data points for each five-year increment are provided in Figure 3. Each estimate provides varying results that have been summarized in an average projected population of 1,000 persons by the year 2030.

Average Historical Growth Rate

The Average Historical Growth Rate for projecting growth uses the mean growth rate over a eighty year period from 1930 to 2010, which equates to 4.4%. Applying this rate of growth to each year until 2030, Frederica's population will have increased by 144 persons, totaling 918 persons. This projection methodology assumes a steady growth rate and that the Town will experience similar trends experienced since 1930.

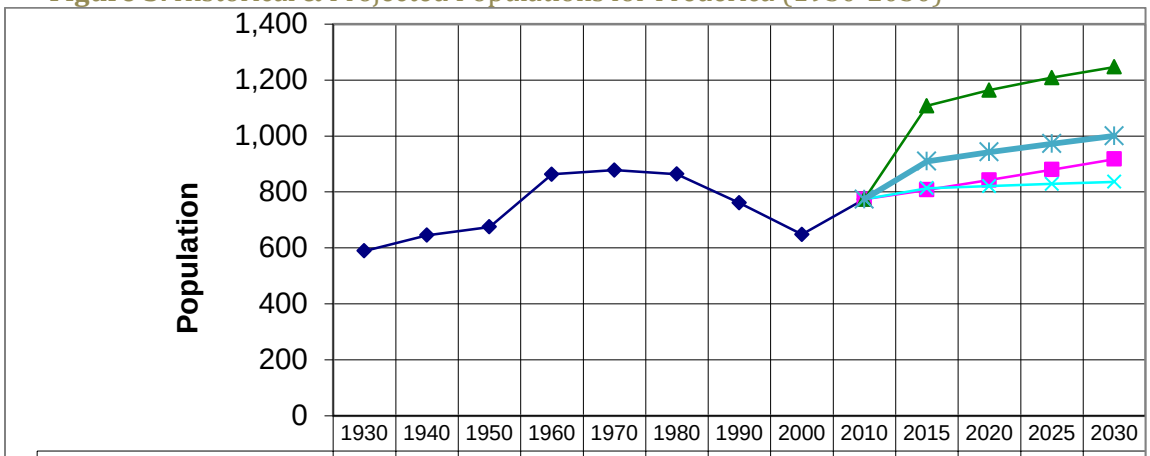
Ratio-Share

A ratio is established between the Town and County's population. Through maintaining the Town's proportional relationship to the County from the 1970-2010 Census, which averages at 0.64%, the population projection of Frederica in 2030 is 1,247 persons. The County population projections were obtained from the Delaware Population Consortium. This projection methodology assumes that the Town's growth rate is proportional to the County's, and that both the Town and County will experience a steady growth rate and similar trends experienced since 1970.

Linear Regression

A linear regression method was used to project forward the existing trend line for growth within the municipality since 1930. Linear regression attempts to model the relationship between two variables, X (time) and Y (population) by fitting a linear equation to observed population data for the last 84 years. Using the linear regression line equation of Y=a+bX, the projected population by 2030 is 836. This projection methodology assumes that the strong correlation between time and population experienced since 1930 will continue.

Figure 3. Historical & Projected Populations for Frederica (1930-2030)



	1930	1940	1950	1960	1970	1980	1990	2000	2010	2015	2020	2025	2030
Historical	589	645	675	863	878	864	761	648	774				
Average Historical Rate									774	808	843	880	918
County Ratio-Share									774	1,108	1,164	1,209	1,247
Linear Regression									774	813	821	829	836
Mean									774	910	943	972	1,000

Source: 1970-2010, U.S. Census Bureau. 2010-2030, Delaware Population Consortium, Population Projection Series October 31, 2013.

Based on the three alternative population projections derived from use of various assumptions, a mean projection, utilizing all three projections, is shown in **Figure 3 and Table 1**. This mean population projection is used throughout the Comprehensive Plan in evaluating projected impacts of growth on the Town. Using Frederica's average household size of 2.74 from the U.S. Census 2010, it can be estimated that there will be a need for approximately 64 new houses by 2020 and 85 houses by 2030, if the mean projection is realized. The lowest population projection (average historical rate) predicts the need for approximately 28 new houses by 2020 and 55 new houses by 2030. The highest population projection (county ratio-share) predicts the need for approximately 455 new houses by 2030.

Table 1. Selected Population Projections for Frederica

Year	2010	2015	2020	2025	2030
Population	774	910	943	972	1,000
Households	282	334	346	347	367

**Note: Projections assumes the number of households remains proportionate to population as population increases through the 30 year period shown.*

2-1.3. Racial Composition

According to the U.S. Census 2010, Frederica's population of 774 comprised 526 whites, 150 blacks or African Americans, 7 Asian , 1 Native Hawaiian and Other Pacific Islander, 50 other, and 40 of two or more races. **Table 2** lists the racial distribution for Frederica, Kent County, and the State of Delaware. Frederica's racial distribution is very similar to those found at the county and state levels. Whites represent a about the same percentage (68%) of the Town's population as that of the state (69%) and county (68%).

Table 2. Racial Composition in 2010

Race	Frederica		Kent County		Delaware	
	Num	Percent	Number	Percent	Number	Percent
White	526	68	109,999	68	618,617	69
Black or African American	150	19.4	38,913	24	191,814	21.3
American Indian and Alaskan Native	0	0	1,043	0.6	4,181	0.5
Asian	7	0.9	3,306	2	28,549	3.2
Other	50	6.5	3,235	2	34,519	3.8
Native Hawaiian and Other Pacific	1	0	91	0	400	0
Two or more races	40	5.2	5,723	3.4	23,854	2.7
Total	774	100	162,310	100	897,934	100

Source: U.S. Census 2010.

2-1.3.1. Persons of Hispanic Origin and Change from 200 to 2010

According to the U.S. Census 2010 persons of Hispanic origin represented about 13% of Frederica's population. This percentage is slightly more than the state's Hispanic population, (8%) and more than double that of Kent County. The census indicated that the Hispanic population had grown at the state and county levels, and the Town's Hispanic population increased from 21 in 2000 to 98 in 2010. However, it should be noted that persons of Hispanic origin are a group that have traditionally experienced census undercount. The U.S. Census 2010 reported that about 2.9% of Frederica's population spoke English less than "very well." This percentage is

slightly less than the 3.5% of persons who reported to speak English less than "very well" at the county level and less than the statewide figure of about 4.6%.

2-1.4. General Demographic Characteristics

Table 3 notes general demographic characteristics for the State of Delaware, Kent County, and the Town of Frederica as reported by the U.S. Census 2000. A summary of the relevant findings immediately follows this table.

Table 3. Profile of General Demographic Characteristics: Delaware, Kent County, and Frederica

	Delaware	Kent County	Frederica
Total Population	897,934	162,310	774
Age:			
19 years and under	26.4%	28.6%	25.1%
65 years and older	14%	13%	8.1%
Median Age (years)	38.3	36.1	30.8
Households:			
Total Households	331,639	57,396	282
Households with individuals under 18 years	32.6%	35.9%	35.9%
Households with one or more people 65 and over	25.7%	25.0%	20.1%
Households with no vehicle available	6.8%	6.5%	8.1%
Single parent households	18.2%	19.4%	21.6%
Average household size (number of people)	2.58	2.67	2.74
Housing Units:			
Total Housing Units	398,866	63,653	315
Renter Occupied Units	26.4%	27.1%	26.4%
Vacant housing units	16.9%	9.7%	13.3%
Units built before 1969	37.2%	26.5%	67.6%
Units built before 1949	14.9%	10.1%	46.3%
Median Housing Value for owner-occupied units	$242,300	$207,500	$153,500
Median Gross Rent	$938	$916	$985
Income:			
Median Household Income	$57,599	$53,183	$41,458
Individuals below poverty level	7.4%	9.3%	18.3%
Individuals 65 and older below the poverty level	7.3%	7.7%	14.8%
Selected Characteristics:			
Population high school graduate or higher	87%	84.9%	73.0%
Population 25 and over with bachelor's degree or higher	27.7%	20.0%	11.6%
Population 18 and over with a disability*	44.3	47.2	47.1
Population 18 and over Civilian Veteran	11.6%	15.4%	16.5%
Population 16 and over in labor force	64.9%	64.2%	66.9%
Population 5 years and over who speak English less than "very well"	4.6%	3.5%	2.9%

*Source: U.S. Census 2010. *2012 American Community Survey*

2-1.6. AGE OF POPULATION

The median age of Frederica's residents (30.8) is notably less than the median age of Delaware residents (38) and Kent County residents (36.1).

More specifically, residents aged 19 years or younger and residents 65years and older comprise a slightly lower percentage of Frederica's population than they do at either the state or county level. About 25% of Frederica's population was 19 years or younger in 2010 compared to about 26% in the State of Delaware and 29% in Kent County. Similarly, 8% of Frederica's residents were 65 years or older, compared to about 14% in the state and 13% in Kent County.

2-1.7. HOUSEHOLDS

The profile of households in Frederica reveals the presence of a varied residential population. The average household size of 2.76 in Frederica is higher than the average household size at either the state (2.58) or county (2.67) level. However, a lower percentage of householders with one or more people 65 and over live in Frederica. About 20% of householders in Frederica are age 65 or older compared to about 25% at the county level and 25% statewide. About 47% of Frederica's residents age 18 or older have a disability; that percentage is about 47% in Kent County and about 44% statewide. Also, a slightly higher percentage of single-parent households were reported in Frederica than are found in the county or state. Finally, a slightly higher percentage of residents in Frederica have no vehicles available to them than residents in the state and county. Eight percent of Frederica's residents do not have a vehicle available, while about 6.5% in the county and state do not have vehicles.

2-1.8. HOUSING UNITS

The U.S. Census 2010 reported a increase in the number of housing units in Frederica by 16% from 266 in 2000 to 315 in 2010. The vast majority (75.1%) of housing in Frederica is of the single-family, detached variety. Less than 10% of housing in Frederica is multi-family, with the remaining percentage made up mostly of manufactured homes. *See Map 1 – Housing Types.*

The majority of Frederica's housing was constructed significantly earlier than that found in either Kent County or the State of Delaware. Nearly 40% of the housing in Frederica, 127 of 315 total homes, was constructed before 1939, while just over 9% of houses in the State and slightly less than 7% of houses in Kent County were built before 1939.

There is a significant population of renters in Frederica. Frederica's renter-occupancy rate of 26.4% is about the same as the 27.1% rate for Kent County and the 26.4% rate for the State of Delaware.

The median value of owner-occupied housing in the Town is significantly less than the values found at the state and county levels. In 2010, the median housing values at the state and county levels were $242,300 and $207,500, respectively. As reported by the 2010 Census, the median housing value for owner-occupied housing in Frederica was $153,500.

According to the U.S. Census 2010, nearly 87% of housing in Frederica was occupied. This is a slightly higher occupancy rate than the 83%-occupancy rate found in the state and slightly lower than the 90%-occupancy rate found in Kent County.

2-1.9. ECONOMIC & EDUCATIONAL CHARACTERISTICS

According to the 2010 Census, median household income in Frederica was $41,458. This was significantly less than both the median household income in Kent County ($53,183) and the median household income in the State ($57,599). A larger percentage of Frederica's residents live below the poverty level than do residents at the county or state level. Approximately 22% of the

Town's population lived below the poverty level, while 12.5% and 11% of Kent County's and the State of Delaware's population, respectively, lived below the poverty level.

Reflective of a community with a significant retirement-age population, about 24% of Frederica's households receive social-security income, compared to about 30% in the state and Kent County. Further reflecting this retirement population is that nearly 36% of Frederica's population age 16 and older is not in the labor force. This number is about the same as the figures for both the county (32%) and state (36%). According to the U.S. Census 2000, about 25% of Frederica's residents who work are in sales and office occupations and about 9% work in production, transportation, and material moving occupations.

On average, residents of Frederica age 25 or older have less formal education than Kent County or State of Delaware residents. Approximately 73% of Frederica's residents have at least a high school diploma, and roughly 12% of Frederica's residents have a bachelor's degree or higher.

2-2. Existing Land Use

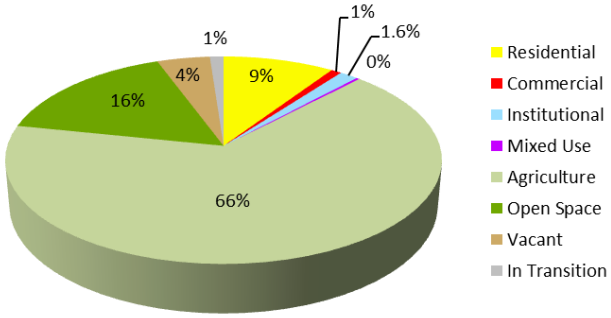
Existing land uses have been summarized into the categories: Residential, Commercial, Institutional, Mixed use, Agricultural, Open Space and Vacant. The land use is based on the primary use or activity at the time of this Plan Update preparation. Many changes in the existing land use have occurred since the 2004 Plan. ***See Table 4, Figure 4, and Map 2 - Existing Land Use.***

Table 4. Existing Land Use

Land Use	# of Parcels	Acres	% Of Total Acres
Residential	379	97	11%
Commercial	17	9.2	1%
Institutional	14	16.1	2%
Mixed Use	4	2.7	0%
Agriculture	7	680.9	62%
Open Space	11	166.2	16%
Vacant	74	46.1	5%
In Transition	91	11.9	1%
Total	**597**	**1030.3**	**100%**

**The acreage of 1,030.3 is the total area within parcels, exclusive of rights-of way and water ways. The total area within town boundaries is approximately 1,098.*

Figure 4. Existing Land Use



The Town of Frederica historically developed around the intersections of Market, Front, and David Streets. In terms of number of uses, the primary land use in Frederica's historic core and throughout the Town is residential. A few commercial uses, the Town Hall, the firehouse, and churches lie within and around the historic core. More recently, commercial and institutional uses have been constructed west of Lake Forest East Elementary School on Front Street. While representing only seven parcels, the majority of the Town's land area is utilized for agricultural purposes.

RESIDENTIAL: Residential uses represent the vast majority of land use in town—379 of 597 parcels, representing 9% of the total town acreage. Most of these uses are in the form of single-family detached homes. There is also a significant amount of manufactured housing within the

Town. There are no large apartment or townhouse complexes within the Town. However, there are a handful of single-family homes converted to multi-family dwellings.

COMMERCIAL: Commercial land use refers to property that is used for conducting business involving retail sales and services. Approximately 1% of the land area in the Town is utilized for commercial purposes. The majority of the commercial uses in town are concentrated along Market Street and along Frederica Road. Along Frederica Road are a liquor store, a pizza restaurant, and a used auto sales establishment. Further west on Front Street, near the Town border, there is a recently developed 'dollar' retail store. Property along the Murderkill River that was once used for industrial purposes as a mill is now being used in support of commercial activity.

INSTITUTIONAL: Institutional uses that provide government or community services are another major land use in the Town. Prominent community uses include three churches, the Frederica Fire Company, Town Hall, the U.S. Postal Office, and a senior center. In addition, Lake Forest East Elementary School is located on West Front Street within the Town boundary. There are also two water towers and a wastewater-pumping station within town. The total acreage for institutional use approximately 2% of the Town's total.

MIXED USE: The land use survey found there to be 4 mixed-use parcels in the Town. These involve either commercial uses with apartments above them or on the same parcel, or commercial establishments that operate out of single-family homes. Three of these uses are located along Market Street with the remaining four located further west in town.

AGRICULTURE: There are a few large agricultural uses within Frederica, comprising about **681 acres** of land (66% of the total acreage). These lands are at the eastern, northwestern and south sections of the Town. It is noted that parcels at the northwestern and south sections were annexed into the Town in 2006 and 2008 with development proposals; however there are currently no active applications for these parcels.

OPEN SPACE: This category of land use consists of lands that will likely never be developed due to natural features or legal restrictions associated with the properties. Several large, open-space parcels exist within the Town. These are largely wetlands east of Frederica Road surrounding the Murderkill River and forested areas in the north of town. There are 11 parcels totaling 166 acres categorized as open space.

VACANT: Approximately **74 vacant parcels** within the Town boundaries, representing about 46 acres of land (5% of the total town acreage). Vacant uses include parcels that are empty but developable and parcels that contain unoccupied structures.

IN TRANSITION: Approximately **91 parcels** and 12 acres of land are designated as "In transition". These parcels are vacant at the time of this plan preparation, but are part of an approved subdivision and land development plan and anticipated to be developed in the near future.

2-3. FUTURE LAND USE & ANNEXATIONS

2-3.1. PLAN CONSISTENCY

STRATEGIES FOR STATE POLICIES & SPENDING

Pursuant to Titles 9 and 22 of the Delaware Code, most decisions concerning land use are made at the local and county levels; however, the state does influence the way development occurs through its spending and management policies. The state can reduce the negative effects of unfocused growth by making carefully considered decisions about building and managing highways, water and sewer systems, and other public facilities.

On April 1, 2011, Delaware Governor Jack Markell signed Executive Order #26, approving an update

of the Strategies for State Policies and Spending, originally approved in 1999 and updated in 2004. The strategies represent of a combination of state and local land-use policies intended to guide state agencies as they make investment decisions. The following provides a general description of the State Investment Level Strategies and how they apply to Frederica. ***See Map 3 - State Investment Strategies***.

- **Levels 1 and 2** identify areas of the state that are most prepared for growth and where the state can make the most cost-effective infrastructure investment for schools, roads, and public safety. The State Strategies generally prioritize the most intense State investments within areas included in Kent County's Growth Zone and in and around municipalities, such as Frederica. These areas typically provide an opportunity for contiguous development, which should grow consistently with historic character. The state encourages new development and reinvestment in these areas.

- **Level 3** areas reflect areas where growth is anticipated by local, county, and state plans in the longer term, or areas that may have environmental sensitive features or other constraints to development. State investments will support growth in these areas; however, the state may have other priorities in the near term, especially for Levels 1 and 2. Most of the area west of Frederica and U.S. Route 1 lies within the state's Level 2 and Level 3. This area is drawn to reflect the boundaries of Kent County's Growth Zone.

- In the **Level 4** areas, the state will make investments that will help preserve a rural character, such as investments to promote open space and agriculture. The state is also looking to enhance agricultural activities by encouraging the location of complementary businesses in these areas. Most of the area east of Frederica and U.S. Route 1 lies within the state's Level 4 and "Out-of-Play" areas that are currently classified as agricultural land, tidal wetlands and wildlife areas, and that are protected through a preservation district or conservation easement.

- **Out-of-Play** lands are those that cannot be developed for reasons including they are federal- or state-owned protected lands, parkland, the development rights have been purchased, or state or local regulations prohibit development on them. Some large parcels surrounding the Murderkill River in town are "Out-of-Play" due to tidal wetlands. There are three agricultural parcels adjacent to town boundaries, one west of town and two south of town, that have had their development rights purchased in perpetuity by the state through the Farmland Preservation Program.

Kent County Comprehensive Plan & Zoning of Adjacent Areas

The portion of Frederica west of U.S. Route 1 lies within Kent County's Growth Overlay Zone, as defined by Kent County's Comprehensive Plan, adopted in October of 2008 (see *Map 4 - Adjacent Areas*). This growth zone comprises the areas within two miles of the county's wastewater pumping stations. The County's growth overlay zone is bounded on the east by State Route 1 and runs north to south from Smyrna to Milford and east to west from Felton to Frederica. This zone includes most of the municipalities in Kent County. The County would like to see growth focused in this area since the infrastructure to support such growth is in place or can be relatively easily provided for.

The vast majority of the area surrounding the Town is zoned for low-density development. The areas adjacent to Frederica's boundaries are zoned by the county for low-density development in the form of Agricultural Conservation. The majority of the land surrounding Frederica on all sides is zoned in this manner. A few parcels located to the southeast of town along U.S. Route 1 are zoned for General Business Use.

Just to the west of town and south of Johnnycake Landing Road lies a collection of parcels zoned for Single-Family Residential and Agricultural Residential uses. Just north of Johnnycake Landing Road, there are a few parcels still zoned for medium and high-density development per Kent County mapping. It is noted that these parcels are within Town Boundaries and the Town's R-5 Traditional Neighborhood Development District (TND). The Town has requested that the County update their maps and documents accordingly.

2-3.2. FUTURE LAND USE WITHIN EXISTING BOUNDARIES

The designated future land uses are delineated on *Map 5 - Future Land Use and Annexations*. Frederica's land use plan proposes a pattern that is intended to provide improved use of land within the current Town boundaries and accommodation of future growth beyond the historic core. These concepts range from the redevelopment of vacant and underutilized parcels in the Town center to the expansion of Frederica through planned traditional neighborhood developments.

RESIDENTIAL: Residential uses are predominant in the area of town that lies west of Frederica Road. Residential uses vary from single family detached to duplexes to single-family homes converted multi-family. The majority of the future land uses in town will remain residential.

Along the southwest boundary and west of Market Street, there are two large parcels in Town as well as one large parcel in the annexation area, that are intended to be residential under the Planned Unit Development (PUD) conditional use option in the Land Development Ordinance. These parcels are currently used for agricultural purposes. The PUD permits a higher density residential development while allowing design flexibility to help ensure that the lots are clustered around open space and environmental sensitive areas, with a variety of housing choices and attention to compatible architectural design. The transportation network in a PUD emphasizes road and pedestrian connectivity within and to adjacent roads and neighborhoods. Through the PUD, the Town seeks development that supports a full-range of housing types and function as neighborhoods with unified design elements and appearance. Smaller lots and narrower streets are some other characteristics of a PUD development.

TRADITIONAL NEIGHBORHOOD DEVELOPMENT (TND): A TND applies the same principles and concepts of a PUD, and further permits and promotes mixed use development including residential, commercial, civic, and open space uses in close proximity to one another in the neighborhood. The concept of a TND is that of a residential community built on an interconnected grid system of tree-lined streets with strong pedestrian orientation. TND development standards promote shallow front yards, houses with front porches instead of garages, and alleys for rear access, utilities and trash/ recycling pick-up. A TND is compact and provides a mix of housing styles to accommodate households of all ages and incomes. A TND designs houses around public spaces, has a community focal point, such as a common green, and incorporates significant environmental features into the design.

COMMERCIAL: While commercial development that is more auto-oriented and of a larger scale than typical neighborhood retail found in the historic core is a desired use in Frederica, it is recommended that larger-scale commercial development be located with close access to the highway and separate from the Town's historic and walkable core. Future commercial uses will be located south of the Murderkill River between U.S. Route 1 and Frederica Road. The annexation, commercial zoning, and a minor subdivision plan were approved in 2011 for parcels in this area. The applicants have expressed interest to develop these properties as a commercial retail center, as well annexing an additional adjacent parcel (Crews Property, MD-00-141.00-01-26.01) to expand the area.

INSTITUTIONAL: Future institutional uses within town are generally placed to correspond with existing institutional uses. Institutional uses are appropriate along the Frederica Road, Market Street, Front Street and David Street.

MIXED USE: The mixed-use sites scattered throughout town are also meant to represent the presence of existing mixed uses. It is noted that traditional neighborhood developments and the Town center promote mixed use development.

AGRICULTURAL: Future agricultural uses will be situated on the two parcels lying east of Rt. 1.

OPEN SPACE: It is recommended that open space uses be located near the wetland regions surrounding the Murderkill River, surrounding Frederica Road as it enters the Town from the north, to the west of the school, and to the west of Frederica Road at the southern edge of town.

TOWN CENTER: A pedestrian-oriented town center is envisioned around the intersections of Frederica Road, Market, Front, and David Streets. The Town Center will serve as the community focal point of Frederica by providing central access to a variety of mixed-uses, containing residences, retail, and civic and public spaces. The scale and character of new development and adaptive reuse of existing development in this area will emulate and extend the historic district, will help stimulate an active and thriving downtown, and will reconnect residents and visitors to the Murderkill River. A more detailed discussion on town center and waterfront redevelopment is provided in ***Section 2-8 Redevelopment and Section 2-9 Sea Level Rise Vulnerabilities and Adaptation.***

2-3.3. PROPOSED ANNEXATIONS

The Town has labeled two types of areas on its growth plan—Short-Term Growth Areas and Areas of Concern. The Short-Term Growth Areas are parcels that the Town wants to annex within the next five years. Areas of Concern are lands about which the Town would like to have some degree of input or control on land use and development activity because of the impact that may incur within the boundaries of Frederica. These areas may also be potential candidates for future annexation. The Town would like to be informed by Kent County of proposed development activity and will agree to reciprocate and inform the county of any proposals brought to the Town for consideration.

Frederica would like to annex land to implement the visions, goals and recommendations provided throughout this Plan relevant to design, density, environmental protection, among others. Annexation will help to ensure that the land uses in adjacent areas mesh with the Town's existing community character and that there will be an adequate tax base to provide sufficient services to residents. It is the goal of the Town to see that this land is developed efficiently, that open space is preserved, and that the ecology of the area is protected. That being said, the Town's initial focus after the adoption of this plan should be to develop ordinances that allow the Town to better control development both in the existing community and in any proposed annexation areas. The following section lays out areas the Town recommends for annexation. ***See Map 5 - Future Land Use and Annexations*.**

2-3.4. SHORT-TERM GROWTH AREAS

To the east, the Town would like to annex one parcel of 27.7 acres. The owner of this property owns parcels at the eastern boundary of the Town and would like to have all his property within the Town's jurisdiction. The proposed use for this parcel is open space. To the south, between Route 1 and Frederica Road, there are 12 parcels totaling 5 acres that are currently being used residentially. If annexed into to town, it is recommended that they remain residential.

In the same area, the Town would like to provide a nearby location for commercial retail uses. Towards this, the Town annexed 5 parcels in 2011 and approved a minor subdivision and record plan for commercial development. By

request of the owner, the Town plans to annex and zone the adjacent 0.9 acre parcel for commercial. It is anticipated that the parcels will be developed as a unified commercial development.

To the west of town, along Johnnycake Landing Road and Carpenters Bridge Road, the Town would like to annex 12 parcels, totaling 10.6 acres that are being used residentially. It is recommended that they remain single-family residential. The Town plans to annex the large parcel due south of these residential parcels and adjacent to the Town's western boundary. This property, referred to as "Sandbox", is 85 acres, and is recommended to be residential under the Planned Unit Development (PUD) conditional use option. This parcel is used for agricultural purposes. Access to this parcel is currently via a farm road from Carpenter Bridge Road that could potentially connect to future development in the south section of town and extended to Market Street. **Table 5** depicts Frederica's proposed future land use, number of parcels, and acreage in the annexation area:

Table 5. Future Land Use of Proposed Annexation Area

Land Use	# of Parcels	Acres
Single Family Residential	24	15.6
Planned Unit Development	1	85.0
Commercial	1	0.9
Open Space	1	27.7
Total	**27**	**129.2**

This total of 27 parcels makes up approximately 129.2 acres. The Town currently consists of about 1,098 acres and would grow to approximately 1,227 acres if the Town were to annex all of the proposed area.

2-3.5. Areas of Concern

The Town has identified a total of 16 parcels as Areas of Concern. Six parcels are adjacent to the north boundary of Frederica. Eight parcels are adjacent to the southern boundary of town along Frederica Road and form a contiguous area east of the Murderkill River.

2-3.6. Build-out Analysis

2-3.6.1. Capacity in Town Boundary

The total number of parcels within the Town's boundary that are classified as "in transition" and vacant on ***Map 2 - Existing Land Use*** that have a designated future land use of residential is 148. Even if only developed at one dwelling per parcel, 148 houses could be constructed which would easily satisfy the housing demand of 85 new houses by 2030 projected by the selected population projection. The demand of 173 new houses estimated by the highest population projection would exceed the housing supply in town somewhere between 2020 and 2025- again if houses were constructed at only 1 dwelling unit per parcel. When factoring the larger vacant and agricultural parcels that could be subdivided and that are forecasted as residential uses in the Future Land Use Plan, there is more than a sufficient amount of developable land for housing within town limits to accommodate the anticipated population growth.

With a total of 514 acres consisting of developable land that is currently vacant or agriculture with a designated future land use of residential, the number of houses could be developed is depicted in **Table 6**:

Table 6. Projected Number of New Dwellings in Town Boundary

Dwelling Units per Acre (du/ac)	# of New Dwellings
2	1,028
3	1,542
4	2,056

Note: A density of least 4 du/acre is desired to provide for the efficient provision of sewer and water systems

2-3.6.2. Build-out of Annexation Area

Assuming the single-family parcel remain single-family, and "Sandbox" is developed at 4 dwelling units per acre, the annexation and development

of these future residential land uses in the Annexation Area would result in 364 new homes in town. Using an estimated household size of 2.5 persons, it can be projected that, at full build-out, Frederica's proposed annexation area would result in an increase in population from 774 persons as reported in the 2010 census to 1,684 persons. *Refer to* ***Map 5. Future Land Use and Annexations.***

The total projected number of new homes that could be developed both in town boundary and in the annexation area is 2,420 (364 in growth area + 2,056 in town boundary). Again using an estimated household size of 2.5 persons, the total build-out of town and designated growth areas would result in an increase of 6,050 persons, and a total population of 6,824.

2-3.7. LAND USE RECOMMENDATIONS

GENERAL: The Town of Frederica's community goals should be taken into account when land use planning decisions are made and when future land use regulations are crafted. In seeking to maintain and ensure Frederica's small-town atmosphere and traditions, the Town should recognize and seek to protect the largely residential character of the community. Larger-scale commercial and/or industrial uses should be separated from residential sections of the community while encouraging the future development of new residentially scaled community commercial uses in and near the Town center. New residential developments should meet traditional neighborhood development principles by providing mix housing options, integrated open space and environmental features, connected streets and sidewalks, and neighborhood scale retail and civic uses, where applicable. These planned developments can be achieved through the Town's R-2 PUD and R-5 TND zoning districts.

PLANNED UNIT DEVELOPMENT: Encourage the PUD conditional use option for large residential properties in the R-2 district. Consider making the PUD a stand- alone zone that would remove the additional layer of review for the conditional use approval process.

TOWN CENTER: The Town should promote and market the Town Center as a center of retail and cultural activities in Frederica. Encourage development and redevelopment in the Town Center consistent with a Town Center and Waterfront Redevelopment Plan.

OPEN SPACE: In an effort to provide the Town with opportunities for recreation, parks and recreation areas could be sited on those open space areas that are not environmentally constrained by the presence of wetlands, protected riparian buffer areas, and sea level rise inundation areas.

RECLASSIFY STATE STRATEGIES: The Town should work with the state to ensure that the single family homes on South Market Street that are currently within the sea level rise inundation area, and currently classified as Level 1, be reclassified to reflect the flood hazard risks of this area.

DEVELOPMENT IN SURROUNDING AREA: It is important that Frederica remain aware of new development proposals in areas surrounding the Town. Similarly, the County needs to be made aware of major land use actions in town such as annexations and large-scale development proposals. The Town should enter into a Memorandum of Understanding (MOU) with Kent County for reciprocal notification and coordination on land use and development activities within the area of concern.

AGRICULTURAL PRESERVATION: There is a significant amount of agricultural land surrounding Frederica. In an effort to maintain these surrounding agricultural uses, the Town should coordinate with Delaware's Department of Agriculture to publicize the Delaware Agricultural Lands Preservation Program to Frederica-area farmers.

GREENBELT: This plan recommends consultation with state and county officials in pursuit of a unified development plan for the areas adjoining Frederica. It may be possible to create a

"greenbelt" of land where development surrounding the Town would be discouraged. This policy would protect Frederica's distinct character from the suburban sprawl associated with rural development. Any "greenbelt" strategy would likely link those lands already in the state's agricultural preservation program, wetlands, and environmentally sensitive areas into a greater zone of limited development, encircling Frederica and its proposed annexation areas. The Town's Riparian Buffer Area (RBA) standard would protect and contribute to creating a greenbelt and an open space network that includes stream banks.

2-4. Utilities, Facilities & Services

2-4.1. Background

Section 2-4 involves an evaluation of the utilities, facilities, and community services of a town. These assets and services are evaluated for their adequacy and capacity to accommodate current and future growth.

2-4.1.1. Public Participation Results

The 2014 Community Questionnaire asked respondents to rate the relative desirability of certain community features within town. Along with the desire for neighborhood retail, having public facilities nearby such as a community center, library, or farmers market ranked as the most desired facility.

Respondents were also asked to identify their level of satisfaction with various services provided in Frederica- 1 being Satisfied, 2 Satisfied, 3 No Opinion, 4 Not Satisfied, and 5 Very Unsatisfied. ***See Figure 5.*** Respondents were most pleased with firefighting service in town, with the average rating of 1.6. A majority of respondents were either satisfied or very satisfied with sewer service, trash removal, snow removal, and emergency medical services, with the average rating around 2. Overall, respondents generally had no ruling opinion on the provision of stormwater management, police, street maintenance and drinking water services.

Respondents were also asked to rank the importance of various potential new facilities in town- 1 being Extremely Important, 2 Important, 3 No Opinion, 4 Not Important, and 5 Extremely Unimportant. Most of the facilities listed were identified as either important or extremely important by a majority of the respondents. The response averages are displayed in **Figure 6**.

Figure 5. Questionnaire Results – Satisfaction with Public Services

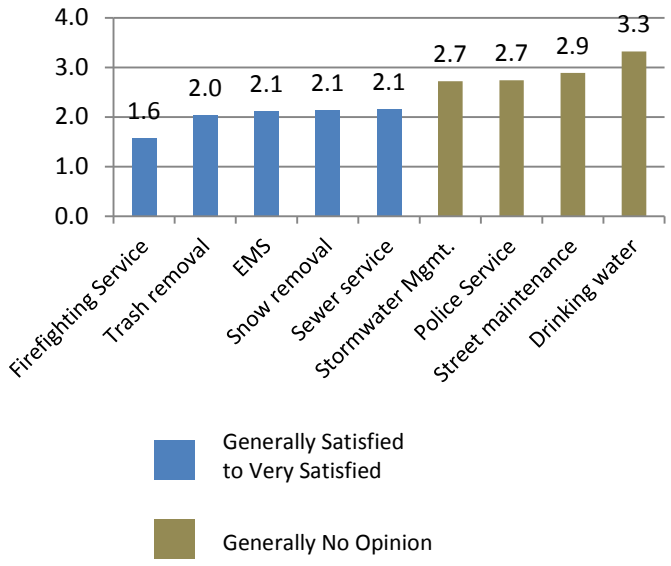
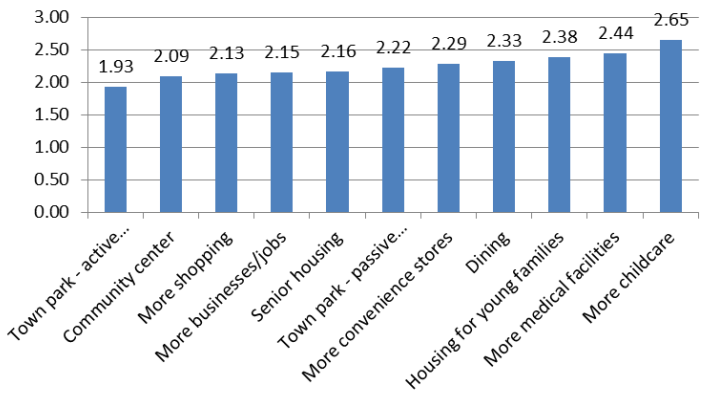


Figure 6. Questionnaire Results – Importance of New Facilities



2-4.1.2. Overall Goals for Utilities, Facilities & Services

The following community goals are relevant to the provision of utilities, facilities and services:

Goal: Ensure development that maximizes the use of land while minimizing the costs to the Town and environmental impacts.

Objective: Provide adequate and suitable utilities, facilities, and services that meet the needs of current residents, and have a sustainable plan to meet increased demand associated with future proposed development.

Objective: Promote development within designated areas that is can be served by existing infrastructure and services.

Objective: Stormwater management practices should strive to manage stormwater runoff in the most efficient and effective manner while respecting natural features, source water protection areas, and watershed quality.

Goal: Provide adequate and suitable open space and facilities for recreational purposes.

Objective: Create open space and/or recreational facilities in designated areas for present and future residents.

2-4.2. Utilities: Background, Issues & Opportunities

Utilities include services such as water, sewer, electricity, cable television, and propane. These services are essential to residents and businesses. ***See Map 6 – Utilities, Facilities, & Services.***

Water System

The Town of Frederica owns and operates a central water system that supplies water for properties within the municipal boundaries. The Town water system consists of two (2) wells (Well 3 and Well 4), a treatment system, a 100,000 gallon storage tank and various sized water mains and distribution piping. Well 3 and Well 4, which are both located in the Frederica Aquifer, are both capable of producing 500 gallons per minute (gpm). The Public Water Allocation Permit from DNREC limits the water withdrawal to a total maximum withdrawal of 300,000 gallons per day (gpd) from both wells, with each well-being limited to a maximum withdrawal of 150,000 gpd. According to information provided by the Town Operator, the Town is currently withdrawing approximately 70,000 gpd. Treatment is provided via the addition of chlorine for disinfection and the addition of fluoride as required by the Office of Drinking Water. The Town has received grant funding to install an emergency generator to be installed in 2015. The water mains and distribution pipes range in size from 3" to 10" inches and are comprised of cast iron pipe, ductile iron pipe, and PVC C900.

The Town also recently upgraded well operation controls that allow the Town to operate both wells efficiently. This helps to maintain adequate water pressure at a higher rate, and help to keep up with any demand that is put on the water system that may be needed in the event of a fire.

Chapter 2 describes the future growth potential of the Town including build-out of parcels currently within the Town borders and potential annexation areas. It should be noted that the parcels annexed into town in 2008, formerly known as the "Northwest Annexation Area", and "Northwest Growth Area" hereafter, were planned to be served by Artesian Water Company. The Northwest Growth Area is within Artesian's Certificate of Public Convenience and Necessity (CPCN) service territory. There are currently no active applications for these parcels. Future water needs should also consider non-residential development potential.

Given the range of potential non-residential uses, it is difficult to estimate future water demand for said uses. For the purposes of this planning effort, a non-residential "set-aside" is assumed in the estimated future water needs below. As such, a summary of the future water needs of the Town at build-out is summarized in **Table 7**:

Table 7. Water Demand

Users	Dwelling Units (DU)	Demand # of DU@ 250 gpd*/DU
In-Town**	616 DUs	= 154,000 gpd
Annexation Areas	364 DUs	= 91,000 gpd
Mixed Use / Non-Residential Set-Aside	-	= 10,000 gpd
Existing Demand	-	= 70,000 gpd
	Total	**325,000 gpd**

**Gallons Per Day (gdp)*
***Does not include Northwest Growth Area*

The pumping capacity of the Town's water supply system is determined by assuming the best well is out of service. Both wells have a capacity of 500 gpm. As such, assuming one of the wells is out of service, and the other well is operating 24 hours per day, the pumping capacity of the Town's water system is 720,000 gpd. A more conservative approach would be to assume that operating well is only operating 12 hours per day with a resulting capacity of 360,000 gpd. As such, the pumping capacity of the wells is not a limiting factor in meeting the future build-out needs of the Town. Treatment is provided via chemical injection and is not a limiting factor. The Public Water Allocation Permit limits the Town to withdrawing 300,000 gpd from both wells with each well-being limited to a withdrawal of 150,000 gpd. The overall permit limit falls slightly short of meeting future build-out needs. Under the best well out scenario, the Town would only be able to withdraw 150,000 gpd.

Regarding storage, previous studies have indicated an existing storage deficit which will worsen as growth continues. The aforementioned emergency generator and upgraded well operation controls will mitigate some of the storage deficit. The Town evaluates storage needs on an ongoing basis.

In September 2014, the Town of Frederica won the right to call its drinking water the ***Best Tasting Water in Delaware***, based on samples judged at the 2014 Water and Wastewater Specialist Expo held by Delaware Rural Water Association. Several community water systems throughout Delaware submitted samples that were judged by a panel of three for appearance, clarity, absence of odor or color and various taste factors. Frederica's sample was judged best overall by the panel.

Wastewater System

The sanitary sewer service within the Town of Frederica is provided by Kent County including collection and conveyance and treatment. Frederica residents are Kent County sewage system customers. The Town does not have a sewer agreement with the County with a specific allocation. Any new development in town would need to seek an allocation directly from the County in accordance with County regulations.

Refer to ***Section 2.9 – Sea Level Rise Vulnerability and* Adaptation** for a discussion on potential wastewater system vulnerabilities.

As part of the Comprehensive Flood Vulnerability / Drainage Study recommended in ***Section 2.9 – Sea Level Rise Vulnerability and Adaptation***, evaluate potential water system and supply vulnerabilities.

Other Utilities

Electricity: Delmarva Power, a private electric company, provides electricity for the Town.

Cable: Comcast Cable provides cable television service and high-speed internet access.

PROPANE: The residents choose their own propane provider. Several companies in the area provide propane, and they are responsible for the upkeep of the tanks and related equipment.

NATURAL GAS: Chesapeake Utilities supplies natural gas to the Lake Forest Elementary School. The Town currently has a franchise agreement with the provider, and is not aware of any plans to extend service to town.

2-4.3. UTILITY RECOMMENDATIONS

WATER SYSTEM RECOMMENDATIONS

- Continue to monitor water supply by measuring water levels in the wells to determine long term impacts of pumping by their wells and other wells utilizing the Frederica Aquifer.
- Begin discussions with DNREC to determine the timing and mechanisms needed to increase the individual well permit allocations such that each well is capable of serving more, if not all, of the Town's future needs.
- Coordinate with the Delaware Public Service Commission to ensure the proper CPCNs are obtained to serve future development and annexation areas, where applicable.
- Continue to evaluate storage needs on an on-going and as-needed basis. Options to be further evaluated include a new elevated water storage tower and an additional water well.
- As part of the Comprehensive Flood Vulnerability / Drainage Study recommended in ***Section 2.9 – Sea Level Rise Vulnerability and Adaptation***, evaluate potential water system and supply vulnerabilities.

WASTEWATER SYSTEM RECOMMENDATION

- Work with the County to identify and address wastewater needs per the Town's projected growth rate.
- Ensure that any future developments can be adequately serviced by existing or planned wastewater infrastructure. This may include expanding the wastewater collection and transmission system in planned increments to serve future development and annexations.

2-4.4. FACILITIES: BACKGROUND, ISSUES & OPPORTUNITIES

Facilities include public assets stormwater management systems, open space and recreation schools. These facilities not only affect the attractiveness of a community as a place to live, work, and do business, but also influence a jurisdiction's growth pattern. This section discusses the governmental and community facilities available to the residents of Frederica. ***See Map 6 – Utilities, Facilities, & Services.***

STORMWATER MANAGEMENT

The Town does not own any stormwater facilities, therefore does not perform the stormwater functions of construction oversight, inspections and maintenance of facilities. Ownership and maintenance of facilities is the responsibility of property owners and homeowners associations under the State regulations with oversight provided by the Kent Conservation District (DCD). KCD reviews sediment and stormwater management plans in new developments, for compliance with Delaware's Sediment and Stormwater Regulations. KCD further inspects the construction and compliance of approved plans and conducts annual inspections of permanent stormwater facilities. It is noted that DNREC has low-impact stormwater regulations that may reduce the need for stormwater-management basins. It is further noted that Regulations have been revised and became effective January 1, 2014. A three-step plan review process is now prescribed in the regulations. Proposed development projects must submit a Stormwater Assessment Study and hold a project application meeting with the KCD prior to submitting stormwater construction drawings.

Resulting from the meeting, a Stormwater Assessment Report will be completed by KCD and the developer, and provided to the Town of Frederica. This Report will rate the anticipated engineering effort necessary to overcome certain stormwater assessment items such as soils, drainage outlets, and impervious cover.
While the development applications are required to obtain stormwater management plan approval from KCD prior to the Town's plan approval, the Town's current approval process does not specifically include the updated plan review process prescribed in the new state regulations.

Because the Town does not have a stormwater-management system, rainwater and pollutants are free to enter streams and wetlands via sheet runoff and a series of ditches. For example, there is no stormwater management plan for the former mill site and surrounding areas in the designated Town Center and Waterfront Redevelopment area, which drain directly into the Murderkill River.

This has the potential to seriously foul the Town's environmental resources. If at some point, the Town grows to the extent that one of the state-maintained roads needs to be widened or otherwise upgraded, the state will be required to upgrade the stormwater-management system in that corridor. In that eventuality, Frederica will need to work closely with DelDOT and KCD to ensure that stormwater-management facilities are carefully located to minimize the impact on historic and aesthetic resources.

Recreation and Open Space

The elementary school in the Town provides the only recreational facilities in Frederica. Nearby parks include Lebanon Landing County Park south og Dover and Killens Pond State Park near Felton, which offer fishing, boating, swimming, and other recreational activities.

In seeking to provide residents with adequate open space and recreation opportunities, the Town Land Development Ordinance (LDO) requires that any new developments set aside a percentage of unconstrained land for recreational purposes and ensures that existing open spaces are protected from development that prohibits their recreational use. Per the LDO, all protected environmental features shall be set aside as passive open space permanently protected through deed restrictions or conservation easements. Active open space is required to be provided at a rate of 435 square feet per unit. The LDO further states the Planning Commission may require improvements in the active open space intended to meet the needs of the community, which should be integrated with passive open spaces and natural areas.
Protection of riparian corridors further assists to create a contiguous open space network. Per the LDO, a Riparian Buffer Area (RBA) is required at a minimum 50 feet from any wetland delineation or 100 feet past each top of stream banks. RBAs are required to be permanently protected passive open space via dedication to the Town, deed restriction or conservation easement. The RBA will assist to protect and create an open space corridor that links the Town's town center and riverfront with future growth areas and state protected lands outside of town. ***Refer to Map 7 – Open Space & Recreation.***

Almost 60% of respondents to the Town 2014 questionnaire rated a park and recreation facilities as a desirable to highly desirable potential use for vacant land. 28% percent of respondents stated that parks and open space is a top priority, while more than 60% said a town park is an important or extremely important new facility. According to the U.S. Census 2010, approximately 22% of Frederica's population is 14 years of age or younger, and some participants in the 2004 public workshop noted a lack of recreational opportunities for youth in the community. Some ideas out of this workshop were: To establish parks and recreational areas on numerous sites in and around town that would cater separately to small children, teens, and adult; Provide a skate park for teens and a walkway for adults; and Utilizing the old mill site for recreation.

It should be noted that a town playground for younger residents (under school age) would be beneficial as the school playground tends to be used by older children. All residents Frederica would benefit from a town park and recreational opportunities.

Based on the *2013 Statewide Comprehensive Outdoor Recreation Plan* which included a public opinion survey, the most needed outdoor recreation facilities in Frederica include[1]:

- "High facility needs": Walking and Jogging Paths, Bicycle Paths, Fishing Areas, Playgrounds, Community Gardens, Picnic Areas
- "Moderate facility needs": Hiking Trails, Boat Access, Canoe/Kayak Launches

Delaware's Greenway and Trail Program, administered by DNREC, Division of Parks and Recreation, is a "statewide initiative to preserve and protect corridors of open space, and where appropriate, enhance these areas with trails and paved pathways." This Division annually awards funds on a competitive basis through the *Delaware Land and Water Conservation Trust Fund (DTF)* to assist local governments by providing matching grants for the planning, acquisition, and development of parks, greenways and trails.[2]

Schools

The Town of Frederica is located within the Lake Forest School District. It covers approximately 170 square miles and serves 3,770 students in southern Kent County (2013-2014). There are six schools in the district as listed in **Table 8.** There are six school board members including a president, a vice president, and an executive secretary.

Table 8. Lake Forest School District

Name	Location	Grades
Lake Forest East Elementary	Frederica	K to 3
Lake Forest North Elementary ILC	Felton	Special
Lake Forest North Elementary	Felton	K to 3
Low Incident Special Programs	Felton	Special
Lake Forest South Elementary	Harrington	K to 3
Delaware Early Childhood Center	Harrington	Special
W. T. Chipman Middle School	Harrington	7 & 8
Lake Forest High School	Felton	9 to 12
Lake Forest Central Elementary	Felton	4 to 6

Lake Forest East Elementary lies within Frederica's borders at 124 West Front Street. It has approximately 360 public school students in kindergarten through 3rd grade. Children living in Frederica go to this school, which also has a playground for the students and the community.

After attending Lake Forest East Elementary, Frederica public school students go to Lake Forest Central Elementary for 4th through 6th grades, then to W. T. Chipman Middle School for 7th and 8th grades, then finally on to Lake Forest High School for grades 9 through 12.

2-4.5. Facilities: Recommendations

Stormwater Recommendations:

- The site plan submittal requirements should be revised to incorporate the three step plan review process and the Stormwater Assessment Study / Report prescribed in the new state regulations. The ratings from the Report should be a review criteria for preliminary plan approval.
- Stormwater management practices should minimize overall land disturbance and impervious surface.
- Stormwater management practices should comply with source water protection and non-point pollution control strategies. ***See Section 2.6.7 – Source Water Protection.***
- Stormwater management practices should comply with flood hazard mitigation, wetland protection, and sea level rise strategies. ***See***

[1] *http://www.dnrec.delaware.gov/parks/Information/Pages/2013Scorp.aspx*
[2] *www.dnrec.delaware.gov/parks/Services/Documents/grants/trails.pdf*

Section 2.6.4 – Floodplain & Hazard Mitigation, Section 2.6.5 – Wetlands, and Section 2.9 – Sea Level Rise Vulnerability and Adaptation.

- As part of the site plan review process for new developments, the Town should coordinate with KCD in ensuring new developments adequately address how stormwater quantity and quality treatment will be achieved. Among other things, this would make certain new developments meet the 80% reduction requirement in suspended solids load after a site has been developed.
- As part of the Comprehensive Flood Vulnerability / Drainage Study recommended in ***Section 2.9 – Sea Level Rise Vulnerability and Adaptation,*** provide a stormwater facilities inventory and locate problem areas, such as flooding, infrastructure decay, lack of oversight and maintenance. The information could be used to develop a capital improvements plan for specific improvements and identify sources of funding including, but not limited to developer impact fees, grants and loans.
- Dependent on drainage study results, the Town should consider a stormwater management/ drainage plan that sets prioritized goals and specific strategies to achieve these goals. Example strategies would be consistent with the goals and strategies herein and with ***Section 2-6 Natural Resources and Section 2.9 Sea Level Rise Vulnerability and Adaptation.*** These include the preservation of connected open space, groundwater recharge areas, wellhead areas and critical ecological areas, such as wetlands, floodplains and riparian corridors.
- Encourage the use of Low Impact Development (LID) and Stormwater "Best Management Practices" (BMPs). LID minimizes site alterations as much as possible by incorporating natural landscaping design techniques to control runoff both during and after development. The natural landscape can and should be used to reduce runoff from the site, and to treat and filter the runoff that is discharged from the site.
- Encourage new developments to design, construct and maintain BMPs that minimize impervious coverage and reduce the need for permanent stormwater management basins. BMPs further the impact of stormwater runoff, prevent erosion, and filter sediment, nutrients and pollutants.
- Encourage new developments to use "green-technology" storm water management in lieu of "open-water" storm water management ponds whenever practicable.

Open Space & Recreation Recommendations:

- Explore location and facility options for a town park on existing vacant town land.
- Continue to require that any new developments set aside a percentage of unconstrained land for recreational purposes and ensure that existing open spaces are protected from development that prohibits their recreational use.
- As part of the Town Center / Waterfront Redevelopment Strategies provided in ***Section 2-8 Redevelopment***, the protected Riparian Buffer Area should include both passive and active recreational opportunities. Opportunities include a riverwalk trail as part of the open space network created from the RBA, as well as a canoe/ kayak launch to a water trail connecting Killen's Pond State Park and Delaware City.
- Forge a partnership with developers/ property owners within the Waterfront Redevelopment Area towards the environmental clean-up of the area and providing public access to open space and recreation opportunities.
- Contact DNREC's Grants and Community Assistance Administrator to investigate funding opportunities through the Delaware Land and Water Conservation Trust Fund.

- Focus on projects that support and promote the following: waterfront access, community gatherings, local farming / agriculture, physical activity, and the recommendations from the 2013 SCORP.

School Recommendation:

The Town should investigate the possibility of using school facilities for community purposes. The building may be able to provide indoor facilities for town programs and activities.

2-4.6. Services: Background, Issues, & Opportunities

Community services constitute a network of interrelated public and semi-public activities that give each jurisdiction its own identity. Examples of community services include fire, police, and emergency management services. This section discusses the governmental and community services available to the residents of Frederica. ***See Map 6 – Utilities, Facilities, & Services.***

Fire Services

The Town has one fire company within the Town limits. The Frederica Volunteer Fire Company, Station 49, serves the Town and the surrounding area. The station is located at the intersection of Front Street and Frederica Road.

The Company currently houses 3 pumpers, a 3,000 gallon pumper-tanker, two utility vehicles, and a rescue boat. We have a restored 1936 REO Speed Wagon, an original truck of the company is housed in a trailer, which is displayed and used in parades. The Company currently has 70 members, 45 of which are active and 10 are associate members. The fire line officers are: Chief, Deputy Chief, 1st Assistant, 2nd Assistant, 3rd Assistant, 3 Captains, Chief Engineer, Assistant Engineer, and Safety Officer. The Company also provides a part time EMT Monday thru Friday from 0600 to 1600. The rest of the time is covered by volunteer EMTs. The Company and Bowers Fire Company share ambulance coverage during 0600 to 1800.

Emergency Medical Services

Kent County Paramedics provide emergency medical services (EMS) to Frederica. Kent County EMS provides the advanced-life-support paramedic unit, while local fire companies provide ambulances used to transfer people to a nearby hospital. **Table 9** shows the three EMS locations in Kent County. Kent County plans to provide an additional EMS service building out the Frederica Volunteer Fire Station.

Table 9. Kent County Emergency Medical Services

Station	Location
KM6 North Unit	5100 Wheatley's Pond Road, Smyrna
KM7 Central Unit	911 Public Safety Building, Dover
KM 8 Southern Unit	20 Clark Street, Harrington

8% Frederica's population is age 65 or older. The Delaware Population Consortium projects that the average age of residents of Kent County will gradually increase. If Frederica's population follows this trend, combined with Frederica's large number of residents with disabilities, then there will likely be an increased need for services tailored to demographics.

Police Service

The Town of Frederica currently employs two part-time police officers. The police office is in town hall, and a garage stores two vehicles. Speed enforcement along U.S. Route 1 has been a particularly troublesome issue for Frederica since the legislature passed Senate Bill 162, which requires municipalities to post signs designating speed enforcement zones on major state highways if they wish to ticket motorists for speeding. There are preliminary discussions to relocate the police office to the Historical Society Building. Delaware State Police Troop 3, located in Dover, provides backup service to the Town. State Police are in the process of building a new barrack in Magnolia.

The 2014 Community Questionnaire revealed that the issue of crime and safety was ranked as the most important issue along the main roads in

town and the immediate area. This may indicate the need for a greater police presence in town. The large number of single-parent households in town also suggests that the Town may need additional police coverage, as most youth crime typically takes place between the hours of 3 p.m. and 6 p.m., when children may be left unsupervised. If the Town wanted to have 24-hour coverage, it would need a minimum of six full-time officers. This is based on each officer working 2,080 hours (12 hours/day x 7 days/week x 52 weeks/year). However, this ignores other duties that make an officer unavailable for patrol and assumes that one officer could patrol the entire town. These considerations should be taken in account in order to provide the proper level of police protection.

SOCIAL SERVICE CENTERS

The closest state service centers to Frederica are the James W. Williams State Service Center in Dover and the Milford State Service Center Campus in Milford. Both these centers are located approximately ten miles from the Town.

There are many residents in Frederica who may benefit from social services programs. Senior citizens, low-income persons, persons with disabilities, and single-parent households are among the groups who may qualify for social services. While the number of Spanish-speaking persons in town is now low, other areas in Delaware have experienced a rapid growth in their non-English-speaking population.

2-4.7. SERVICES: RECOMMENDATIONS

FIRE SERVICE RECOMMENDATION:

Frederica should inform the fire company about new development. It is recommended that a Memorandum of Understanding (MOU) be established between the Delaware State Fire Marshal's Office and the Town of Frederica. The purpose of this MOA is to notify, coordinate, and jointly address issues related to development activities and fire protection.

EMS RECOMMENDATIONS:

Cooperate with EMS services to ensure that an adequate service level is maintained.

POLICE SERVICE RECOMMENDATION:

To ensure adequate police service in town, Frederica needs to continue to collaborate with State Police until the point at which they are able to provide additional full-time officers. The Town should also consider contacting the Delaware Criminal Justice Council at 302-577-5030 to inquire about eligibility for various local law enforcement grant programs.

SOCIAL SERVICE RECOMMENDATION:

The Town should examine demographic and population trends to ensure that their population has adequate services, information, and transportation and access to the James W. Williams State Service Center in Dover or the Milford State Service Center Campus in Milford, which are both located within ten miles of Frederica. The Town may need to take steps to ensure that adequate services and information are provided to non-English speaking residents.

2-4.8. OTHER COMMUNITY SERVICES & FACILITIES

HEALTH CARE: **Table 10** lists health care facilities in close proximity to Frederica.

Table 10. Health Care Facilities Serving Frederica

Facility Name	Bayhealth Memorial	Bayhealth Kent General
Location	21 W. Clarke Ave Milford	640 S. State St Dover
Distance	11 miles	11.5 miles
Founded	1938	1927

POSTAL SERVICE: Frederica is served by a United States Post Office. The post office is located at 128 Front Street, just inside the western boundary of the Town. Everyone within the Town limits is required to have a post office box and those outside the limits may rent a box.

SENIOR SERVICES: There is one senior center in Frederica, located at 216 South Market Street. The Frederica Senior Center is privately run nonprofit organization that was started in 1974. It is not an assisted living center, but it does provide outreach, community activities, and meals community members daily. The Center has grown to serve over 700 members, including seniors and disabled veterans. The closest senior services outside of Frederica are in Milford and Harrington. There is a significant elderly population within the Town. The median age of residents of Kent County is projected to increase; if this trend affects Frederica then the adequacy of senior services in the Town should be examined. The Town may need to cooperate with the local senior center (as well as DART First State) to ensure that adequate transportation is available for elderly and disabled residents to nearby healthcare facilities.

LIBRARY: The two libraries closest to Frederica are Harrington Public Library and Milford District Free Public Library. The Harrington Public Library is located at 110 Center Street in Harrington, 12 miles away from Frederica. The Milford District Free Public Library is located at 11 South East Front Street in Milford, eight miles away from Frederica. It is restricted to Delaware residents.

PLACES OF WORSHIP: There are three places of worship in the Town. Trinity United Methodist Church is located on Front Street; Freedom Baptist Church is located on Market Street; and Hubert AME is located on Jackson Street.

TRASH REMOVAL: Patrick's Garbage Disposal, LLC performs trash and recycling pick up services in the Town. The Town contracts with Patrick's and bills residents individually for services.

PUBLIC SAFETY: The Town has a volunteer-based "Crime Watch" program so town residents can take an active part in community safety. It is recommended that the Crime Watch members hold a monthly meeting and set forth a specific mission statement and objectives. The Crime Watch program and meetings should be advertised and promoted on the Town's Website as well at the Town Hall to increase citizen awareness and participation.

2-4.9. POTENTIAL FUNDING SOURCES FOR UTILITIES, FACILITIES, & SERVICES

DELAWARE LAND AND WATER CONSERVATION TRUST FUND (DTF): Assists local governments by providing matching grants for the planning, acquisition, and development of parks, greenways and trails. A project sponsored by Frederica may receive up to fifty percent (50%) in DTF assistance of an approved project's total costs.
www.dnrec.delaware.gov/parks/Services/Documents/grants/trails.pdf

USDA RURAL DEVELOPMENT: Grant program assistance for community facilities and utilities is provided in many ways, including direct or guaranteed loans, grants, technical assistance, research and educational materials. For more information visit.
www.rurdev.usda.gov/RD_grants.html

DRINKING WATER STATE REVOLVING FUND (DWSRF): DWSRF makes funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and disadvantaged communities and to programs that encourage pollution prevention as a tool for ensuring safe drinking water.
water.epa.gov/grants_funding/dwsrf/

2-5. TRANSPORTATION

2-5.1. BACKGROUND

The Town of Frederica is located directly west of Route 1. *See Map 2. Roads and Boundaries*. A traffic count conducted by DelDOT in 2013 estimated that 41,000 vehicles use the highway daily. This creates many transportation concerns for the Town, such as increased traffic in and around the Town, speeding concerns, and pollution.

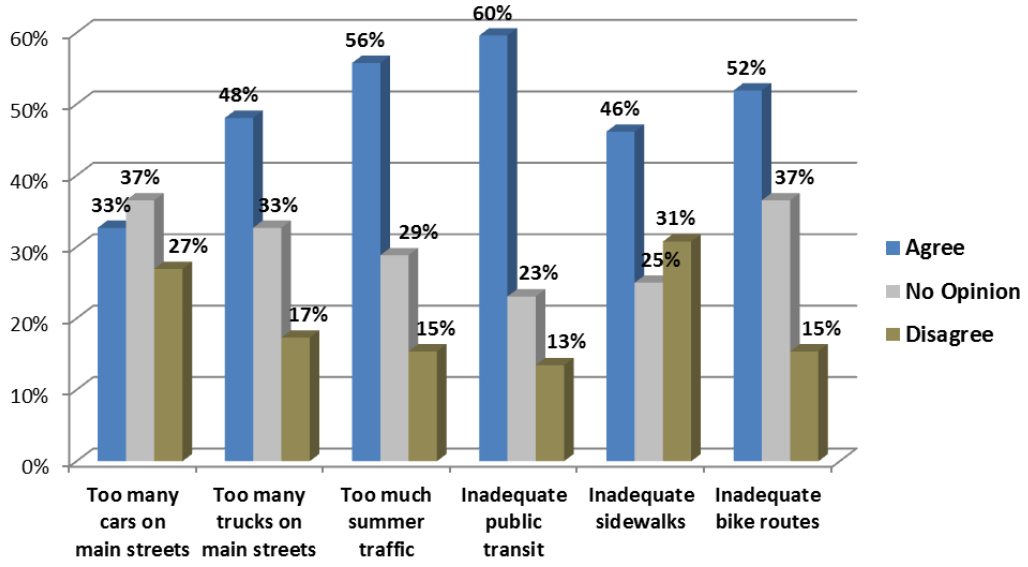
Frederica has three access points: Frederica Road intersects with Bay Road (State Route 1) northeast and southeast of town, and Johnnycake Landing Road accesses the west side of town. Johnnycake Landing Road connects Bay Road via westbound Front Street and eastbound David Street. Few interior streets are looped. With the exception of Market Street, all north-south streets south of St. Agnes dead-end. Both Coleman Street and Lowber Street, which are north of Front Street, also dead-end. Currently, east-west traffic on Route 12 to get to and from Bay Road via Frederica must travel Front and David Streets.

The Delaware Department of Transportation (DelDOT) maintains the major streets throughout the Town— Route 1, Frederica Road from end to end, David Street from Front Street to Frederica Road, Front Street from Frederica Road to the western town limits, and Market Street from end to end

2-5.2. PUBLIC PARTICIPATION RESULTS

As displayed in **Figure 7**, many respondents to the public-opinion questionnaire mentioned that there was too much summer traffic and year-round truck traffic within the Town. In addition, there was general agreement among respondents that there is not adequate public transportation linking Frederica to larger towns in the area. There was also concern of inadequate sidewalks and bike routes. A majority of respondents to the public-opinion questionnaire indicated that they either strongly agreed or agreed with the idea that new roads should be designed to link to the existing town street system. This opinion should be taken into account as future development occurs.

Figure 7. Questionnaire Results – Transportation Issues



2-5.3. GOALS & OBJECTIVES

GOAL: Provide a transportation system that encourages safe, healthy, and active living through a comprehensive, integrated transportation network for pedestrians, bicyclists, public transportation riders and drivers, and people of all ages and abilities.

OBJECTIVE: Encourage development through planned transportation investment, coordination and policies consistent with the zoning and density.

OBJECTIVE: Assure timely maintenance of streets and sidewalks.

OBJECTIVE: Support streetscape revitalization and beautification in the Town center.

OBJECTIVE: Improve the pedestrian and bike connectivity and safety throughout the Town.

OBJECTIVE: Integrate Complete Streets infrastructure and design features into street design and construction. Complete streets include amenities to ensure that roads incorporate the needs of pedestrians, bicyclists, and transit riders into their design. These amenities could include bike lanes, sidewalks, , crosswalks, and other pedestrian-oriented design features.

OBJECTIVE: Develop transportation policies to guide growth to safe location and limit access to natural hazard areas.

2-5.4. ISSUES & OPPORTUNITIES

CURRENT PROJECTS

DelDOT administers the Corridor Capacity Preservation Program, which was established in 1996 under Title 17, Section 145 of the Delaware Code to preserve selected existing transportation facilities. The portion of Route 1 that runs through Frederica is a limited-access highway under this program. The Corridor Capacity Preservation Program has five primary goals:

- Maintain an existing road's ability to handle traffic safely and efficiently
- Coordinate the transportation impacts of increased economic growth
- Preserve the ability to make future transportation-related improvements
- Minimize the need to build an entirely new road on new alignment
- Sort local and thru traffic

Through the program, a grade separated intersection was constructed in 2012 just north of Frederica enabling motorists to access the northbound Route 1 from Frederica Road (Route 12), thereby eliminating the need for merging vehicles to cross oncoming traffic. A second grade separated intersection is proposed south of Frederica that would connect motorists to south Frederica Road from the northbound Route 1. The existing at-grade intersection at Milford Neck Road and Tub Mill Pond Road will be removed and access to Route 1 will be provided via ramps. Frederica Road and Tub Mill Pond Road will be realigned to create a new service road on the west side of Route 1. Based on input from the public, natural and cultural resources agencies, and emergency response agencies, a preferred alternative was selected out of five options, and the preliminary design was presented to the public at a workshop on November 10, 2009. The environmental investigation, documentation process, and design phase are currently on-going. Due to DelDOT's new prioritization process, the project has been rescheduled to begin construction in the fall of 2016.[1]

Frederica fully supports the Route 1 South Frederica Grade Separated Intersection project as it will not only enhance the traffic capacity and improve safety of the Route 1 corridor, but will further have positive economic and social impacts to the Town and region. Frederica believes that the interchange is a major factor for the future growth of the Town. The successes of specific projects that may wholly depend on the interchange include the proposed regional sports complex south of Frederica and a proposed

[1] *http://www.deldot.gov/information/projects/sr1/sr1_frederica/*

commercial complex on Frederica Road. In addition, a safer and more efficient traffic system would connect motorists from the highway to the Town's historic center, which would help local businesses grow and stimulate new business. It is noted that these goals for economic growth in the Town's historic core are directly aligned with the state's downtown development initiatives. The Town Center and Waterfront Redevelopment Area are discussed in ***Section 2-8 Redevelopment.*** The Town strongly encourages the construction of this interchange, and supports the many efforts to make the project a higher priority.

As detailed in the Dover/Kent County Metropolitan Planning Organization's (MPO) 2013 Metropolitan Transportation Plan, the South Frederica grade separation is included as a top priority project for Kent County. There are no other Frederica-area projects proposed in the MPO's long range transportation plan.

Maintenance & Improvements

Streets: The Town is responsible for maintaining approximately 2.2 miles of local streets. There is no long-term budgeting for the maintenance and repair of local streets and sidewalks. Street and sidewalk maintenance is heavily dependent on funding appropriated through the Municipal Street Aid Fund (MSA). For more information on MSA, *see 2-5.6 Potential Funding Sources for Transportation.* It should be noted that 38% of respondents to the public-opinion questionnaire were not satisfied or were very unsatisfied with street maintenance in town. Frederica needs to determine where street maintenance is a problem.

The Delaware Center for Transportation at the University of Delaware provides training and assistance to towns in order to establish maintenance schedules, inspections, lifecycle costing, and budgeting for town maintained streets.

According to the Town's charter, the Town Council may "direct the paving or improving of the sidewalks [in town]," and the Town may charge owners for improvements to sidewalks if residents do not comply with a resolution to improve sidewalks.

Sidewalks: The compact nature of the Town and the existence of sidewalks along most of the main streets enable Frederica to be fairly easy to navigate on foot. In seeking to maintain Frederica's small-town atmosphere, it is crucial that this remain the case. Ensuring future pedestrian-friendly infrastructure will entail maintaining and expanding the sidewalk network, where appropriate, to encompass those areas closest to the Town center not currently serviced by sidewalks.

Generally, sidewalks are extensive near the historic core of the community and become scarcer as one ventures away from the Town center. There are no sidewalks along Frederica Road as you enter town, and this area of the community is generally not very pedestrian-friendly. The Town center area between Front Street and St. Agnes Street is generally lined with sidewalks. Also, sidewalks line Front Street from the fire company to the elementary school. Sidewalks are incomplete in the southwest portion of town, south of St. Agnes Street, and in the two blocks north of Front Street. Where sidewalks do exist, they could benefit from repair as many segments have cracked or shifted over time.

Streetscape Improvements: The Town of Frederica has expressed interest in pursuing streetscape improvements in the Town center area, particularly along Frederica Road between David Street and Front Street. An enhanced streetscape in this area would be consistent with the overall vision outlined in ***Map 13 - Town Center and Waterfront Redevelopment Strategies.*** Streetscape improvements along Frederica Road could include street trees, pedestrian lighting, new sidewalks, and other aesthetic treatments that would provide a unique sense of place for the Town center of Frederica.

Flood Mitigation and Sea Level Rise:

As part of the comprehensive plan update and sea level rise vulnerability assessment discussed in ***Section 2.9 Sea Level Rise Vulnerability and Adaptation***, the comprehensive planning team has identified several roadways that are currently experiencing periodic, non-storm related flooding. These roads are:

- Market Street (north of Coleman Avenue)
- Frederica Road (on each approach of the Murderkill River bridge crossing)

The Murderkill River is a tidal river that connects to the Delaware Bay. Market Street in particular has flooding issues that can potentially render the road impassable, especially during periods of high tides.

The Department of Natural Resources and Environmental Control (DNREC) is the lead agency in the state with regards to the impacts of sea level rise and coastal-related flooding. Since 2010, the agency has had a very active programmatic approach to addressing the impacts of sea level rise and to develop implementation strategies to counter the effects of coastal-related flooding.

As part of the DNREC Sea Level Rise initiatives, the agency has developed mapping that shows the projected impacts on roadways and properties based on 3 inundation scenarios - 1.6 feet (0.5 meters) and 4.9 feet (1.5 meters). The 3 scenarios are displayed in ***Map 14 – Sea Level Rise Inundation Scenarios***.

To date however, there has not been any detailed drainage or hydraulic studies in Frederica to determine the extent of the existing flooding problem.

Public Transit

There is one DART First State stops in town, at Frederica Road and Front Street. Dart First State Bus Route 303 connects Dover to Georgetown.

The may be a market for additional public transportation from Frederica to employment centers. While the U.S. Census 2010 reported that only 8% of Frederica's households did not have a vehicle available, the relatively high percentage of town residents who either live below poverty level, are elderly, or live with a disability suggest that access to public transportation would be beneficial to a significant portion of Frederica's population. Further supporting this potential demand for public transportation in Frederica is the fact that 60% of respondents to a questionnaire either agreed or strongly agreed with the statement that there is not adequate public transportation.

There is Paratransit service in Frederica, offered as a "demand-response" form of transit. Eligible residents must call at least 24 hours ahead of time to receive the service and are picked up at their home. This service is offered six days a week; it is not available on Sundays. Persons must meet the Americans with Disabilities Act (ADA) requirements to be eligible for this service.

New Developments

There is little uncertainty that new developments in the Town's growth areas and in the surrounding region will have significant impacts in town. The issue is whether additional traffic through town would stimulate economic activity and the vitality of the Town center, or would it create adverse impacts associated with traffic congestion, such as noise, safety issues, and an increased need for maintenance and improvements.

Connectivity: As required per Town Code, streets should be constructed in a grid pattern that mimics the historic portions of the Town. Streets shall interconnect within a development, with adjoining development, and with existing streets. It is noted that the Town's growth areas are surrounded by many natural site constraints, such as wetlands, floodplain, stream and woodlands, which may present challenges to achieve the aforementioned requirements.

Coleman Street looking west

Lowber Street looking west

TRANSPORTATION IMPROVEMENT DISTRICTS (TID):

It is imperative to take a regional master planning and partnership approach that optimizes the transportation opportunities, while mitigating the negative impacts associate with excess traffic. DelDOT encourages that municipalities participate in transportation master planning and designating Transportation Improvement Districts (TID). The purpose of a TID is to comprehensively coordinate land use and transportation within a specific area and to secure required improvements for that area. TID are created by agreement between the Town, DelDOT, and potentially Kent County. A TID would coordinate transportation needs and services, expedite the development approval process, and help provide adequate infrastructure in areas where development is to be encouraged. Based on recent discussions with DelDOT, there are no immediate plans to initiate a TID in the Frederica area, due in large part to the current lack of imminent development activity requiring property owner coordination.

2-5.5. RECOMMENDATIONS

CURRENT PROJECTS

Coordinate with Dover/Kent County Metropolitan Planning Organization (MPO) and DelDOT on land use and transportation issues associated with the above referenced projects. These projects include approved but unbuilt subdivisions located north and west of Frederica, the proposed regional sports complex, and the Route 1 South Frederica Grade Separated Intersection project.

While working with the DelDOT on new projects, road system improvements, and maintenance, provide for emergency access and safe evacuation routes.

MAINTENANCE & IMPROVEMENTS

STREETS

- Coordinate with DelDOT in order to assure timely upkeep of major roadways and develop a routine maintenance schedule and budget for town-maintained streets.
- Conduct a windshield inventory survey recording the miles of street, drainage and conditions of curbing, sidewalks and paving, among others.

SIDEWALKS

- Improve pedestrian orientation by adequately maintaining existing sidewalks and, where possible and appropriate, expanding the sidewalk network to those areas of town closest to the Town center that are not already served by sidewalks.
- Ensure that sidewalks, crosswalks, are compliant with the Americans with Disabilities Act (ADA).

STREETSCAPE IMPROVEMENTS

- Invest in streetscape improvement projects that not only contribute to the safety and convenience of vehicular traffic, but also enable and promote safe pedestrian and bicycle mobility of all ages and abilities, and affect the appearance of an area.

Improvements may include traffic calming mechanisms such as narrow vehicle lanes, pedestrian signals, raised medians, tighter turning radius, narrow nodes, crosswalks, physical buffers and separations between driving lanes and sidewalks. Street beautification amenities may include brick pavers, stamped concrete, benches, lighting, trash receptacles, tree grates, bicycle racks and signs, which would all assist to create a positive image, promote a pedestrian friendly environment and assist to stimulate economic activity.

- Consider participation in DelDOT's Transportation Alternatives Program (TAP) for streetscape improvements in the Town Center Redevelopment Area, and specifically along Frederica Road. The Town would need to submit a letter to DelDOT, describing their interest in pursuing a TAP project and the project extents. As part of this submittal, the Town should also communicate with their State legislators to confirm if Community Transportation Funds (CTF) could be used as a potential match source. ***See Section 2-5.6 Potential Funding Sources for Transportation.***
- Private developers that are interested in redevelopment projects in the Town center should incorporate streetscape elements into their projects, in accordance with the strategies outlined in ***Map 13 – Redevelopment Strategies*** and the zoning requirements of the Town Center District.

Capital Improvements Program

- In order to deal with street and sidewalk maintenance in a more timely and efficient manner, the Town establish a capital improvements program (CIP). A CIP will assist to prioritize transportation improvement needs and will establish a systematic approach to maintain streets and sidewalks, retrofit existing streets to include Complete Streets infrastructure, and develop higher connectivity. The capital improvements program should identify the needed improvements and establish sources of funding. A CIP would further aid the project bidding and scheduling process, to ensure that it is accomplished in an orderly fashion.

Flood Mitigation and Sea Level Rise:

As part of the Town-wide Comprehensive Flood Vulnerability and Drainage Study recommended in ***Section 2-9 Sea Level Rise Vulnerability and Adaptation***, evaluate the extent of flooding issues on current and potential frequently inundated roads. Contact the DNREC Coastal Programs Section (739-9283) to discuss the possibility of a DNREC-funded hydraulic analysis in the Town. The Town should consider applying for grant funding in the future, and contact DNREC to determine what technical assistance is available to develop specific flood-mitigation strategies and solutions along Market Street and Frederica Road. ***See 2-5.6 Potential Funding Sources for Transportation.***

Public Transit

- Coordinate with the Delaware Transit Corporation (DTC) to discuss expansion of DART First State services. Evaluate current needs and future demand for bus service including schedule, frequency and locations of stops.

New Developments

Connectivity & Design

- Require that streets in new developments extend the Town's street network. Although there are environmental constraints, potential connections and streetscape improvements should be considered at Coleman Street and Lowber Streets. Stub streets should be provided at potential locations to connect to future development, where feasible.
- New developments should be pedestrian-oriented and provide a network of pedestrian pathways and sidewalks, both internally and to existing town.

- Every effort should be made to encourage pedestrian and bicycle transit between town and the growth areas; especially if street connections are not possible.
- Enforce the design standards for new developments in R-2 PUD and R5 TND zoning districts that promote pedestrian-friendly mobility including, but not limited to: Street hierarchy, high street connectivity, intersection design, road widths and block lengths, and traffic calming.

Transportation Improvement Districts (TID)

- If more developments are proposed in the Frederica area in the future, the Town should evaluate and discuss with DelDOT, Kent County, and the MPO, the possibility of creating a TID for the northwest growth area. Other items addressed in the agreement would include the boundaries of the TID area, criteria for transportation adequacy and who would be responsible for collecting and administering fees paid by developers in the TID. The Town would necessarily be responsible for preparing a detailed land use plan for the area in the TID and for advocating the inclusion of projects in DelDOT's six-year Capital Transportation Program.

2-5.6. Potential Funding Sources for Transportation

There are several programs available to Frederica that may aid the Town's transportation needs.

Transportation Alternative Program (TAP):

The Transportation Alternatives Program (TAP) is a DelDOT program, established through federal legislation that is intended to encourage development of a more balanced, multi-modal approach to mobility and accessibility.

The TAP provides funding for non-traditional, transportation related projects. These projects help to further the cultural, aesthetic, and environmental goals of the communities in which they are built. All federally-funded TAP projects must meet the following three criteria:

- The project must have a relationship to surface transportation;
- The project must be dedicated to public use;
- The project must fit into at least one of the eligible activities.[2]

Examples of projects include:

- Installing sidewalks
- Preserving scenic and historic areas
- Rehabilitating historic buildings
- Creating bicycle and multi-use pathways
- Renovating streetscapes
- Installing lighting and crosswalks

Interested communities submit a letter of interest to DelDOT, providing a description of the proposed project, an identification of the project sponsor, and the project need. The letter of interest also includes an identification of the proposed local funding source, as the TAP requires a 20% local funding match. TAP projects are capped at a $1 million award, making the largest cash match $200,000.

DelDOT prioritizes TAP project requests throughout the state based on available funding levels. Once a project is selected for further project development, DelDOT develops a concept plan and a cost estimate, at no charge to the project sponsor. DelDOT also provides project management of the design and construction of TAP projects. Project sponsors are required to provide the 20% funding match, conduct public outreach, and ensure that any required right-of-way associated with the project is donated by property owners. TAP projects do not involve right-of-way acquisition, as they are community-driven projects designed to enhance the local area.

[2] *http://deldot.gov/information/community_programs_and_services/te/eligible.shtml*

Municipal Street Aid (MSA):

Municipal Street Aid (MSA) is a DelDOT-managed program that provides funding for the maintenance of municipally-maintained streets. Each year the General Assembly appropriates funding in the Bond Bill to be distributed to each of the state's 57 municipalities. The funding, which was established at $5 million for FY 2015, is based on two factors:

- Population (40% weight)
- Street mileage (60% weight)

Between FY 2010 and FY 2015, the Municipal Street Aid program has been funded at annual levels between $4 million and $6 million. The Town of Frederica has received between $11,200 and $17,300 annually in MSA during those 6 years.

As part of the FY 2016 budget hearings, DelDOT has proposed a reduction in MSA funding to an overall limit of $3 million. Should the program be funded at $3 million, this would have adverse implications for small municipalities such as Frederica. If the proposed MSA budget were to be approved at $3 million, Frederica would receive approximately $8,400 in street maintenance funds in FY 2016, a significant decrease for a small town with limited funding.

Coastal Management Assistance Grant:

DNREC provides annual competitive grant funding through its Coastal Management Assistance Grant Program. The grant applications, which come out each year in February, are used to support projects and activities that improve the conservation and management of coastal resources, particularly those that further sea level rise adaptation and hazard impact reduction.

The grants typically range from $5,000 to $25,000, and must be matched with one to one funds or in-kind services.

2-6. Natural Resources

2-6.1. Overview

The Town of Frederica is located in an upland area at the confluence of the Murderkill River and Spring Creek. The nature of the surrounding environment includes a marshy region to the east, along the Murderkill River, which is the primary environmental feature of the area. The river is 19-miles-long and flows east past Frederica and through Killen's Pond State Park. The Murderkill is navigable from Frederica to the Delaware Bay at Bowers Beach. The waterways, tidal wetlands, riparian buffers, forested land, and farmland all create desirable greenbelt that separates the community from surrounding traffic and developments.

Frederica is fortunate to exist amidst the numerous ecologically important elements. These natural features within and surrounding the Town serve many important ecological, social, recreational, economic, and aesthetical functions. The fluvial, nutrient rich soils provide some of the best agricultural lands in Delaware. The river's tidal waterways provide a critical habitat corridor between the vast forests and wetlands of the Milford Neck region to the east of town and those of Killen's Pond State Park and Norman G. Wilder Wildlife Area to the west. Historically, Frederica was a heavily wooded area. Currently, there is an evergreen forest to the northwest and a deciduous forest in the southwest portion of the Town. The wetlands and associated riparian forest buffers adjacent to the Town itself also provide habitat for a host of both common and rare and threatened species of terrestrial and aquatic plants and animals.

Because of the unique conservation and recreational value associated with these natural features, much of the land adjoining the Town is designated in a State Resource Area (SRA). Also, some of the land near the Town is in the State's Natural Areas Inventory due to unusual flora and fauna, or has biotic, geological, scenic, or archaeological features of scientific or educational value. Additionally, the State has targeted lands within Frederica's identified Areas of Concern for potential protection or acquisition based on the value of existing natural features. DNREC has recommended that the Town investigate the protection options that are available and make them known to the current landowners of these areas.

The topography of Frederica is relatively flat, with the land gradually sloping downward towards the banks of the Murderkill River. The maximum elevation of 20 feet is located in the northwest part of town. The general elevation is between 10 and 15 feet on the western side of town and gradually changes to an elevation between 5 and 10 feet on the eastern side.

The Frederica aquifer is primarily formed of sand and gravel. Because the aquifer is located near the ground surface, it is vulnerable to contamination. Recharge of the Frederica aquifer occurs in its sub-crop area of sand overlain by the Columbia Formation.

The Town also adopted environmental provisions as part of the Land Development Ordinance (LDO) with the purpose to achieve the Town's goals to protect its vital natural resources, such as open space protection, riparian buffer areas (RBA), and tree protection and planting provisions, among others. Also, pursuant to § 7 Del. C. 6082(c), the Town has adopted regulations governing the use of land within designed to protect environmental sensitive areas from activities and substances that may harm water quality and subtract from overall water quantity. These features include source water assessment, wellhead protection, and excellent ground-water recharge potential areas, are shown on **Map 9 – Environmental Resources.** Also refer to **Map 7 – Open Space and Recreation.**

2-6.2. GOALS & OBJECTIVES

GOAL: Protect wetlands, floodplains, ground water, and other natural environments.

OBJECTIVE: Promote private and public efforts towards conservation and maintenance of the natural environment.

OBJECTIVE: Reduce the ecological impact of future development and to the extent possible, restore and protect natural areas such as critical habitat areas, floodplains, and wetlands.

GOAL: People, property, buildings, and infrastructure will be protected from harm caused by flooding.

OBJECTIVE: Preserve significant ecological systems such as floodplain and wetlands that naturally work to carry and receive floodwaters, control runoff and erosion, and filter non-point pollutants.

GOAL: Reduce vulnerability to natural hazards, particularly flooding and sea level rise.

OBJECTIVE: Balance land use and economic development goals with Sea Level Rise adaptation strategies.

2-6.3. BACKGROUND, ISSUES & OPPORTUNITIES

2-6.3.1. SOILS

According to the USDA Natural Resources Conservation Service (NRCS) Soil Survey for Kent County, Delaware (2014), the soils in the immediate town limits predominately belong to the Downer and Greenwich Series. These groups of soils, which are formed in very old, sandy sediments, is generally easy to work with, being suitable for most uses. The majority of Frederica's built environment consists of GuB – Greenwich-Urban land complex. The Town's growth areas consist of DoB – Downer sandy loam and IgB – Ingleside sandy loam.

- **DoB – Downer sandy loam:** This component is on uplands, knolls. The soil is well drained, and has a gradient of 2-5% slopes. The capacity of the most limiting layer to transmit water is high, or 1.98 to 5.95 inches per hour. Available water capacity is low, or about 5.7 inches. The water table is deeper than 80 inches. This soil is not flooded and is not ponded.
- **GuB – Greenwich-Urban land complex:** This component is on flats, uplands. GuB soil is well drained, and has a gradient of 0-5% slopes. The capacity of the most limiting layer to transmit water is moderately high to high, or 0.5 to 1.98 inches per hour. Available water capacity is low, or about 5.9 inches. The water table is deeper than 80 inches. This soil is not flooded and is not ponded.
- **IgB – Ingleside sandy loam:** This component is on uplands, flats. The soil is well drained, and has a gradient of 2-5%. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. This soil is not flooded and is not ponded.

The area east of Frederica is primarily Tidal Marsh, a soil that is brackish and consists of stratified sand and clay. This soil is not used for farming, and mainly provides food and cover for wildlife. Refer to ***Map 18 – Soil Classification*** and the USDA NRCS Web Soil Survey on-line service for location and more description of soil types.

As stated by DNREC through the Preliminary Land Use Service (PLUS) review, building in poorly or very poorly-drained (hydric) soil predictably leads to flooding and drainage concerns from homeowners, as well as significant expense for them and, often, taxpayers.

2-6.4. FLOODPLAINS & HAZARD MITIGATION

The majority of land in Frederica consists of well-drained, upland areas that are suitable for agricultural and development uses. The well-defined floodplain is located along the Murderkill River. This area is necessary for proper drainage and natural stormwater management. The region consists of marshland, typified by poorly

drained soils that retain water year-round. Root mats and other wetland vegetation are responsible for slowing floodwaters and distributing floodwaters more evenly, which helps prevent erosion and reduce flooding.

2-6.4.1. FLOODPLAINS

In general, the locations of hazard areas are: North and South part of Market St, Frederica Road, Town Center/ Waterfront Redevelopment Area (east of Frederica Rd at Front and David St.), parcel north of Coleman St, and bordering all future development areas. ***Refer to Map 10 – Floodplain.*** The hazard areas are consistent with the sea level rise vulnerable areas discussed in the ***Section 2-9 Sea Level Rise Vulnerability and Adaptation.***

The Town has adopted a Flood Reduction Ordinance that includes Flood Hazard Maps, administrative procedures, and criteria for developing in flood hazard areas within the Town boundaries. The flood hazard areas are based on the Federal Emergency Management Agency (FEMA) designated 'special flood hazard areas', which are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. Development that is inadequately elevated, improperly flood-proofed, or otherwise unprotected from flood damage also contributes to the flood loss.

Frederica agreed to meet the requirements of the National Flood Insurance Program (NFIP) and began participation in the program on January 2, 1981. As of that date or the effective date of the Frederica Flood Insurance Rate Map, all development and new construction within the special flood hazard areas are to be compliant with the regulations. The regulations in the Ordinance are consistent with the findings and conclusions of Senate Bill 64, "Floodplain and Drainage Standards and Recommendations", issued August 2, 2012. These new initiatives were also adopted as a response to the Federal *Homeowner Flood Insurance Affordability Act* and the State of Delaware *Executive Order 41*.

The following are important aspects of the Flood Damage Reduction Ordinance. First, the Floodplain Administrator's responsibilities are written to satisfy the Town's commitment and responsibilities to the NFIP. The Floodplain Administrator will coordinate with the County to ensure all aspects of this ordinance are enforced. The Town of Frederica Mayor is the Floodplain Administrator as adopted.

Second, the Ordinance includes requirements for all development, including buildings and structures. The document cites that the Town should use the flood provisions 2012 or later editions of the International Code Series to meet the NFIP requirements.

Third, certain provisions of the Ordinance exceed the standards of the Town building code by requiring additional construction standards not covered in the building code The Ordinance requires the utilization of appropriate construction practices in order to prevent or minimize flood damage in the future. For instance, the Ordinance requires that new buildings have **freeboard** least 18 inches above the base flood elevation. Existing buildings must have freeboard after they are significantly damaged in a flood or other natural causes, if

Freeboard *is the single most effective means for reducing flood risk to a structure in the floodplain. Freeboard is standard for placing the first floor of a structure above the elevation of the calculated 1% flood level in order to allow for nature's uncertainty and future changes in the watershed that will increase flood levels. Freeboard is relatively inexpensive to build into development, and typically pays for itself in reduced insurance premiums and prevented flood damage within the first 10 years of a structure's lifetime. Significant Community Rating System (CRS) credit is available for this activity, which leads to lower flood insurance premiums for all policy holders in the community.*

they are abandoned for more than 2 years, or if they are improved by 50% or more of their value. The Town freeboard standards exceed the NFIP minimum. NFIP does not require freeboard, but does encourage municipalities to adopt at least a 12 inch freeboard.

These regulations are helping to mitigate the current risks; however, largely due to the dynamic nature of shorelines and sea level rise, the Ordinance could do more to recognize the implications of rising sea levels.

FEMA has recently updated the Flood Insurance Rate Maps (FIRM). In general, it appears that the FIRM area in the most recent maps have decreased since the previous maps. It is important to recognize that the boundary where flood insurance is required has been reduced and this does not mean that flood risk is decreasing. Flood hazards associated with climate change and sea level rise will only increase in town.

2-6.4.2. Hazard Mitigation

The Town should coordinate with Kent County and the Delaware Emergency Management Agency as they prepare their Multi-Jurisdictional All Hazard Mitigation Plan (HMP), which includes a section specific to Frederica. Among other things, the Plan will assist the Town to identify and assess risks and consequences of hazards considering transportation, emergency response, evacuation routes, utilities and infrastructure, evacuation, and personnel responsibilities. The Plan will also ensure continuation of FEMA flood insurance program. It is noted that the recommendations in the floodplain and the sea level rise adaptation sections in this Comprehensive Plan Update are consistent with the mitigation actions in the HMP. The proposed mitigation plan includes specific actions and potential funding sources. Also refer to ***Section 2-9 Sea Level Rise Vulnerability and Adaptation.*** The mitigation actions are follows:

- Work with DelDOT to identify areas of frequent roadway flooding on Market Street and develop mitigation strategies.
- Introduce back-up power to the Town's pumping stations.
- Develop an Emergency Operations Plan in coordination with fire and police.
- Provide property owners in Frederica with brochures and other material regarding potential flood hazards.
- Work with the County to conduct a detailed flood vulnerability study for the entire town.

2-6.5. Wetlands

Wetland protection is directly connected to stormwater runoff and flooding hazards. Impervious surfaces in town accelerate stormwater runoff into the wetlands and river, picking up oil and other pollutants, and exacerbating any flooding. The Town's LDO protects prevents development in state designated wetlands, as it is recognized that these wetlands have ecological values associated with flood protection, wildlife habitat, and sea level rise resiliency. These wetlands areas are consistent with floodplain soils, and are best left undisturbed. The mid-section of the Murderkill River is considered Tidal and is subject to the jurisdiction of state and federal agencies, such as DNREC and the Army Corps of Engineers. State regulations governing the use of these lands are promulgated in accordance with the provisions of § 7 Del.C. 7212.

2-6.6. Riparian Buffer Area (RBA)

An adequately-sized buffer that effectively protects water quality in wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.

The Town has an RBA requirement, which preserves 100 feet from the mean high higher water (MHHW) and 50 feet from wetlands.

It is anticipated that the RBA will increase with the MHHW as sea level rises. ***Refer to Section 2-9 Sea Level Rise Vulnerability and Adaptation.*** However, inundation from sea level rise is anticipated to exceed these established riparian buffer areas in some locations, resulting in a smaller or even non-existent buffer area over time. In general, a smaller riparian buffer area results in less nutrient uptake and less reduced flood attenuation, which therefore reduces overall water quality and increased vulnerability to flood hazards, respectively.

2-6.7. SOURCE WATER PROTECTION

Frederica has adopted regulations to protect public water supply wells, and the excellent aquifer-recharge areas as identified on ***Map 9. Environmental Resources.***

2-6.7.1. WELLHEAD PROTECTION

A wellhead protection area designates the area around public water supply wells to help protect the quality of the water supply from harm. Section 12-1 of the LDO requires open space within a 300 foot radius of their public wells.

Neither of the Town's two wells meets the Town's 300 foot buffer requirement. There are no provisions in the Section that would protect the wellhead area of an unconfined well.

2-6.7.2. EXCELLENT RECHARGE AREA

The majority of the original section of town is within an excellent recharge area. A recharge area is a water resource protection area designated as having the best potential for groundwater recharge. Recharge areas possess high percentages of sand and gravel that have "excellent" potential for recharge

ISSUE: The LDO does not provide limits to impervious cover in areas of excellent ground-water recharge potential. Impervious cover prevents precipitation from infiltrating through the soil to the water table aquifer. Impervious cover refers to structures including but not limited to roads, sidewalks, parking lots, and buildings. Any impervious cover within a wellhead protection area or excellent ground-water recharge areas has a potential negative effect on the quality and quantity of drinking water available to the Town. Additionally, impervious cover in areas of excellent ground-water recharge may contribute to flooding.

2-6.7.3. TMDLS

Frederica is located in the mid-Murderkill River segment (DE220-003), a 9.2-mile stretch between McCauley and Coursey Ponds to the confluence with Spring Creek. Because of high nutrient and bacteria levels, DNREC has identified this segment as quality-limited water. Section 303(d) of the 1972 Federal Clean Water Act requires the determination of total maximum daily loads (TMDLs) to quality-limited waters. A TMDL matches the strength, location and timing of pollution sources within a watershed with the ability of the receiving water to assimilate that pollutant without adverse impact. The nutrient (Nitrogen and Phosphorous) and bacteria TMDL reduction requirements for the Murderkill watershed are: Nitrogen 30%, Phosporous 50%, and Bacteria 50%.

The realization of these TMDL pollutant load reductions will be through implementation of a Pollution Control Strategy (PCS), which identifies the specific strategies and actions such as a combination of best management practices. The PCS for the Murderkill River watershed consists of recommendations from the following three areas: agriculture, stormwater, and wastewater. Currently, the PCS for the Murderkill River watershed, the watershed in which the Town of Frederica is located, contains only non-regulatory recommendations. It is imperative that Frederica align its source water protection standards with Kent County and the state to preserve water quality for the residents and address TMDLs.

2-6.8. NATURAL RESOURCES – RECOMMENDATIONS

FLOODPLAIN MANAGEMENT RECOMMENDATIONS:

- Consider participating in FEMA's Community Rating System (CRS) program. Property owners in the 1% Floodplain (100 Year Floodplain) could benefit from discounted flood insurance premiums. Coordination between the Town and the County would be essential since the County helps enforce the Flood Damage Reduction Ordinance and administers the building permit process.
- Work with residents in understanding flood damage reduction measures, FEMA programs, and potential flood insurance premium savings.
- Based on the findings of the Flood Vulnerability/Drainage Study, consider amending the Floodplain Damage Reduction Ordinance and Land Development Ordinance to strengthen standards based on the level of assessed risk discussed in ***Section 2-9.3 Flood Hazards and Sea Level Rise Vulnerabilities***.
- The current 18" freeboard could lead to flood insurance premium savings; however, if additional freeboard is provided (based on the level of assessed risk and inundation scenarios), a homeowner can save additional costs on flood insurance premiums. The cost to provide additional freeboard when already being lifted is minimal compared to the potential long-term cost savings.
- Consider additional design requirements of building foundations to protect building structural integrity against the effects of buoyancy, uplift, debris impacts, and other flood forces. ASCE-24 provides a standard of practice for flood resistant design and construction in flood-prone areas. Support structures and other foundation members shall be certified by a registered professional engineer or architect as designed in accordance with ASCE 24, Flood Resistant Design and Construction, or shall be constructed meeting this standard.
- Consider increasing wet and dry flood-proofing measures for the first floor in SLR inundation areas that extend beyond the 1% Floodplain.
- Consider extending the flood hazard area and current floodplain protection measures to include area inundated by 0.2% annual chance of flooding (500 Year Floodplain), and/or sea level rise inundation areas. This area could be referred to as the "Floodplain Planning Zone", as discussed in ***Section 2-9.4 Sea Level Rise Adaptation Strategies and Recommendations***.
- Evaluate and remove any barriers that would prohibit additional freeboard. One known example is to amend the Section 8.2.D (Height Limit Exemptions) of the LDO to include maximum building height to be Base Flood Elevation (BFE) plus freeboard.
- Consider adopting Zone VE building requirements up to the Limit of Moderate Wave Action (LiMWA).
- Evaluate options to offer planning and assistance to property owners who have frequent flooding issues and interested in voluntary action. A potential option is participate in the FEMA voluntary buyout program. Further evaluation and understanding of the buy-out program must be sought. Any property purchased through the program may be converted to open space or a wetland/ marsh expansion area. There are three programs to consider:
  1) Voluntary buyout which is permanent and land can never be developed
  2) Severe Repetitive Loss (SRL) program[1]
  3) Increased Cost of Compliance program[2]

[1] *www.fema.gov/severe-repetitive-loss-program*

[2] *www.fema.gov/national-flood-insurance-program-2/increased-cost-compliance-coverage*

- Federal and state funds may be available, as administered from DEMA and DNREC, to elevate flood and proof homes, or for the Town to purchase frequently flooded properties and convert them into open space. To be eligible for the funds, the Town must have adopted a Hazard Mitigation Plan and may need to have an area wide assessment of properties that could be eligible for assistance. Refer Hazard Mitigation Recommendations, and the sea level rise recommendations and potential funding sources described in ***Section 2-9.5.***
- Amend the LDO to provide adequate cross referencing with the Flood Damage Reduction Ordinance and ensure administrative review procedures are in place. ***See Section 2-9.6 LDO Implementation.***
- ***Also refer to Section 2-9 Sea Level Rise Vulnerability and Adaptation***.

Hazard Mitigation Recommendations:

- Ensure that the Update includes a sixth mitigation action to support homeowners with raising homes above inundation elevation or participating in FEMA's acquisition/ buy-out program for severely damaged or abandoned homes.
- Ensure that the HMP includes other sea level rise and adaptation strategies set forth in this Comprehensive Plan Update.
- Be proactive and diligent in implementing these mitigation actions, which will include coordination with the emergency management services (EMS), the Volunteer Fire Company, Kent County, DEMA, DNREC, and DelDOT, where applicable.

RBA Recommendation:

- Monitor and update maps of the current high tide line, wetlands, and the corresponding RBA.
- Consider increasing the required riparian buffer (RBA) width and/or increasing the capacity of the RBA through plantings with native vegetation.

Water Resource Recommendations:

- Amend the LDO Article 12 Section 1 Water Resource Protection Areas as follows:
  - Amend the Wellhead Protection Overlay District to ensure protection of the public drinking water supply from contamination. Seek consultation from DNREC and reference the "Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties".
  - Amend Section 12-1 to limit impervious cover in areas of excellent ground-water recharge. Impervious cover should be limited in flood prone areas and sea level rise inundation areas since impervious surface significantly contribute to flooding. Increases in impervious cover should only be considered with the utilization of best management practices or low-impact development.
  - Amend Section 12-1 B (6) to prohibit hazardous waste treatment and storage within the wellhead protection area.
  - Any new or revised regulatory provisions of any source water ordinance should refer to the most current source water protection datasets provided by DNREC.
- New development should utilize stormwater best management practices (BMPs) to enhance and accelerate infiltration of stormwater runoff and recharge the aquifer. In addition to accelerating groundwater recharge, and reducing flood hazards, BMPS will further aid the statewide Pollution Control Strategies to reduce nutrient and bacterial pollutant loads in the Murderkill River Watershed.

- Frederica should carefully monitor Kent County Wastewater Treatment Plant activities that may impact the Town and any potential redevelopment along the Murderkill River.
- Continue to enforce the Town current standards for construction in the floodplain and prohibiting development in wetlands.
- Due to sea level rise and climate change, recognize that wetlands will migrate inland, groundwater levels will rise, and saltwater intrusion will increase.
- See Section 2-4.2.1 Stormwater Management for a larger discussion and examples of BMPs. Also, refer to ***Section 2.9 Sea Level Rise Vulnerability and Adaptation***, which identifies specific areas that are vulnerable to future flood hazards associated with climate change and sea level rise, as well adaptation strategies.
- As part of the Comprehensive Flood Vulnerability / Drainage Study recommended in ***Section 2.9 – Sea Level Rise Vulnerability and Adaptation***, evaluate potential water system and supply vulnerabilities.

SOIL RECOMMENDATIONS:

- Prohibit development in poorly or very poorly-drained (hydric) soil. Proof or evidence of hydric soil mapping units should be provided through the submission of the most recent NRCS soil survey mapping of the parcel, or through the submission of a field soil survey of the parcel by a licensed soil scientist.

2-7. Community Character & Design

2-7.1. Background

In planning for its future, the Town of Frederica must consider both its existing community character and the implications of possible growth and development. A community's character is defined by its built environment, in terms of urban form, physical layout, streetscape, parking, pedestrian orientation, and property maintenance and vacancies. Character is also defined by a community's history, natural environment, and other features that make the community unique. This Section identifies the issues surrounding these elements, and the goals and strategies to preserve or enhance them.

Frederica's character and use can be primarily described as small-town residential. In general, the Town's urban form creates an identifiable, walkable town. The Town is compact with buildings that have shallow front yards and porches built to the sidewalk.

As discussed in Section 2-2 Existing Land Use, residential uses far outnumber commercial, institutional, and other land uses within the community. Residential uses are distributed throughout the majority of the community, with commercial uses concentrated along Market Street, Frederica Road, and the western portion of Front Street. Institutional uses in town include three churches located on Front and Jackson Street, Lake Forest East Elementary School, and the Post Office located on West Front Street.

The majority of the homes in town, particularly throughout the central portion of the community are single-family ranch or two-story houses, many with front porches. Some of them are being utilized as multi-family homes. Manufactured housing is concentrated in the north central and the southwest sections of town. There are no large apartment complexes within the Town; however, there are a few buildings that appear to have been designed for use as apartments.

The existing commercial and institutional uses generally mesh nicely with the residential character of the Town. These uses are not overly large in scale, with the school, post office, health center, and firehouse having the largest footprints. The sidewalk network and central location of commercial establishments on Market Street and the location of the fire company and town hall off David Street allow relatively easy pedestrian access to a variety of community facilities. Commercial and institutional located closer to the fringes of town, such as the elementary school, post office, and a 'dollar' retail store, are still within easy walking distance for most residential sections of the Town, but are more oriented to access by car. Also, annexation, commercial zoning, and a minor subdivision plan were approved in 2011 for parcels on the southern edge of town, between U.S. Route 1 and Frederica Road. The applicants had expressed interest to develop these properties as a commercial retail center.

The Town's land use goals, objectives, issues, and strategies are discussed in Section 2-2 Existing Land Use and Section 2-3 Future Land Use.

2-7.2. Public Participation Results

Crime and safety, shopping opportunities, and property maintenance were identified by respondents as issues of high importance within the Town. Almost half (48%) of the respondents to the 2014 community questionnaire ranked property maintenance as the most or second most important issue along the main roads in Frederica and in the immediate area. The age of the housing stock in the Town creates both maintenance and public-safety concerns. Older homes are generally associated with an increased need for and greater expense related to maintenance. Also, older homes are often more susceptible to serious fires. The significant renter-occupancy rate in the Town, about one-third of households, also raises concerns regarding housing maintenance. Generally,

rental properties do not have as much attention paid to maintenance. Frederica's higher-than-average percentage of residents living below the poverty level, higher-than-average percentage of single-parent households, significant elderly population, and significant percentage of residents age 21 or older with a disability could inhibit the ability of these residents to maintain their homes.

Respondents were asked how they felt about the current housing types in Frederica. There was not an overwhelming preference for one type of housing; however, respondents wanted to see more single-family homes on larger lots and single-family homes on more modest lots. In addition, respondents felt there are too many large, older homes that had been converted to apartments and too many manufactured homes.

2-7.3. Goals & Objectives

Goal: Maintain and ensure Frederica's small-town, historic character and traditions.

Objective: Maintain the amenities of the residential environment while maintaining and establishing land uses that are conducive to preserving the character of the Town.

Objective: Encourage the maintenance and restoration of historically, architecturally, and culturally significant buildings which characterize the Town of Frederica.

Objective: Ensure development and redevelopment within the historic district are in visual harmony with their neighbors

Goal: Provide affordable, quality, and safe housing for all residents.

Objective: Rehabilitate or replace substandard housing and preserve historic buildings.

Objective: Accommodate growth by providing for and encouraging the development of a mix of housing types and densities.

Goal: Maintain and ensure a decent quality of life for present and future residents.

Objective: Resolve existing problems in preparation for the projected growth of population and housing.

2-7.4. Issues & Opportunities

2-7.4.1. Housing

Housing Types / Affordability

The Delaware State Housing Authority (DSHA) provided an overview of housing market trends in the Preliminary Land Use Service review for this Comprehensive Plan Update, which is restated here:

A growing body of research indicates that Delaware, like the rest of the nation, is in the midst of a significant market shift. Baby boomers that once drove suburban development are now aging and are looking to downsize into something more manageable. The Delaware Population Consortium (DPC) projections for the next ten years indicate that not only will there be a large amount of suburban homes placed on the market by baby boomers, but that there will be a decline in households in age ranges that typically seek large homes. These same DPC projections show growth in the younger age ranges most likely at stages in their life and income to support entry level homes.

In addition, many families did not recover from the national economic crisis unscathed. Many families lost their homes, or suffered significant credit damage making it difficult to return quickly to homeownership.

As households reverted from ownership to renting, or postponed purchasing a home, both nationally and in Delaware the 2000s marked the highest decade-long growth in renter households in the last 60 years. This trend is only expected to continue. This is resulting in a tighter rental market pushing rents up. Median gross rent in Delaware rose 49% from 2000 to 2010, while median family income in the state rose only 24%. Cost-burden among renter households also remains high in Delaware. There are an estimated 25,600 cost-burdened very low-income renter households in Delaware. These stressors are compounded for persons with disabilities and other vulnerable households. At the same time, development is more complex than ever, resources to reduce costs remain scarce, and bridging affordability gaps using existing programs is a perpetual challenge.

All of these factors indicate that it is critical that communities proactively provide a variety of housing options to meet the needs of their residents.

The U.S. Census 2010 reported that 26.4% of housing in Frederica is renter-occupied. The Census also reported that 8.1% of Frederica's population is over the age of 65. Also, the Town has a higher-than-average population over the age of 21 with disabilities and a higher-than-average percentage of single-parent families.

Property Maintenance

These aforementioned housing and demographic trends have implications related to property maintenance. Often, rental properties are not as well maintained as owner-occupied housing, since the renter does not have as great an incentive to maintain the property's value. Those in the elderly population and those living with a disability are often less able to adequately maintain their properties. Also, single-parent families may have difficulty finding the time to maintain their properties. Finally, the fact that the majority of homes in Frederica were built prior to 1940 suggests that these homes will likely need more attention to maintenance issues than newer homes might.

These factors heighten the attention that should be paid to property-maintenance issues within the Town. These demographic issues are further supported by the results of the community questionnaires conducted in 1988, 2003, and in 2014 for this Update, where respondents consistently prioritized property maintenance as one of the most important issues in town.

Maintenance concerns will likely impact the ability of Frederica to maintain its current community character. Most housing in the Town is in relatively good condition, with some examples of excellently maintained structures. Within the historic district there are some houses that are in need of repairs, ranging from major construction to simple painting.

Vacancies

Vacant houses within town raise both aesthetic and public-safety issues. Vacant properties that are not maintained may be an eyesore in the areas where they are located. Also, vacant properties may pose a risk to residents' safety within the Town.

Existing commercial uses within Frederica primarily serve the needs of Frederica's residents. These uses are of significant benefit to residents who would rather not drive out of town to make purchases. These businesses serve a valuable function to residents, and it will be important to help ensure their continued existence within the Town. While there are not a large number of commercial vacancies within the Town, there has been concern expressed about the ability of the community to maintain small grocery markets within town.

Conversion of Homes

The community questionnaire revealed significant opposition among respondents to large, older homes being converted to apartments. Conversion of these homes for uses other than single-family homes may be requested, because the cost of maintaining these homes is more than the cost to maintain a more modern home.

Manufactured Housing

The proliferation of manufactured homes throughout town raises issues of historic preservation, aesthetics, and affordable housing, which will have to continue to be dealt with in a comprehensive and open fashion. The Land Development Ordinance (LDO) was recently amended to include provisions that ensure all replacement and modified manufactured housing adheres to similar standards throughout the Town. The amendments allow replacements and modifications to all existing nonconforming manufactured housing if they decrease the non-conforming situation and increase consistency with standards for single-family homes.

HABITAT FOR HUMANITY:

Habitat for Humanity's vision is a simple one: "A world where everyone has a decent place to live." The Town of Frederica's goals to provide quality, affordable housing is very much aligned with this vision, and the Town is very supportive of the volunteer program. Habitat for Humanity's efforts and success in Frederica are rehabilitating vacant or dilapidated properties and improving the Town's housing environment.

7th Street Before

7th Street After

There are currently 12 active Habitat Homes and 3 properties in a land bank for future housing projects. ***See Map 12 - Redevelopment***. To support and facilitate, Habitat's efforts, the Town of Frederica currently waives certain impact fees and reduces water impact fees. Habitat for Humanity is currently active with other programs in Frederica as well, including:

A BRUSH WITH KINDNESS (ABWK): Central Delaware Habitat for Humanity will implement an owner-occupied beautification program called A Brush with Kindness in the Fall/Winter 2014. The program will be piloted within town limits of Frederica prior to opening the program up to other residents in Kent County. This program is an effort to expand the neighborhood revitalization initiative Habitat started with the new construction homes. This will also serve a greater number of people in the community. Applications will be taken for projects pertaining to removal of overgrowth in yards, exterior painting of homes, decks or porches and/or other minor exterior beautification projects. Habitat will also accept applications for ramps. The target population will be owner-occupied, low-income residents of Frederica.

COMMUNITY RESIDENT SURVEY: Central Delaware Habitat is in the process of conducting community resident surveys. The purpose of this survey is to measure the impact Habitat has had on the Town of Frederica over the past three years as well as hear from the residents as to their needs in their community. Habitat will continue to gather the surveys until enough are completed to provide valid results. Once the

information has been gather and the results have been analyzed, Habitat will share the information with the Town of Frederica.

STREET FAIR/BLOCK PARTY: In August 2014, Central Delaware Habitat for Humanity partnered with the Town of Frederica and Frederica Senior Center to host a Community Street Fair. There were 18 vendors and over 150 attended the event. There was free food, face painting, inflatable bounce house, games, and fire truck.

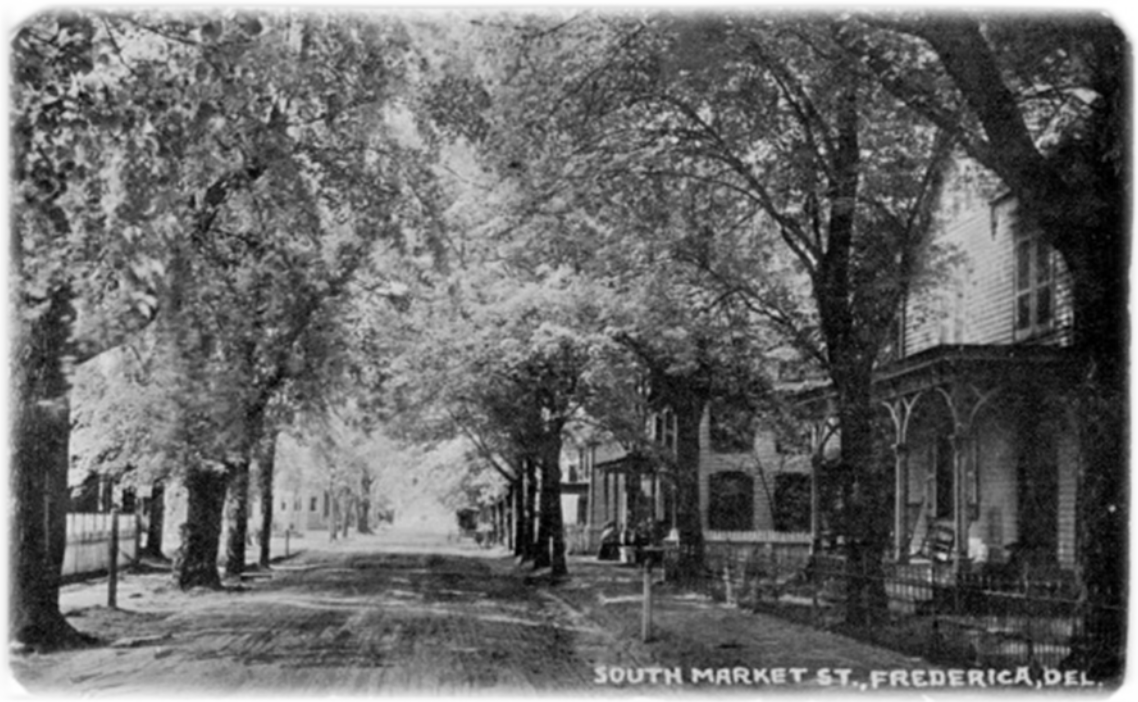
Street Fair | Aug 2014

2-7.4.2. HISTORIC RESOURCES

One of the defining features of Frederica's community character is the Town's large historic district. ***See Map 11 - Historic Resources.*** The district consists of 134 properties and covers approximately 25 acres, encompassing nearly the entire historic core of the Town along Market, Front, and David Streets. It was listed as a historic district on the National Register of Historic Places in 1977. As a result, building owners who improve their properties may be eligible for state, federal, or county tax credits.

Frederica's historic district primarily comprises residential uses. Most of the structures in the district date from the middle of the eighteenth century to the late nineteenth century. The majority of the buildings in the district are of frame construction, sit close to the road, and have two stories and an attic. Some unifying details among houses in the district include the size of buildings, usually being less than five bays, and the presence of tin-plated roofs. Architectural styles represented in the district include Georgian, Greek Revival, Italianate, and Gothic Revival. Some of the older structures in the district and a few commercial buildings along Market Street are of brick construction. The commercial structures in the district are not overly large and mesh nicely with the residential scale of the community.

As part of the LDO, Frederica adopted a Historic District Overlay Zone as shown **Map 11**, which requires construction, alterations, repairs, demolition and changing the exterior appearance of a structure to obtain a Certificate of Approval of compliance with the Historic



District Review. The District sets forth the principles in granting a Certificate of Approval.

The Planning Commission reviews an application for general compatibility of exterior design, arrangement, texture and materials with the established character of the district. The Planning Commission must consider architectural style, design, height, bulk, setbacks, arrangements, location and materials. Ordinary repairs and maintenance that do not constitute a change to the exterior appearance of the structure do not require a Historic Review. As raised through the site plan review process, there is concern that the process has too much ambiguity and uncertainty in determining "general compatibility" to grant a Certificate of Approval.

2-7.4.3. Other

Physical Layout:

In general, the Town is fairly pedestrian-friendly with sidewalk lined streets and streetlights. While few trees line the streets, there are grass strips that buffer passersby from traffic as well as street parking on at least one side throughout most of the Town. Even without these barriers, the irregular and narrow street pattern slows traffic considerably. Maintaining a pedestrian orientation will be important to preserving Frederica's small-town atmosphere.

Parking:

The conversion of older buildings to apartments with little or no provision for off street parking has created serious parking issues along downtown streets. Adequate space for new parking lots on redeveloped parcels with the Town's historic core and town center area may not be available. Aesthetic concerns have also arisen because of this parking issue. Parking has occurred on lawns and has generally disrupted the historic character of the Town. The Town's parking standards in the LDO were recently revised to:

- Clarify when the requirements apply to renovations and use of an existing building.

- Provide clarity and specificity to existing requirements. Provides a formula to estimate parking needs. Requires a parking study and legal agreement.
- Add location and design standards for parking lot access and driveways.
- Add parking lot construction materials and pavement markings requirements.
- Add interior and perimeter landscaping requirements for parking lots.
- Add requirements for large parking lots that exceed 120% of the minimum parking. Provisions increase landscaping and allow pervious material.

NATURAL RESOURCES

Natural resources also contribute to the community character of Frederica by creating strong boundaries. The Town developed both economically and geographically around the Murderkill River. Wetland regions within the Town surround the river and dominate almost the entire eastern portion of the Town. There are also forests located in the north and southwest areas of the Town. Frederica has an abundant resource of trees that contribute significantly to the Town character and economic value. There are also agricultural uses both within and surrounding the Town's boundaries. A larger discussion on protecting natural resources (wetlands, marshes, riparian corridor) is provided in ***Section 2-6 Natural Resources.***

NOISE DISTURBANCES

Frederica lies within the 65 dB noise contour, as defined in the 2010 Air Installation Compatible Use Zone (AICUZ) study published by the Dover Air Force Base. The county and the City of Dover have both enacted sound attenuation ordinances requiring homes to be insulated against the noise of air traffic from Dover Air Force Base.

2-7.5. RECOMMENDATIONS

2-7.5.1. HOUSING

HOUSING TYPES / AFFORDABILITY

- Through the plan review process for Planned Unit Developments (PUD), the Town should require a full-range of housing types and unified design elements.
- Promote the traditional neighborhood development (TND) zoning, which provides for compact and mix of housing styles to accommodate households of all ages and incomes.
- Reduce and/or waive community impact and/or water connection fees for developers and non-profit organizations seeking to build affordable housing units
- Planning Commission and Town Council members should attend fair housing training.
- Seek technical assistance from DSHA in reviewing tools and strategies to increase affordable housing opportunities. DSHA's website includes an "Affordable Housing Resource Center" with resources and tools to help create affordable housing.

PROPERTY MAINTENANCE

Consider some low cost methods to support the maintenance and rehabilitation of housing within the Town:

- Start a library of information on the repair and upkeep of older homes and products.
- Publicly recognize well-maintained and newly fixed-up properties.
- Maintain a list of approved contractors.
- Ask churches, Boy Scouts, or other community groups to provide maintenance assistance to residents in need.

VACANCIES

- Vacant properties within town should be examined with assistance from Kent County's Building Inspector to assess their capability for rehabilitation and to ensure that the properties do not pose a public safety risk to the Town's residents.
- *See* ***Section 2-8 Redevelopment*** for recommendations related to the infill and reuse of vacant and underutilized parcels.

HABITAT FOR HUMANITY

- Continue to promote, support, and assist the Habitat for Humanity in their efforts to acquire property, build new homes, and renovate and maintain existing homes. It is recommended the Street Fair be an annual event, and the Town should continue to help coordinate and advertise the event. It is further recommended that the Town continue to offer administrative support with the Community Resident Survey.

2-7.5.2. HISTORIC RESOURCES

- Ensure that the Historic District Overlay District provisions aim to achieve the purpose statement set forth in Section 6-1 of the LDO.
- Enhance the Historic District Overlay District review process to provide applicants an enabling and consultative process that respects the rights and interests of builders and property owners with requirements that are clear and predictable, but also flexible.

  Historic District Review. Revise the historic district review application form to be consistent with District regulations and review criteria provided in Section 6-2. I.6 of the LDO. Also, revise the process to be more user-friendly by omitting subsection I.6 b. ii. (c) and providing a checklist with the application to ensure criteria are met.

  Architectural Guidance. Consider adopting an architectural design manual that will add more detail and specific examples of the historic district principles and review criteria provided in Section 6-2. I. 8 of the LDO. The manual will help builders and homeowners become familiar with what the Town seeks regarding architectural details and scale. Using the guidelines, the review process would determine architectural value, character and compatibility with the overall historic district.

  The manual should provide guidelines that offer property owners a range of suitable design options and materials to achieve the principles and criteria. Goals of the design manual are to keep it user friendly, clear and concise, and illustrative-based. Examples using pictures throughout the historic district should be included in the document that provides architectural tools that can be used to achieve the principles and criteria. An applicant would need to demonstrate, and the Town would need to approve, how a proposed design meets the principles and criteria using the specific examples in the manual. The focus should be on architectural integrity that reflects the small-town and pedestrian-scaled styles characteristic of Frederica.

  The manual should not be intended to cover all circumstances. No particular architectural style should be mandated; rather, the manual should give the Town the ability to address the unique conditions of each project, while giving the applicants flexibility to develop their own designs that meet the principles and criteria. In addition, the manual and review process should ensure that review decisions are made in a clear, certain and predictable manner.

- ***Explore Historic District Funding Sources.*** The presence of a historic district creates some funding opportunities for improving the condition of structures that contribute

to this district. There are several funding sources available that offer low-interest loans, tax credits, and grants to rehabilitate structures within a nationally recognized historic district. Refer to ***Section 2-7.6 Potential Funding Sources for Housing & Historic Resources.*** The Town should work with Delaware's State Historic Preservation Office and Kent County's Preservation Planner to publicize the availability of these funds and to assess the capability for rehabilitation or adaptive reuse of structures within the historic district.

- ***Historic District, Flood Hazards, and Sea Level Rise.*** There are no structures in the designated Historic District that fall within the sea level rise inundation areas discussed in Section 2-9 Sea Level Rise Vulnerabilities and Adaptation. On the south end of Market Street, there are 5 structures in Historic District that are within the FEMA Floodplain (2 in the 100 year floodplain, and 3 in the 500 Year Floodplain). These properties will need to be assessed for their historic significance and hazard vulnerability. It is recommended to ensure the integrity of historic structures while minimizing loss and damage from hazard events. Explore ways to Integrate historic and cultural resources into hazard mitigation planning.[1]
- Publicize the availability of funds in ***Section 2-7.6*** to rehabilitate historic structures and assess the capability for rehabilitation or adaptive reuse of structures in the Historic District.

Physical Layout & Parking

- The "Main Street" program has been successfully instituted in other Delaware towns to promote economic activity while maintaining a small-town atmosphere. Even if the Town does not become formally involved in the program, it would likely be helpful to follow a "Main Street" approach, which focuses on design, organization, promotion, and economic restructuring. More information on the Main Street program can be found on the national website at www.mainst.org or on Delaware's Main Street website at *www.delawaremainstreet.com.*
- ***District Affiliate Program:*** The Delaware Preservation Delaware, Commercial District Affliate" (CDA) is a designation developed by the Delaware Economic Development Office (DEDO) for communities that choose to implement downtown revitalization strategies similar to designated Main Street programs, but on a smaller scale. Some of these towns are "testing the waters" as they consider future Main Street designation. DEDO works with these communities to build strategies that will encourage partnership-development, new funding opportunities, and increased opportunities for small businesses.

  CDA towns may participate in Downtown Delaware's group training activities led by state and national downtown development experts. Affiliates are in the "network" to learn about best practices in the field of revitalization, to work with a downtown business development expert, and to trade best practices with peers from around the state, particularly in the area of business development. Many of Delaware CDA's are direct beneficiaries of USDA grant related activities. More information is located at *www.delawaremainstreet.com/affiliates.*
- Streets in new developments should connect to existing streets and extend the current grid layout.
- Continue to enforce the development standards that promote an appropriate mix of uses, form-based development, and "complete street" improvements.

[1] *http://www.fema.gov/media-library-data/20130726-1522-20490-2886/howto6.pdf*

- Enforce and encourage the Town's shared parking, parking reduction, and parking design policies in the LDO.

NOISE CONTOUR

- Consider developing an ordinance, in consultation with the county, requiring new homes to be equipped with sound insulation. The county and Dover use such ordinances to protect Dover Air Force Base's mission by minimizing the noise disturbance.

2-7.6. POTENTIAL FUNDING SOURCES FOR HOUSING & HISTORIC RESOURCES

There are several programs available to Frederica and property owners that are designed to aid the repair of housing and the preservation of historic resources.

COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG) PROGRAM: The Delaware State Housing Authority administers the CDBG program, which offers assistance to low- and moderate-income homeowners in Kent County who need home repairs or handicapped-accessible features. Homeowners interested in applying should contact Kent County.

HISTORIC-HOMES FUNDING SOURCES: Structures that contribute to Frederica's National Historic District are eligible for funding to aid in the rehabilitation historically significant structures.

TAX-CREDIT PROGRAMS: Federal, state, and county tax incentives are available for assistance in rehabilitating properties of significance in a National Register of Historic Places district. Information on these programs can be obtained from Delaware's State Historic Preservation Office.

FIRST STATE PRESERVATION REVOLVING FUND: Preservation Delaware, Inc., offers short-term, low-interest loans and grants for rehabilitation and stabilization projects through the First State Preservation Revolving Fund. Eligibility criteria include ownership of a property that is a contributing element in a National Register of Historic Places district and adequate creditworthiness.

USDA RURAL DEVELOPMENT – RURAL REPAIR AND REHABILITATION LOANS AND GRANTS: The Very Low-Income Housing Repair program provides loans and grants to very low-income homeowners to repair, improve, or modernize their dwellings or to remove health and safety hazards.

USDA RURAL DEVELOPMENT – HOUSING PRESERVATION GRANTS: HPG assistance is available from grantees to assist low-income homeowners/ rental property owners to repair and rehabilitate their homes/ rental property providing they agree to make such units available to low-income families. Financial assistance provided by the grantee may be in the form of a grant, loan, interest reduction on commercial loans, or other comparable assistance.

2-8. REDEVELOPMENT

2-8.1. BACKGROUND

TOWN CENTER AND WATERFRONT REDEVELOPMENT

A healthy and vibrant downtown is critical to Frederica's economic well-being and quality of life. One of the key characteristic features of Frederica, as opposed to suburban development, is the existence of an identifiable, walkable downtown along the banks of the Murderkill River. The river is a critical part of the Town's history as well as its future. A key priority redevelopment area is the designated Town Center zoning district which is located along the river and surrounding the intersections of Frederica Road, Market, Front, and David Streets. This area is referred to as the Town Center and Waterfront Redevelopment Area. ***See Map 12 – Redevelopment.***

This area presents unique advantages and exciting development opportunities to reinvent Frederica as an economically thriving and vibrant riverfront town. First, the area has a compact historic core with a gridded street and sidewalk network that connects adjacent neighborhoods with residents seeking employment, shopping, and entertainment opportunities. Second, this area is located off the heavily traveled State Route 1 that could offer passersby seeking the nostalgia of historic small town America or an alternative to auto-oriented chain establishments. Third, the river and riparian corridor could offer astounding recreational opportunities by means of a community park, a riverwalk, and water trail that could connect Killens Pond State Park and Bowers Beach.

There are multiple land use and community development goals that could be achieved with the redevelopment of these properties. The redevelopment of this area with mixed-use planned developments would help meet Frederica's retail, entertainment, residential, recreational and civic use needs. The redevelopment of this area with streetscape improvements and proper pedestrian connections could enhance the overall appearance of the adjoining neighborhoods and the Town as whole.

Due in part to the highway commercial uses outside of town, the high presence of vacant and underutilized properties in town, and the previous establishment of the industrial and auto-oriented uses, the Town doesn't have a lot of pedestrian activity that would in-turn stimulate more retail and entertainment uses. Developing pedestrian-oriented mixed-use development at a scale and character that emulates the historic district would likely boost more redevelopment and eventually a more active, and thriving downtown.

2-8.2. PUBLIC PARTICIPATION RESULTS

The 2014 Community Questionnaire asked respondents what new or additional facilities or institutions they want for the Town, and to rank how important each item is – 1 being Extremely Important and 5 being Extremely Unimportant. Relevant to the discussion on redevelopment, the most important potential new facilities to respondents, in order, were a town park and active recreation, a community center, new opportunities for shopping, and more businesses and jobs in town. Respondents were also asked how they feel about the certain types of land

uses for vacant lands within the existing town boundary. The most desirable uses were public places (such as a community center, library or farmers market), parks, and commercial uses. The least desirable uses were institutional and industrial. The public-participation process also revealed that many residents would like the waterfront area to be accessible to the community for recreational uses.

2-8.3. REDEVELOPMENT GOALS & OBJECTIVES

GOAL: Frederica will have a healthy and vibrant downtown and waterfront area that is a central gathering place to live, work, shop, and play.

OBJECTIVE: The Town Center and Waterfront Redevelopment Area will serve as the community focal point of Frederica by providing central access to a variety of uses, containing residences, retail, entertainment, and civic and public spaces.

OBJECTIVE: Be vigilant in keeping the focus on the Town center, so as not to draw important services and community features away from the center of town.

OBJECTIVE: Redevelopment efforts will increase homeownership and quality, affordable housing opportunities, as well as job opportunities in town.

GOAL: Frederica will reclaim the banks of the Murderkill River and re-solidify itself as a riverfront town.

OBJECTIVE: Productively re-use vacant and marginally used land to achieve the overall community and economic development goals.

OBJECTIVE: Protect the natural setting and environmental features associated with the Murderkill River, including the marshes, wetlands and the riparian corridor.

OBJECTIVE: Implement redevelopment strategies that reduce the negative impacts and capture the opportunities from climate change and seal level rise.

GOAL: Redevelopments in town will consider Frederica's historical context and respect its small-town atmosphere.

OBJECTIVE: The scale and character of infill development and within the Town Center and Waterfront Redevelopment Area will emulate and extend the historic district.

OBJECTIVE: If Frederica is to maintain its small-town historical atmosphere that would attract new development, it is crucial that existing features of the community remain intact.

2-8.4. ISSUES & OPPORTUNITIES

URBAN DESIGN

The Town of Frederica Land Development Ordinance (LDO) currently has a designated Town Center zoning district with development standards that advance high quality urban design and place-making principles that aim to stimulate pedestrian activity and economic development. These standards emulate Frederica's existing urban form and are sensitive to its small-town scale and historical context. The standards aim to create a compact, mixed-use, walkable, and attractive town center. The standards establish site design elements and architectural styles for new development to emulate the Town's historical character and for the adaptive reuse of existing structures. In large part, the Town Center District standards regulate the site and building form over type of use, as it permits a variety of retail, residential, institutional, civic, and cultural uses. Pedestrian-scale is further promoted by not permitting auto-oriented uses such as service stations and drive-in restaurants that are better suited outside of the Town's historic core. The building design standards help to create a pedestrian environment and uniform street edge in the Town center at a scale appropriate for a small town. The streetscape improvements add to the beautification of the street corridor. The Town's current parking standards encourage parking lot design that serves a mixed-use and a pedestrian-friendly environment counting on-street parking or

encouraging shared parking. These parking reductions could help lower development cost as new uses may not need to construct a new parking lot on site. These parking reductions also help place parking in strategic locations, reduce the overall amount of impervious surface, and allow buildings to define the streetscape creating a pedestrian-oriented environment.

With specific regard to development along the waterfront, Section 6-2.K.5 of the LDO enables the Town to waive requirements for properties in the Town Center and adjacent to the Murderkill River. Waivers may be granted if they result in "superior urban design and waterfront redevelopment", encourage compatibility with and enhancement of the surrounding environment, and provide public access to the waterfront. The intent of the waiver is to offer the flexibility to permit development in the riparian corridor if it achieves a greater public purpose through high quality redevelopment that is sensitive to the natural environment and provides public access to the riverfront. The Town Center District, the riparian buffer requirements, and the flexible review criteria were adopted prior to the more recent studies and findings related to climate change and sea level rise vulnerability, which has a direct influence on how development occurs in this area. The code, as written, may offer too much flexibility to protect against increased flood hazards associated with against sea level rise; and may not offer enough predictability and certainty that developers may seek to invest in Frederica's downtown and waterfront development. Also See ***Section 2-9 Sea Level Rise Vulnerability and Adaptation***.

BROWNFIELDS

The Town Center and Waterfront Redevelopment Area consists of numerous vacant and marginally utilized parcels, and some former industrial and potential "brownfield" sites. The extent of environmental contamination is unclear. While the Town's waterfront area has not been identified as a Hazardous Substance Release Site, underground storage tanks near the waterfront suggest the potential need for environmental remediation before redevelopment can occur. DNREC's Site Investigation and Restoration Branch within the Division of Air and Waste Management "is responsible for the identification, evaluation, and remediation of hazardous waste sites in the state."

There is one brownfield site (former Mike's Mini Mart site), which was cleaned and certified by DNREC. Some of the other parcels in this area may also qualify as certified Brownfield sites. There a several funding sources available to support investigations and remediation activities to help make the sites market ready for redevelopment. These funding sources are discussed in ***Section 2-8.5*** below. Cleaning up and reinvesting in these properties, even if not certified Brownfields sites, will significantly contribute to the overall community goals as it will help to reuse vacant and underutilized lands for mixed-use and recreational purposes while preserving the riparian corridor of the Murderkill River.

Following clean-up, sites can be placed in the **Delaware Brownfields Marketplace**, which is an interactive database of market-ready Brownfield sites throughout Delaware. The inventory is designed to make it easier for potential buyers and developers to locate available Brownfield properties.

Brownfield Site (former Mike's Mini Market)

2-8.5. REDEVELOPMENT RECOMMENDATIONS

Through the many strengths and opportunities noted above, the Town of Frederica is poised for growth development. The next step in the redevelopment process is to build from these strengths, carry-out the Town's vision, and put the urban design standards in the Town Center District to work. The Town will need to work diligently with private-public partners towards stimulating growth, attracting developers, and promoting the Town's many geographical, historical, and environmental assets. The following sets forth the Town's redevelopment strategies. ***See Map 13 - Town Center and Waterfront Redevelopment Strategies.***

- Continue to enforce the Town Center District development standards that promote an appropriate mix of uses, form-based development, and "complete street" improvements.
- Review the LDO for any barriers or deterrents to developing in the Town center and seek ways to streamline and incentivize redevelopment applications. Specific attention shall be paid to the waiver review criteria and procedures in Section 6-2.K.5 of the LDO for projects adjacent to the Murderkill River.
- Evaluate current strategies for preservation, rehabilitation, or adaptive reuse of historically or architecturally significant buildings. Also see ***Section 2-7.4.2 Historic Resources.***
- Promote compatible infill on vacant and underutilized parcels.
- Work with DNREC's Site Investigation and Restoration Branch and the property owners to initiate clean-up of the certified **Brownfield** site and to further investigate other sites for environmental barriers to redeveloping its waterfront for public and recreational use.
    - Investigate the available funding programs to conduct environmental assessments and potential clean-up of the waterfront and town center area, and further assist property owners or potential developers in participating in these programs. ***Refer to Section 2-8.6 Funding Sources for Redevelopment.***
    - Following Brownfield certification and clean-up, contact DNREC's Site Investigation and Restoration Branch to add remediated Brownfield sites to the Marketplace inventory database.
    - Consider hazards such as flooding during the remediation of brownfields.
- Develop and adopt a long-term **Town Center and Waterfront Redevelopment Plan**. The Redevelopment Plan will support and continue the Town's ongoing revitalization efforts, and will:
    - Market, promote and incentivize economic development.
    - Set forth a shared vision for waterfront redevelopment.
    - Identify and assess assets and opportunities to capitalize on, as well as obstacles to overcome, and will seek ways to stimulate growth.
    - Supplement and build off of the vision, goals and recommendations in this Comprehensive Plan Update
    - Build off of the planning efforts and establishment of the Town Center District.
    - Meet the criteria and application requirement for seeking a Downtown Development District designation.
    - Illustrate the vision and specific goals of the Town Center and Waterfront Redevelopment Area
    - Evaluate and implement tools that incentivize economic redevelopment and

that take advantage of the area's strengths and opportunities.

- Identify a Key Priority Project that will be a focal point to the area and anchor other redevelopment efforts.
- Identify physical improvements necessary to create "complete streets". Also see ***Section 2-5 Transportation.***

- Seek **Downtown Development District** designation through the state. Participation in the program will assist to make the Town Center District market-ready and incentivize private capital investment in the area. The program will further assist to improve the commercial vitality of the area and create new employment and quality housing opportunities. The program will entitle private construction projects within the District to receive grants to offset up to 20% of their capital construction costs.[1]
- Integrate and coordinate the economic development and redevelopment planning strategies herein with the park and open space goals and recommendations in ***Section 2-4.2.6 Recreation and Open Space.*** Some portion of the protected Riparian Buffer Area (RBA) along the Murderkill River should be a community recreation area and include both passive and active recreational opportunities. Contact DNREC's Grants and Community Assistance Administrator to investigate funding opportunities through the Delaware Land and Water Conservation Trust Fund (DTF). Frederica could be eligible to receive a matching grant for the planning, acquisition, and development of a waterfront greenway with recreational facilities and a riverwalk. Funds may also be used for riparian corridor conservation and protection.
- Integrate and coordinate the redevelopment planning strategies herein with the sea level rise adaptation goals and recommendations in ***Section 2-9 Sea Level Rise Vulnerability and Adaptation.*** The redevelopment of high hazard risk areas along the waterfront for recreation purposes may benefit the community from land that is otherwise prone to hazards.
- Consider the creation of a waterfront redevelopment committee or redevelopment authority to see through and implement the Redevelopment Plan. The committee / authority could be charged with marketing and promoting the redevelopment area, forging new partnerships, coordinating efforts with stakeholders, and leveraging state government resources towards rehabilitating and revitalizing Frederica.

2-8.6. Potential Funding Sources for Redevelopment

There are several programs available to Frederica and property owners that are designed to aid redevelopment efforts.

Downtown Development District: Under the Downtown Development District program, state designated Districts are entitled to receive significant development incentives and other benefits to spur investment and community development. Among other benefits, investors who make qualified real estate investments in Districts will be entitled to receive grants of up to 20% of the cost of their investments. The program is administered by the Delaware State Housing Authority (DSHA).

Neighborhood Building Blocks Grant: Funding to support planning activities associated with Downtown Development Districts is available through the Neighborhood Building Blocks Fund. The Neighborhood Building Blocks Fund is intended to support crime reduction, neighborhood revitalization, and economic development programs statewide, including programs in and around Downtown Development Districts and communities that are part of DOJ's Building Blocks Initiative.[2]

[1] *http://stateplanning.delaware.gov/ddd/*

[2] *http://www.dedo.delaware.gov/BusinessServices/DowntownDelaware/nbbf.shtml?DowntownDelaware*

BROWNFIELDS DEVELOPMENT PROGRAM: Grant money available through DNREC's Delaware's Brownfields Development Program can support investigations and remediation activities to help make the sites market ready for redevelopment. This program offers matching funds to cover the costs associated with the investigation and remediation of a Brownfield site. Non-profits and private parties may apply for no-to-low interest loans and grants to perform cleanups.[3]

BROWNFIELD ASSISTANCE PROGRAM: If a site is certified as a Brownfield by DNREC, the property owner, prospective owner or developer may be eligible for matching grants through the **Brownfield Assistance Program**, administered by the Delaware Economic Development Office (DEDO). The program offers the lesser of up to $100,000 or 50 percent of the costs associated with the investigation and remediation of a Brownfield site. Unlike DNREC's program, each project funded by the DEDO program must have an employment impact of a minimum of five permanent full-time jobs.[4]

COMMUNITY DEVELOPMENT BLOCK GRANT: Frederica is eligible to apply for Community Development Block Grants through Kent County's Housing and Community Development Coordinator. This grant program provides funding to maintain or improve existing housing and for the provision of infrastructure in support of housing development for low- and moderate-income persons.

BROWNFIELDS ASSESSMENT AND CLEANUP GRANT GUIDELINES: Administered by the Environmental Protection Agency (EPA), these brownfields grants may be used to address sites contaminated by petroleum and hazardous substances, pollutants, or contaminants. Opportunities for funding include a Brownfields Assessment Grants and a Brownfields Cleanup Grants, which may each award up to $200,000 over three years.[5]

COMMUNITY REDEVELOPMENT FUND: This fund is a matching-capital-grant program administered by the Office of the Budget with the assistance of the Office of the Comptroller General. Local governments can receive up to 40% of project costs to be used for community redevelopment and revitalization and capital projects that will improve the economic, cultural, historical, social, and recreational health of communities.

[3] *www.dnrec.delaware.gov/dwhs/sirb/Pages/Brownfields.aspx*
[4] *http://dedo.delaware.gov*
[5] *http://www.epa.gov/brownfields/applicat.htm*

2-9. Sea Level Rise Vulnerabilities & Adaptation

2-9.1. Background

Frederica's geography and elevation, like other Delaware coastal communities, make it particularly vulnerable to increased flooding related to sea level rise and climate change. The Town recognizes that overall precipitation is increasing with more frequent and intense storm events. The Town also recognizes that sea level rise is expanding high tide inundation areas and increasing flood hazards. The rate of sea level rise will only accelerate in future years due to climate change, which could cause the level of Delaware's oceans, bays, and tidal rivers to rise between 1.6 feet (0.5 meters) and 4.9 feet (1.5 meters) above their present levels by the end of the century.[1]

Currently, approximately 30% of the total area within the Town boundary is inundated with water at high tide (the mean higher high water). ***See Map 14 - Sea Level Rise Inundation Scenarios***. The Town experiences nuisance flooding events such as repeated flooding of streets and property, and is also at risk for occasional extreme flooding events due to strong coastal storms. Sea level rise is anticipated to increase this inundated area to between 33% and 38% by 2100. Within the current and future sea level rise inundation areas reside approximately 24 homes, 6 non-residential use buildings, a wastewater pump station, major roads and bridges, underground storage tanks, wetlands, and a protected riparian buffer area. The area also includes vacant and underutilized parcels that were previously used for industry and are now part of Frederica's future Town Center and Waterfront Redevelopment Area.

The Sea Level Rise component of the Comprehensive Plan Update is the first step toward building adaptive capacity and overall resiliency to sea level rise, coastal storms, and climate change. The adaptation strategies in this section and throughout the Plan aim to strike a balance between mitigating the negative impacts associated with sea level rise and revitalizing the Town. This section sets forth goals and objectives to be a resilient community, assesses vulnerabilities to current and future hazards, and proposes adaptation strategies.

To aid in assessing vulnerabilities and adaptation strategies within this framework of the Comprehensive Plan, Frederica has received a Coastal Management Assistance Grant administered by DNREC's Delaware Coastal Program. Technical guidance was further provided by the Coastal Program and the Division of Energy and Climate.

Wastewater Pump Station on South Market St.

2-9.1.1. Review of Policies & Documents

The comprehensive planning team evaluated requirements, standards, and policies related to sea level rise vulnerability and adaptation. The documents that were reviewed include the Town of Frederica Land Development Ordinance (LDO), the recently adopted Flood Damage Reduction Ordinance, and the 2004 Comprehensive Plan.

The land use policies and regulations were evaluated to determine those barriers that may hinder adaptation that should be removed, as well as opportunities that could be capitalized upon. The Town has land use policies and regulations that mitigate flooding impacts, and that protect stream courses, wetlands, and

[1] *Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware.* Delaware Coastal Program, September 2013.

riparian corridors. In general, the Town's policies discourage development or redevelopment within natural hazard areas that help to ensure that stormwater does not enter the Murderkill River and its tributaries directly.

To display which areas that may already have adaptation measures in place, the Delaware Coastal Program's sea level rise scenarios data, which are further discussed in Section 2-10.5 Flood Hazards and Vulnerabilities, was overlain with environmental protection areas per the LDO. ***See Map 15 – Sea Level Rise and Environmental Protection.*** This map shows the mean higher high water line (MHHW), state designated wetlands, and the Town's Riparian Buffer Area (RBA), which preserves 100 feet from the MHHW and 50 feet from wetlands. The map also shows the FEMA Floodplains. Much of the MHHW with 4.9 feet (1.5 m) of sea level rise coincides with the 1% Floodplain, and for the most part, is protected by the Town's Flood Damage Reduction Ordinance and the RBA. These regulations are helping to mitigate the current risks; however, largely due to the dynamic nature of shorelines and sea level rise, more action is needed to ensure safety from future risks.

The team also evaluated various federal and state policies and initiatives on sea level rise and coastal storms. The data, guidance materials, and decision-support tools from these resources are integrated into this section. Key regulations, policies guides, and resources used for this Plan include FEMA flood insurance laws and programs, Delaware Coastal Program's *Preparing for Tomorrow's High Tide* as well as Sea Grant Delaware's *Natural hazard and Climate Change Adaptation Tool Kit for Delaware*, prepared in January 2014. The Town's adaptation strategies are aligned with the policies and practices on the federal and state levels.

2-9.1.2. Planning & Public Participation Process

The comprehensive planning team administered a public-opinion questionnaire, a community workshop, and a Planning Commission Special Meeting geared toward agency coordination.

Community Questionnaire:

The team administered a community wide questionnaire that gauged resident's experience with various flooding, solicited their awareness on sea level rise vulnerability in town, and subsequently, asked what adaptation measures would be appropriate to mitigate this vulnerability. The questionnaire was sent out to all households and 36 were returned. The questions are attached in **Appendix A.** In general, the community is aware that sea level rise due to climate change is a valid issue that can impact the Town. The majority of respondents stated that they worry about sea level rise a little to a moderate amount. While some respondents stated that they worry a great deal, some said they do not worry about sea level rise at all. Only one respondent said that sea level rise will not impact Frederica.

The majority of respondent's property does not appear to be directly impacted as only 5% of respondents stated that their property is in a floodplain; 55% of respondents stated that their property was not; and 36% stated that they did not know. In addition, 46% stated that they did not know if their property was adjacent to a flood hazard area. 15% of respondents stated that their property has standing water when it rains.

Then when asked how Frederica could better prepare for sea level rise, the responses were fairly evenly dispersed. The majority, 59%, prioritized managing stormwater through Best Management Practices (BMPs). Other options are as follows: Implement flood damage protection measures for buildings, 45%; New developments should minimize flooding impacts, 41%; Provide education and public outreach programs, 38%; Build flood protection walls or bulkheads, 29%. 9% felt that the Town does not need to do anything.

COMMUNITY WORKSHOP:

The planning team held a Community Workshop on June 9, 2014 where the results of the questionnaire were presented. In addition, an overview of sea level rise, hazard mitigation, and climate change was provided by representatives of DNREC. Sea level rise issues were discussed in the context of land use planning, specifically as it pertains to the Town Center District and Murderkill River waterfront area. The meeting resulted in a general overview and understanding of the key issues as well as a general strategy moving forward.

SPECIAL MEETING:

The team then prepared sea level rise resiliency goals and objectives as overarching guidance statements for subsequent and applicable sections of the Comprehensive Plan. In addition, specific existing hazards and vulnerabilities were identified and discussed. The project team also prepared an overall approach for sea level rise resiliency as well as specific implementation adaptation options. These goals, objectives, and general strategies were presented and discussed at the Planning Commission Special Meeting on Sea Level Rise held on August 25, 2014.

2-9.2. GOALS & OBJECTIVES

GOAL: Frederica will reduce its vulnerability to natural hazards, particularly flooding and sea level rise.

OBJECTIVE: New growth will be guided to locations that limit exposure to areas prone to natural hazards

OBJECTIVE: Natural hazards will be considered in development plans and approvals

OBJECTIVE: Financial and technical assistance will be available to assist with elevating buildings in flood prone areas or relocating them.

OBJECTIVE: Frederica will balance land use and economic development goals with Sea Level Rise adaptation strategies.

GOAL: Frederica will be a resilient community that is prepared for natural hazards and thrives after a hazard strikes.

OBJECTIVE: The structural integrity of municipal facilities, services and infrastructure will be assessed and plans for improvements made if necessary.

OBJECTIVE: Frederica will ensure that necessary steps are taken to qualify for federal assistance.

OBJECTIVE: Residents will understand how to get information about natural hazard events (e.g. nor'easters and hurricanes) and will have information about shelters and evacuation routes.

OBJECTIVE: Implement strategies to become more resilient, minimize environmental and economic impacts, and bounce back quickly after damage from a flood occurs.

2-9.3. FLOOD HAZARDS AND SEA LEVEL RISE VULNERABILITIES

It is clear that Frederica should plan for sea level rise now. Determining how much sea level rise to plan for and over what timeframe are the key unknowns. Because of the potential range of risks, it is recommended to use a scenario based approach to assess vulnerabilities and prepare a range of adaptation strategies, which will be an ongoing task.

Assessing the hazard risk level requires evaluating the identified vulnerability in terms of its "sensitivity" and "adaptive capacity". Sensitivity is the degree to which an asset (e.g. property, public facilities, infrastructure, and natural resources) is temporarily or permanently affected by natural hazards and change. Adaptive capacity is the degree and ability of said asset to withstand the natural hazard or accommodate the change.[2] An asset with high adaptive capacity is less vulnerable to sea level rise impacts. This Plan identifies the vulnerabilities,

[2] *Natural Hazard and Climate Change Adaptation Tool Kit for Delaware Communities.* Sea Grant Delaware, January 2014.

and then makes recommendation to assess the hazard risk level based on sensitivity and adaptive capacity as part of a town-wide flood vulnerability study.

Map 14 - Sea Level Rise Inundation Scenarios depicts the high tide (MHHW) of three planning scenarios: low (1.64 feet), middle (3.28 feet), and high (4.92 feet). See **Table 11**.

Table 11. Inundation Scenarios

Scenario	Color on Map	SLR Meters	SLR Feet
Current	Blue	MHHW	MHHW
Low	Green	0.5	1.64
Middle	Yellow	1.0	3.28
High	Red	1.5	4.92

The three scenarios for sea level rise represent high frequency 'nuisance flooding events'. These nuisance floods could happen as often as twice per day given the current tide pattern. It is important to note that as high rises, low tide also rises and more land will become permanently wetted. Given the present day tidal range in Frederica, the current MHHW (blue) line on Map 14 can be used as an approximation of the low tide inundation level associated with the Middle Scenario (yellow) high tide. The map also depicts potential future flood scenarios based on the FEMA 1% Floodplain plus 3 feet of sea level rise (BFE+3ft). This boundary portrays potential low frequency 'extreme flooding events' related to coastal storm surges being pushed up the Murderkill River.

The three scenarios, the BFE+3ft boundary, and the public participation process, were all used as the basis for identifying vulnerabilities and potential hazards that will impact property, public safety, infrastructure, and natural resources. Specific potential impacts to Frederica include the damage to buildings and facilities, human injury and harm, impassable roads impeding evacuation and emergency response, and the loss of wetlands. Potential impacts also include overstressed stormwater management systems and poor drainage, saltwater intrusion on water supply and underground infrastructure, and the release of contaminated material from old industrial sites into waterways.

Sea level rise vulnerabilities, as well as adaptation goals and strategies, are also integrated and referenced throughout other Plan sections including: Section 2-3 Future Land Use and Annexations, 2-4 Utilities, Services, and Facilities, 2-5 Transportation, 2-6 Natural Resources, 2-7 Community Character and Design, and predominantly, 2-8 Redevelopment. All of the impacts noted herein and throughout the Plan have some direct or indirect effect on the overall resiliency, vitality, and quality of life in Frederica.

Specific flood hazards and sea level vulnerabilities were grouped into the following topics: Transportation, Public Facilities, Land Use and Buildings, Waterfront Redevelopment Area, Growth Areas, and Other. *Refer to* ***Map 16 - Sea Level Rise Vulnerabilities*** for the location, indicated by the map number (#).

Transportation

Market Street and Frederica Road run north-south parallel to each other and merge on each end of town. Frederica Road is the only direct route to the Bay Road (State Route 1). Front Street (State Route 12) is the only road out of the Town to the west. The Town recognizes that some existing roads will flood more frequently.

(1) North Market Street. A portion of this road is in the current MHHW and the FEMA 1% Floodplain, and crosses over state designated wetlands. It is impassable between Coleman Avenue and Frederica Road at high tide. An alternative north-south route to Route 1 is Frederica Road.

(2) South Frederica Road Bridge. The bridge, as well as the North Frederica Road and South Market Street bridges, is in the current MHHW and the FEMA 1% Floodplain. The bridges may be impassable during significant storm and flood events.

(3) SOUTH MARKET STREET. A portion of this road is in the current MHHW and the FEMA 1% Floodplain, and crosses over state designated wetlands. There is significant standing water between the Murderkill River and Frederica Road at high tide. An alternative north-south route to Route 1 is Frederica Road.

PUBLIC FACILITIES

(4) WASTEWATER PUMP STATION. The Kent County wastewater pump station is in the FEMA 1% Floodplain and low inundation scenario.

LAND USE AND BUILDINGS

The Town has recently adopted a Flood Damage Reduction Ordinance. Any development or redevelopment on these lots would need to comply with this Ordinance. If 50% or more of home in the flood hazard zone is damaged or if it was abandoned for 2 years and the owner wishes to rebuild, it will be need to be rebuilt per the current regulations. ***Section 2-6.2 Floodplains, Hazard Mitigation, and Wetlands***.

(5) HOMES ON SOUTH MARKET STREET. There are 17 principle residential structures in the FEMA 1% Floodplain, and that are adjacent to wetlands and a stream. The backyards of these homes are in the Town's protected Riparian Buffer Area. These homes range from low to high inundation, increasing southward to the Murderkill River.

(6) FREDERICA SENIOR CENTER. The building is located outside the SLR inundation areas; however, the parking area and access to Frederica Road are in the 1% Floodplain and the middle and high inundation scenarios.

(7) HOMES ON NORTH MARKET STREET AND NORTH FREDERICA ROAD.

12 MARKET STREET. The single-family house is situated on a 0.12 acre parcel and zoned R-1 Residential. The parcel is in the FEMA 1% Floodplain and the BFE+3 feet. A portion of the house is within the high inundation scenario.

1715 FREDERICA ROAD. The single-family home is situated between North Market Street and North Frederica Road; being located within the current MHHW, the 1% Floodplain, and wetlands.

(8) 201 MARKET STREET. This area consists of 3 parcels totaling 26 acres, and borders the north end of town. The majority of the area is within 1% Floodplain, and the middle and high inundation scenarios. The principle structure appears to be located in the 0.2% Floodplain, and outside of the 1% Floodplain and the SLR inundation areas; however is within the BFE+3ft area. The northernmost parcel with no road frontage is entirely in the wetlands, the 1% Floodplain, the RBA, and the MHHW.

WATERFRONT REDEVELOPMENT AREA:

(9) WATERFRONT REDEVELOPMENT AREA. The waterfront redevelopment area east of Frederica Road of consists of 8 parcels on 7 acres. It is identified as a key redevelopment area and

Figure 8. Waterfront Sea Level Rise Inundation Scenarios

intended to be part of the Town's commercial core area. To this end, it is located in the Town Center District, which permits mixed-use development at a greater intensity than other districts to encourage redevelopment and promote walkability. The area borders the Murderkill River and is partially inundated by the river's floodwaters and MHHW. Numerous parcels currently experience tidal flooding. The area is encumbered in each inundation scenario to varying degrees as depicted in **Figure 8**. In addition, the area (as well the majority of the developed portion of town) is in a state designated excellent groundwater recharge area. Impervious cover in flood hazard areas and areas of the excellent groundwater recharge may contribute to flooding. Approximately 100 feet of the Town Center District's north and east boundaries are overlain by the Town's RBA. The Town recognizes that environmental sensitivities and flooding issues will create development challenges. ***Map 17 – Town Center, Sea Level Rise and Environmental Protection*** Redevelopment issues and strategies are discussed at length in ***Section 2-8.1 Town Center and Waterfront Redevelopment Area.***

Growth Areas:

All current growth areas north, west, and south of town boundaries are adjacent to SLR inundation areas.

10) Northwest Annexation Area. This area consists of 3 parcels totaling approximately 350 acres that were annexed into the Town in 2007. The zoning and the designated future land use are TND Traditional Neighborhood Development. The area contains the MHHW of Spring Creek and a tributary, and therefore also has a protected 100 foot RBA, which occupies each sea level rise inundation scenario. Due to the ability to consider flood hazards and sea level rise as part of the development design and build upland, this area is considered low risk.

11) Sloan Property. This property is 143 acres with a residential structure that was annexed and zoned R-2 Residential in 2006. Approximately 1/3 of the area is wetlands, which would be permanently protected from development. The R-2 zoning permits a planned unit development (PUD) which would allow clustered mixed housing on the upland portion of the property. The area also contains the MHHW and a resulting 100 foot RBA, as well as the middle and high sea level rise scenarios. Portions of the scenarios extend beyond the boundary of the RBA, and therefore development is currently not prohibited in these potentially vulnerable areas. Due to the ability to consider flood hazards and sea level rise as part of the development design, this growth area is considered low risk.

12) Sandbox Property. This 85 acre property is located in the Town's annexation area and designated for Residential use. The southern border of the parcel is in the FEMA 1% Floodplain, and consists of wetlands as well as the Town's RBA. The MHHW and each scenario border the property, but do not transcend the boundary. Due to the ability to consider flood hazards and sea level rise as part of the development design, this growth area is considered low risk.

Other

Map 16 - Sea Level Rise Vulnerabilities shows the fire station, wellheads, brownfields, and underground storage tanks in their relation to the sea level rise scenarios and the BFE+3ft.

Properties in the BFE+3ft. There are properties that are within the BFE+3ft that <u>are not</u> within the regulatory FEMA floodplain, and are therefore not required to hold flood insurance under the National Flood Insurance Program (NFIP). These properties may be vulnerable to less frequent extreme flood events and future insurance implications.

Riparian Buffer Area (RBA). The current RBA requirement follows the minimum state recommendations of 100 feet from the high tide line and 50' feet from a wetland. It is anticipated that the RBA will increase with the MHHW as sea

level rises. However, inundation from sea level rise is anticipated to exceed these established riparian buffer areas in some locations, resulting in a smaller or even non-existent buffer area over time. In general, a smaller riparian buffer area results in less nutrient uptake and less reduced flood attenuation, which therefore reduces overall water quality and increases vulnerability to flood hazards, respectively.

2-9.4. Adaptation Strategies & Recommendations

The comprehensive planning team evaluated policy options for sea level rise adaptation through land use planning, zoning, and flood protection, including, but not limited to, retreat from and prohibiting development in high risk areas, zoning amendments for low impact development, and on-the-ground adaptation projects such as raising shorelines and elevating structures and roads. The planning and public participation process resulted in the following overall strategies towards enhancing the Town's adaptive capacity to sea level rise: 1) Prepare a Town Center and Waterfront Redevelopment Plan; 2) Conduct a Comprehensive Flood Vulnerability / Drainage Study; and 3) Update planning documents and polices.

Conduct a Comprehensive Flood Vulnerability / Drainage Study

It is recommended that the Town conduct a town-wide Comprehensive Flood Vulnerability / Drainage Study. The study will identify locations and causes of frequent flooding, and assess vulnerabilities in detail. Some specific locations that such a study will focus on are discussed above and shown on ***Map 16 – Sea Level Rise Vulnerabilities***. The study will include a more detailed inventory of roads, bridges, storm drains, facilities, buildings, and properties that are at risk from flooding considering sea level rise and increased rainfall.

Since the level of potential inundation varies based on the different scenarios (low, middle, high), it is recommended to employ a scenario based approach to determine hazard risk levels, prioritize vulnerabilities, and select adaption strategies. Towards doing so, it is recommended to prepare a matrix criteria table that aids to evaluate the vulnerability at the site level based on the extent of inundation and the sensitivity and adaptive capacity to change. **Figure 9** presents an example of a vulnerability assessment matrix.

First, determine the "exposure" of an asset (property, structure, facility, road, etc.) by measuring the percent of area inundated in each scenario (low, middle, high) and the potential of storm surge area (BFE+3ft). This evaluation of multiple scenarios for sea level rise and/or storm surge can help determine asset vulnerability under a variety of future conditions. Second, evaluate the "sensitivity" of exposed assets to sea level rise, which is the degree an asset can be temporarily or permanently affected. For example, roads affected by repeated nuisance flooding by high tide that only have standing

Figure 9. Vulnerability Assessment Matrix

Asset / Type		Inundation Scenario (%)				BFE+3ft	Exposure	Sensitivity	Current Adaptation / Mitigation	Adaptative Capacity	Vulnerability Level	Adaptation / Mitigation Options
		MHHW	Low	Middle	High							
Pump Station	Structure	0%	90%	100%	100%	No	High	High	Back-up generator	Low	***High***	Flood proofing to make hazard resistant. Reconsider location when upgrades are required.
111 Front	Parcel	20%	25%	30%	35%	Yes	Medium	Medium	RBA, Town Center Zoning, Flood Ordinance, Waterfront Redevelopment Area strategies	Medium Low	***Medium High***	Redevelop per LDO and Flood Ordinance. Enhance RBA. Cluster development on upland area and/or freeboard. FEMA buy-out program.
	Structure	0%	0%	0%	10%	Yes	Medium					

water and are not structurally impacted by storm surges would have low sensitivity. Conversely, a pump station that could lose power or be significantly damaged by a storm surge would have high sensitivity. Third, evaluate the adaptive capacity for assets that are exposed and sensitive to sea level rise. Assets that already have flood protection measures and/or the availability of mitigation options (such as being able to locate new structures upland on a site) would be less vulnerable to flood hazards. The sensitivity and the adaptive capacity can be rated as high, medium, or low to rate and prioritize the overall vulnerability level. See **Figure 10**.

Figure 10. Vulnerability Level

Shaded squares indicate vulnerability level		Sensitivity		
		Low	*Medium*	*High*
Adaptive Capacity	*Low*	Medium	Medium High	High
	Medium	Medium Low	Medium	Medium High
	High	Low	Medium Low	Medium

Graphic courtesy of Sea Grant Delaware

Assets with low exposure, low sensitivity, and high adaptive capacity to sea level rise would result in a low vulnerability level. Conversely, an asset with high exposure, high sensitivity, and low adaptive capacity to sea level rise would result in a high vulnerability level.

This vulnerability assessment tool will assist the Town and properties owners to identify and queue up adaption options, and to prioritize and implement site specific solutions based on the assessed risks.

It is noted that the Kent County's Multi-Jurisdictional All Hazard Mitigation Plan, discussed in ***Section 2-6.2.2***, also recommends performing a vulnerability study. The Town should coordinate this effort with the County and the Delaware Emergency Management Agency.

Proposed potential funding sources for the study include: Hazard Mitigation Grant Program, Pre-Disaster Mitigation Grant Program, and Flood Mitigation Assistance Program. The Town should further seek assistance from the Kent Conservation District, who administers compliance with state stormwater regulations.

It is noted that the results and recommendations from the Study would significantly influence waterfront redevelopment efforts, and therefore should be integrated with the Town Center and Waterfront Redevelopment Plan. It is further recommended that that the study be periodically updated.

Prepare a Town Center and Waterfront Redevelopment Plan

The Town Center and Waterfront Redevelopment Plan will balance the revitalization efforts with mitigating the negative impacts associated with sea level rise. A detailed discussion on the Redevelopment Plan is set forth in ***Section 2-8.1***. A major component of the Redevelopment Plan is to integrate the specific sea level rise adaptation strategies. These strategies aim to transition the vacant and underutilized parcels from commercial/ industrial to mixed-use development with open space and recreational uses that will reconnect residents and visitors to the Murderkill River. Redevelopment efforts would ensure remediation of potential brownfield sites and integrate green infrastructure such as permeable surfaces, soil and wetland restoration, and other stormwater best management practices (BMPs) to mitigate flood impacts due to sea level rise and improve water quality. Some additional recommendations related to sea level rise include:

- Contingent on the results of the Flood Vulnerability / Drainage Study, evaluate the feasibility of creating a flood barrier by elevating the shoreline and the riverwalk in the protected RBA. This mitigation option would likely need to be combined with raising Market Street and/or Frederica Road (as discussed in "Transportation" herein) to help prevent flooding on the north and south ends of town.

- Evaluate the need to create a "floodplain planning zone" using the sea level rise scenario mapping, the BFE+3ft mapping, and/or the FEMA 0.2% Floodplain.
- Cluster density in non-hazard areas outside the Riparian Buffer Area (RBA) and SLR inundation area, which could be formalized in the zoning ordinance as a "floodplain planning zone", if adopted.
- Provide low impact uses in high hazard risk areas, such as a community park and passive recreation with a riverwalk.
- Require stormwater best management practices (BMPs), and the use of porous / pervious surfaces.
- Consider density and floor area bonus incentives for protecting potential hazard areas as open space, enhancing the riparian corridor/ shoreline protection, and/or providing public access to the waterfront.
- Coordinate with DNREC, DelDOT and DEDO when preparing Town Center and Waterfront Redevelopment Plan.

Update Planning Documents & Policies

Hazard Mitigation Plan (HMP). The Town should coordinate with Kent County and the Delaware Emergency Management Agency as they prepare their Multi-Jurisdictional All Hazard Mitigation Plan, which includes a section specific to Frederica. The Plan should consider the impacts and adaptation strategies associated with sea level rise, provided throughout this Plan. A more detailed discussion is provided in ***Section 2-6.2.2 Hazard Mitigation***.

Land Development Ordinance (LDO). The Town should amend the Land Development Ordinance (LDO) to consider the impacts and adaptation strategies associated with sea level rise.

- Amend the LDO to be consistent with and reference the Flood Damage Reduction Ordinance.
- Amend the LDO implementing the recommendations from the Flood Vulnerability / Drainage Study and the Town Center and Waterfront Redevelopment Plan.
- Consider creating incentives to encourage the development out of the SLR inundation areas, the 1% Floodplain (i.e. "Floodplain Planning Zone") or to build with proper flood hazard resistant construction methods to mitigate SLR inundation levels.
- Consider increasing the required riparian buffer (RBA) width and/or increasing the capacity of the RBA through plantings with native vegetation.
- ***See Section 2-9.6 LDO Implementation.***

Flood Damage Reduction Ordinance. The Town should amend the Flood Damage Reduction Ordinance to consider the impacts and adaptation strategies associated with sea level rise. Per the Ordinance, the lowest floor of all new buildings and substantially-improved buildings (50%) are required have flood proof measures.

- ***See Section 2-6.2.1 Floodplains, Hazard Mitigation, and Wetlands***.

Transportation:

- Based on the results of the Flood Vulnerability / Drainage Study, the Town should work with DelDOT to evaluate and implement the following:
  - Develop transportation policies to guide growth to safe locations and limit access to natural hazard areas.
  - Raise frequently inundated roads or design them to be low to avoid blocking drainage and accept access limitations.
  - Identify potential new projects, road system improvements, and maintenance in providing for emergency access and safe evacuation routes

Public Facilities:

- Ensure existing facilities are hazard resistant. Address flood proofing of utilities to ensure structural integrity (i.e. raising electrical equipment, back-up generators, adequate fire flow storage, etc.)
- Consider high hazards and safety while designing and siting of water and sewer systems to protect these facilities during hazard events and for their continued operation after a disaster event.
- Consider amending the Flood Damage Reduction ordinance to require the finished floor elevation of facilities be placed above the FEMA 0.2% Floodplain, or other.
- Limit or prohibit expenditures on projects in a capital improvements program that would encourage new development or additional development in areas vulnerable to natural hazards.
- Ensure public infrastructure and facilities are included in the Hazard Mitigation Plan.
- Work with the County to limit extending sanitary sewer service to highly vulnerable areas.

Land Use & Growth Areas:

- Though zoning and master planning, ensure that new developments are not only resistant to current and future hazards, but also minimize contributing stormwater run-off to flood water receiving areas. This may include, but is not limited to, requiring stormwater best management practices (BMPs), reducing impervious surfaces, and requiring porous materials where appropriate.
- Substantial land area east of Frederica Road is within the SLR inundation areas and the FEMA 1% Floodplain, and the designated future land use is either open space or agricultural, and zoned as Agricultural. It is critical that this land remain protected as open space or agricultural.

Buildings:

- ***See Section 2-6.2.1 Floodplains, Hazard Mitigation, and Wetlands.***
- It is recommended that a strategy be in place for the turnover of the properties that become inundated and no longer habitable or abandoned.
    - Consider policies to encourage physical relocation of sound buildings and for handling abandoned private buildings and lands, if necessary.
    - Grant funding is made available through a FEMA program. FEMA provides grant for municipality to purchase properties that are in the insurance program that are repeatedly damaged/ have claims.
- Evaluate additional flood protection measures for properties in the SLR inundation areas, as previously discussed in the Flood Damage Reduction Ordinance section.

Other:

- Monitor and update maps of the current high tide line, wetlands, and the corresponding RBA.
- Provide public awareness and outreach to current residents, developers, and prospective homebuyers on flood hazards and sea level rise and climate change risks, as well as flood reduction and adaption measures. Prospective buyers should be made aware if there are buying into sea level rise inundation and storm surge areas, potential flood insurance implications, and the Town's flood reduction and adaption policies.
- Consider establishing financial incentives to encourage development above the base flood elevation and SLR inundation levels.
- Encourage public or private acquisition of uplands adjacent to tidal marshes, which would protect the marshes and allow them to migrate inland as sea level rises.

- Consider contributions to a capital budget designated for sea level assessment and adaptation projects, such as, but is not limited to, restoration, purchase of property, conversions to open space recreation areas, vegetative stream bank stabilization, and infrastructure improvements. Consider revenue sources such as development exactions and additional impact fees.
- Extreme heatwaves pose an increasing threat to the Town of Frederica's citizens. Maintaining communal wellbeing and safety on hot days and nights requires the identification of vulnerabilities and assisting citizens with services that help them when they are most in need. To increase communal resiliency during extreme heat events, the Town should conduct a study to define and identify vulnerable populations, identify effective intervention measures, establish cooling shelters at local institutions, and coordinate planning processes with the community's hazard mitigation plan. This could be conducted concurrent with the Flood Vulnerability / Drainage Study.
- Encourage and support Kent County's adoption of energy, residential, building, and property maintenance codes that foster increased efficiencies and resiliency to increasing temperatures, precipitation, and sea level rise.

2-9.5. Potential Funding Sources

There are multiple funding sources available to Frederica and property owners that are designed to aid assessing and mitigating flood hazards.

- **Delaware Coastal Management Assistance Grants.** The Coastal Programs offers competitive grant funding on an annual basis to help support projects and activities that improve conservation and management of coastal resources. Grant funding is available for activities that reduce sea level rise and coastal hazard impacts, increase resiliency, and improve natural resource management. Grants are available for planning and research. Recipients provide one-to-one matching funds or in-kind services. *www.dnrec.delaware.gov/coastal/Pages/CoastalProgramRFP.aspx*
- **FEMA's Hazard Mitigation Assistance (HMA)** grant programs are designed to provide funding to protect life and property from future natural disasters. *www.fema.gov/hazard-mitigation-assistance*
    - **Hazard Mitigation Grant Program (HMGP)** assists in implementing long-term hazard mitigation measures following a major disaster declaration. The purpose is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during recovery.
    - **Pre-Disaster Mitigation (PDM)** provides funds for hazard mitigation planning and projects on an annual basis. The PDM program was put in place to reduce overall risk to people and structures, while reducing reliance on federal funding from an actual disaster.
    - **Flood Mitigation Assistance (FMA)** provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis.

2-9.6. LDO Implementation

The planning team has evaluated requirements and standards in the LDO that may be related to sea level rise vulnerability and adaptation strategies. The land use documents were reviewed to determine barriers that may hinder adaptation and that should be revised or removed, as well as opportunities that could be capitalized upon. Contingent on the results of the Flood Vulnerability / Drainage Study as well as implementation of other planning strategies herein, the following amendments to the LDO are recommended:

Article 2. Definitions

- Update the Definitions in the LDO to coordinate the LDO requirements with the recently adopted Flood Damage Reduction Ordinance. The Definitions section should address terms such as base flood elevations, flood-proofing and structural terms, and the FEMA delineated flood hazard areas.

Article 3. Administrative Structure

- Add information regarding the Floodplain Administrator from the Flood Damage Reduction Ordinance, Section 3.0 Administration.
- Add information regarding Building permit authority being The Kent County Division of Inspections and Enforcement. Add their roles and authority.

Article 4. Administrative Procedures

- Integrate references to the recently adopted Flood Damage Reduction Ordinance.
- Ensure all site and subdivision plans are reviewed for compliance with the Flood Damage Reduction Ordinance requirements.

Section 4-1. General Provisions A. Definitions:

- Add Floodproofing Certificate: The National Flood Insurance Program, Floodproofing Certificate for Non-Residential Structures (FEMA Form 86-0-34), used by registered professional engineers and architects to certify dry floodproofing designs.
- Add Flood Compliance Permit: A permit issued by the Flood Plain Administrator certifying that the provisions of the Flood Damage Ordinance are met.

Section 4-1. General Provisions B. General Procedures. 2. Issuance of Building Permits.

- Add the following after Certificate of Zoning Compliance "and Flood Compliance Permit"

Section 4-1. General Provisions C. Guidelines for Development Review

- Add the following "7. Sea Level Rise" "8. Flooding"
- Modify the site plan submittal requirement to include the 'floodplain planning zone', if adopted.

Article 5. Non-Conforming Situations

- Add language regarding structures in the Sea Level Rise area as nonconforming uses.

Article 6. Zoning Districts & Map

- Add 'floodplain planning zone', if adopted, that adds to the FEMA-delineated Special Flood Hazard Area for those areas anticipated to be inundated based on the Sea Level Rise scenarios.

Article 7. Use Regulations

- Ensure Manufacturing Housing Section is consistent with the requirements in Flood Damage Reduction Ordinance 5.2 (C) Manufactured Homes.

Article 8. Dimensional & Density Standards

- Consider clustering density in non-hazard areas, specifically in the Town Center District/ Waterfront redevelopment area, and protecting hazard risk areas.
- Consider density or floor area bonus incentives for protecting hazard areas as open space and/or enhancing the riparian corridor/ shoreline protection

Article 9. Subdivision & Land Development.

Modify the site plan submittal requirement to include the 'floodplain planning zone', if adopted.

Article 10. Streets, Sidewalks, Curbs & Gutters

- Amend Article as necessary following results of town wide flood vulnerability / drainage study and coordination with DelDOT.

Article 11. Utilities

- Amend Article as necessary following results of town wide flood vulnerability / drainage study.

Article 12. Environmental Protection Standards

- Consider increasing the required riparian buffer (RBA) width and/or increasing the capacity of the RBA through plantings with native vegetation.

CHAPTER 3. IMPLEMENTATION

3-1 BACKGROUND

The Implementation Plan is intended to function as the principle implementation tool for the Town of Frederica Comprehensive Plan Update. It will assist town officials and staff in coordinating planning actions with other government agencies and making decisions in a timely, systematic manner. Such decisions involve the character and form of new development and redevelopment, the improvement of community infrastructure and services, the protection of environmental quality, and becoming a climate change and sea level rise resilient community.

3-2 INTERGOVERNMENTAL RELATIONS & COORDINATION

The Town of Frederica recognizes that interactions with county and state agencies are necessary to help the Town achieve its comprehensive planning goals. Many of the recommended planning initiatives for Frederica involve other agencies, particularly the state, region, and Kent County, whether it is in the form of securing funds, obtaining technical assistance, coordinating physical improvements, or aligning common goals.

In updating this Comprehensive Plan, the most recent and applicable county and state land use plans and policies have been carefully evaluated to ensure alignment with the goals for transportation, land use, environmental protection, recreation, and annexation. Continued coordination among entities will be important as plans are implemented and new goals are formed. The Town will need to coordinate with Kent County as well as the following state agencies for the associated types of projects listed in **Table 12**. Applicable agencies are also identified in **Table 13 - Implementation Plan.**

Table 12. State Agencies

Element	State Agency
Transportation	Delaware Department of Transportation (DelDOT) Delaware Area Regional Transit (DART)
Historic Preservation	State Historic Preservation Office (SHPO)
Economic Development	Delaware Economic Development Office (DEDO)
Environmental	Department of Natural Resources and Environmental Control (DNREC)
Planning / Coordination	Office of State Planning Coordination (OSPC)

3-2.1 GOALS & RECOMMENDATIONS

GOAL: Establish and maintain collaborative relationships with state and county agencies.

RECOMMENDATIONS:

- Attend meetings of state agencies and Kent County regarding planning issues that may affect Frederica.
- Invite county and state agency staff members to Planning Commission as the need arises towards coordinating planning efforts on development, environmental, and infrastructure issues.
- Enter into a formal memorandum of agreement with Kent County to define the process for inter-municipal coordination and cooperation.
- Request information on and input into proposed actions of governments that affect Frederica.

3-2.2 DELAWARE CODE | STATE PLANNING

Delaware law requires that the comprehensive plan be the basis for the development of zoning regulations, and further specifies that a jurisdiction, "shall, within 18 months of the adoption of a comprehensive development plan

or revision thereof, amend its official zoning map to rezone all lands within the municipality in accordance with the uses of land provided for in the comprehensive development plan." *(22 Del. C. 1953, § 702; Del. Laws, c. 415, § 1.)* In order to achieve timely and effective implementation, the Town should remain focused on specific issues that need to be addressed, relevant community goals, and the initial steps involved in the process.

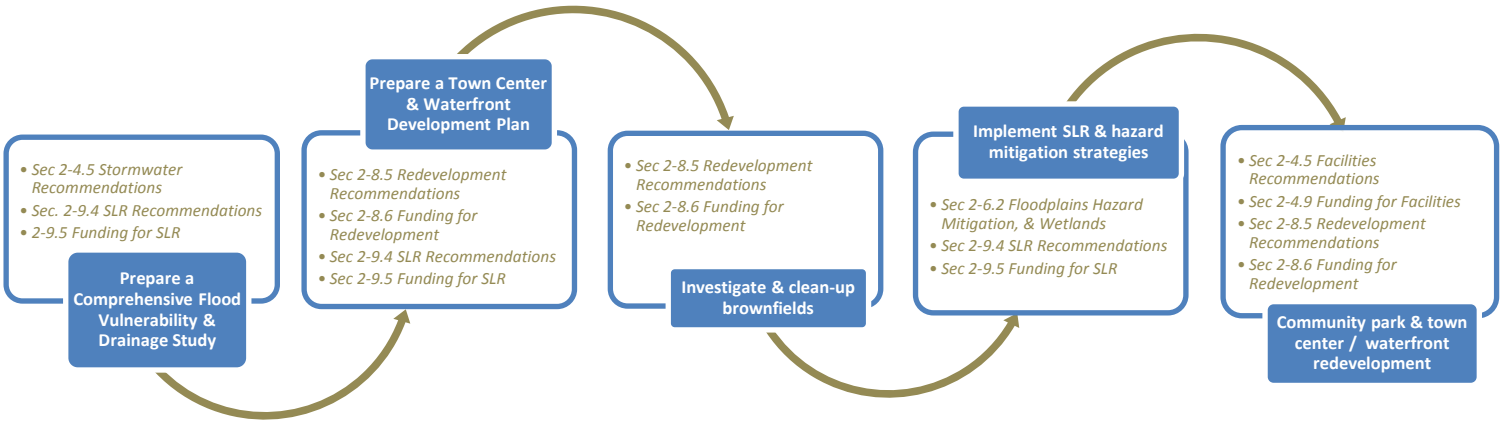
State law also requires that the Town submit an annual progress report on the implementation of the Plan to Office of State Planning Coordination (OSPC). The Town should submit this report in compliance with appropriate guidelines and deadlines.

The Town should also contact OSPC for potential funding and technical assistance during the drafting of additional plans, studies, and land use ordinances as recommended in this Update. OSPC also can help with intergovernmental coordination by connecting the Town with the appropriate state agencies. Finally, the Town needs to coordinate with OSPC on any significant land development changes and applications, such as the Municipal Annexation and Plan of Services review process for annexations, and the Preliminary Land Use Service (PLUS) for any Comprehensive Plan Amendments, rezonings, and major development applications.

3-3 Key Implementation Items

The Town of Frederica should focus on the high priority recommendations, and explore funding opportunities to implement these recommendations. Specific recommendations, potential funding sources, and required agency coordination are identified and described in each section. The key planning activities and high priority implementation items in this Update focus on town center and waterfront redevelopment that includes creating a community riverfront park and becoming a sea level rise resilient community. **Figure 11** provides a 5 step process and a logical order of implementation with references to the applicable Sections.

Figure 11. 5 Steps for Key Implementation Items



3-4 IMPLEMENTATION PLAN

Table 13. Implementation Plan summarizes the recommendations provided throughout Chapter 2 – Municipal Development Strategy, lists the applicable agencies to coordinate with, and prioritizes the goals and recommendations by providing an implementation timeframe. The recommendations are categorized between those requiring immediate attention and those that the Town will have to address in the more distant future. The recommendations are grouped into four categories: *Short term, Medium term, Long term, and Ongoing*. In general, the Planning and Zoning Commission and Town Council should aim to achieve the following short term implementation items immediately and within 2 to 3 years from adopting the plan, the medium term items are desirable to implement within 3 to 5 years from adoption. Long term items should be in progress in about 6 to 10 years. Indeed, these items may need to be reevaluated during the next required 5 year review. Ongoing items are recommendations that will occur on an ongoing basis. Criteria for selecting the priorities include the following: 1) Level of importance towards achieving redevelopment goals, 2) Realistic expectation to achieve in a certain time frame, 3) Logical order to implement a task prior to the implementation of other tasks, and 4) Feasibility considering resources, available funding, and time. This table will further serve as a checklist for the Town in implementing the Plan.

Table 13. Implementation Plan

Implementation Item	Coordinating Agency	Potential Funding/ Technical Resources	Priority
LAND USE AND ANNEXATION (SECTION 2-3.7)			
RECLASSIFY STATE STRATEGIES: Work with the state to ensure that the single family homes on South Market Street be reclassified to reflect the flood hazard risks.	OSPC		*Short term*
DEVELOPMENT IN SURROUNDING AREA: Enter into a Memorandum of Understanding (MOU) with Kent County for reciprocal notification and coordination on land use and development activities within the area of concern.	County		*Medium term*
AGRICULTURAL PRESERVATION: Publicize the Delaware Agricultural Lands Preservation Program to area farmers.	DDA		*Long term*
UTILITIES (SECTION 2-4.3)			
WATER SYSTEM RECOMMENDATIONS: • Continue to monitor water supply by measuring water levels in the wells • Determine the timing and mechanisms needed to increase the individual well permit allocations • Coordinate with the PSC to ensure CPCNs are obtained. • Continue to evaluate the storage needs. • Evaluate potential water system and supply vulnerabilities to flooding and sea level rise	DNREC, PSC	• USDA Rural Development • Drinking Water State Revolving Fund (DWSRF)	*Short term* *Ongoing*
WASTEWATER SYSTEM RECOMMENDATION: • Work with the county to identify and address wastewater needs per the Town's projected growth rate. • Ensure that any future developments can be adequately serviced by existing or planned wastewater infrastructure.			*Ongoing*

FACILITIES (SECTION 2-4.5)			
STORMWATER RECOMMENDATIONS: • Revise site plan submittal requirements to incorporate the three step plan review process and the Stormwater Assessment Study / Report prescribed in the new state regulations. • As part of the Town wide Drainage Study, identify any stormwater issues that need to be mitigated. • Dependent on drainage study results, consider preparing town wide stormwater management/ drainage plan. • Encourage the use of Low Impact Development (LID) and Stormwater "Best Management Practices" (BMPs). • Encourage new developments to use "green-technology".	DNREC KCD		*Short term* *Ongoing*
OPEN SPACE & RECREATION RECOMMENDATIONS: • Explore location and facility options for a future town park on existing vacant town land. • Forge a partnership with developers/ property owners within the Waterfront Redevelopment Area • Contact DNREC's Grants and Community Assistance Administrator to investigate funding opportunities	DNREC	• Delaware Land and Water Conservation Trust Fund (DTF)	*Short term*
SCHOOL: Investigate the possibility of using school facilities for community purposes.	Lake Forest School District		*Long term*
SERVICES (SECTION 2-4.7)			
FIRE SERVICE: • Continue to inform the fire company of new development • Establish a Memorandum of Understanding (MOU) with the State Fire Marshal's Office	OSFM		*Ongoing*
POLICE SERVICE: Continue to collaborate with State Police until the point the Town is able to provide its own additional full-time officers.	Criminal Justice Council, State Police		*Ongoing*
SOCIAL SERVICE: Examine demographic and population trends to ensure adequate information on services, transportation and access to state service centers.			*Long term*
TRANSPORTATION (SECTION 2-5.5)			
• Coordinate with MPO and DelDOT on transportation issues associated with current and future projects.	County, DelDOT		*Ongoing*
• Ensure timely upkeep of major roadways and develop a routine maintenance schedule and budget for town-maintained streets.	DelDOT	• Municipal Street Aid	*Ongoing*
• Conduct a windshield inventory survey		• Municipal Street Aid	*Short term*
• Maintain existing sidewalks, and where possible and appropriate, expanding the sidewalk network	DelDOT	• Municipal Street Aid • Community Development Block Grant (CDBG)	*Medium term*
• Invest in streetscape improvement projects	DelDOT	• Transportation Alternatives Program (TAP)	*Medium term*
• Establish a capital improvements program (CIP) for street and sidewalk maintenance	DelDOT		*Medium term*
• As part of a Drainage Study, evaluate flooding issues on current and potential frequently inundated roads. ***Also refer to Section 2-9 Sea Level Rise Vulnerability and Adaptation.***	DelDOT DNREC DEMA	• Coastal Management Grant Program • Pre-Disaster Mitigation	*Short term*

• Coordinate with the Delaware Transit Corporation (DTC) to bring DART First State service to Frederica.	DTC		*Medium term*
• Require that streets in new developments extend the Town's street network and be pedestrian oriented.			*Ongoing*
• Evaluate the need for a Transportation Improvement District (TID) if developments are proposed in the future.	County, MPO, DelDOT		*Long term*
NATURAL RESOURCES (SECTION 2-6.7)			
FLOODPLAIN MANAGEMENT RECOMMENDATIONS: • Consider participating in FEMA's Community Rating System (CRS) program. • Work with residents in understanding flood damage reduction measures, FEMA programs, and potential flood insurance premium savings. • Consider amending the Floodplain Damage Reduction Ordinance and Land Development Ordinance to strengthen standards based on the level of assessed risk. • Consider additional design requirements of building foundations to protect building structural integrity against the effects of buoyancy, uplift, debris impacts, and other flood forces. • Consider increasing wet and dry flood-proofing measures for the first floor in SLR inundation areas that extend beyond the 1% Floodplain. • Consider extending the flood hazard area and current floodplain protection measures to include area inundated by 0.2% annual chance of flooding, and/or sea level rise inundation areas. • Evaluate and remove any barriers in that would prohibit additional freeboard. • Consider adopting Zone VE building requirements up to the Limit of Moderate Wave Action (LiMWA). • Offer planning and assistance to property owners who have frequent flooding issues and interested in voluntary action. A potential option is participate in the FEMA voluntary buyout program. • Amend the LDO to provide adequate cross referencing with the Flood Damage Reduction Ordinance and ensure administrative review procedures are in place. ***See Section 2-9.6 LDO Implementation.*** • ***Also refer to Section 2-9 Sea Level Rise Vulnerability and Adaptation.***	County, FEMA, DEMA, DNREC,	• Coastal Management Grant Program • ASCE-24 (Flood Resistant Design and Construction) **FEMA Programs** • Hazard Mitigation Program • Pre-Disaster Mitigation • Flood Mitigation Assistance Program • Voluntary buyout which is permanent and land can never be developed • Severe Repetitive Loss (SRL) • Increased Cost of Compliance	*Medium term* *Ongoing*
HAZARD MITIGATION RECOMMENDATIONS: • Ensure that the Update includes a sixth mitigation action to support homeowners with raising homes above inundation elevation or participating in FEMA's acquisition/ buy-out program.	EMS, Fire Co., County, FEMA, DEMA, DNREC, DelDOT		
RBA RECOMMENDATION: • Monitor and update maps of the current high tide line, wetlands, and the corresponding RBA. • Consider increasing the RBA width and the capacity of the RBA through plantings with native vegetation.			

WATER RESOURCE RECOMMENDATIONS: • Amend LDO Art. 12 Section 1 Water Resource Protection Areas to ensure protection of the public drinking water supply from contamination, to limit impervious cover in areas of excellent ground-water recharge potential, and to prohibit hazardous waste treatment and storage within the wellhead protection area. • New development should utilize stormwater best management practices (BMPs) to enhance and accelerate infiltration of stormwater runoff and recharge the aquifer. • ***Also See Section 2-4.2.1 Stormwater Management.***			
SOIL RECOMMENDATIONS: • Prohibit development in hydric soil.			
COMMUNITY CHARACTER & DESIGN (SECTION 2-7.5)			
HOUSING • Reduce or waive community impact / water connection fees for developers and non-profit organizations seeking to build affordable housing units • Planning Commission and Town Council members should attend fair housing training. • Review tools and strategies to increase affordable housing opportunities. • Consider low cost methods to support the maintenance and rehabilitation of housing: o Start a library of information o Recognize well-maintained & newly fixed-up properties o Maintain a list of approved contractors o Ask community groups to provide maintenance assistance to residents in need. • Examine vacant properties with assistance from Kent County's Building Inspector • Promote, support, and assist the Habitat for Humanity in their efforts to acquire property, build new homes, and renovate and maintain existing homes.	DSHA, County	• DSHA's Affordable Housing Resource Center • USDA Rural Development Loans and Grants: Rural Repair and Rehabilitation; Housing Preservation	*Medium term* *Ongoing*
HISTORIC RESOURCES • Enhance the Historic District Overlay District review process to provide applicants an enabling and consultative process. • Revise the historic district review application form to be consistent with District regulations and review criteria provided in Section 6-2. I.6 of the LDO. Also, revise the process to be more user-friendly • Consider adopting an architectural design manual. • Publicize funds to rehabilitate historic structures.	SHPO, County Preservation Planner	• Housing-Rehabilitation Loan Program • Tax-Credit Programs: • First State Preservation Revolving Fund	*Medium term*
PHYSICAL LAYOUT & PARKING • Enforce the development standards that promote an appropriate mix of uses, form-based development, and "complete street" improvements. • Enforce and encourage the Town's shared parking, parking reduction, and parking design policies in the LDO.			*Ongoing*
NOISE CONTOUR: Consider developing an ordinance requiring new homes to be equipped with sound insulation.	County		*Long term*

REDEVELOPMENT (SECTION 2-8.5)			
• Review the LDO for any barriers or deterrents to developing in the Town center and seek ways to streamline and incentivize redevelopment applications. • Evaluate current strategies for preservation, rehabilitation, or adaptive reuse of historically or architecturally significant buildings • Initiate clean-up of the certified Brownfield site. • Adopt Town Center and Waterfront Redevelopment Plan. • Seek Downtown Development District designation. • Consider the creation of a waterfront redevelopment committee or authority.	DNREC, DEDO, OSPC	• Delaware's Brownfields Development Program • Brownfield Assistance Program • Brownfields Assessment and Cleanup Guidelines • Community Development Block Grant (CDBG) • Community Redevelopment Fund • Neighborhood Building Blocks Fund • Downtown Development District	*Short term*
SEA LEVEL RISE (SECTION 2-9.6)			
CONDUCT A COMPREHENSIVE FLOOD VULNERABILITY / DRAINAGE STUDY • Prepare a matrix criteria table that aids to evaluate the vulnerability at the site level.	DNREC, DelDOT, County, DEMA	• Coastal Management Grant Program • Hazard Mitigation Program • Pre-Disaster Mitigation • Flood Mitigation Assistance	*Short term*
PREPARE A TOWN CENTER AND WATERFRONT REDEVELOPMENT PLAN • Evaluate the feasibility of creating a flood barrier by in the protected RBA. • Evaluate the need to create a "floodplain planning zone" • Cluster density in non-hazard areas outside the RBA and SLR inundation area. • Provide low impact uses in high hazard risk areas. • Require stormwater BMPs, and the use of porous / pervious surfaces. • Consider density and floor area bonus incentives for protecting potential hazard areas as open space, enhancing the riparian corridor/ shoreline protection, and/or providing public access to the waterfront.	DNREC, DelDOT, DEDO, OSPC	• Neighborhood Building Blocks Fund	*Short term*
UPDATE PLANNING DOCUMENTS & POLICIES HAZARD MITIGATION PLAN: • Coordinate with the county and DEMA as they prepare their Multi-Jurisdictional All Hazard Mitigation Plan. • ***See Section 2-6.2.2 Hazard Mitigation.***	County, DEMA, DNREC		*Short term*
LAND DEVELOPMENT ORDINANCE: • Consider the impacts and adaptation strategies associated with sea level rise. • Be consistent with the Flood Damage Reduction Ordinance. • Implement the recommendations from the Drainage Study and the Redevelopment Plan. • Consider incentives to encourage the development out of the SLR inundation areas, the 1% Floodplain (i.e. "Floodplain Planning Zone") or to build with construction methods to mitigate SLR inundation levels. • Consider increasing the RBA width or the capacity through plantings with native vegetation.	DEMA, DNREC	• Coastal Management Grant Program • Pre-Disaster Mitigation	*Medium term*

FLOOD DAMAGE REDUCTION ORDINANCE: • ***See Floodplain Management recommendations in Section 2-6.7 Natural Resources Recommendations.***	County, DEMA, DNREC	• Coastal Management Grant Program • Pre-Disaster Mitigation • Flood Mitigation Assistance	*Medium term*
TRANSPORTATION: • Develop transportation policies to guide growth to safe locations and limit access to natural hazard areas. • Raise frequently inundated roads or design them to be low to avoid blocking drainage.	DelDOT, DNREC, DEMA	• Coastal Management Grant Program • Hazard Mitigation Program • Pre-Disaster Mitigation • Flood Mitigation Assistance	*Medium term*
PUBLIC FACILITIES: • Ensure existing facilities are hazard resistant. • Consider high hazards and safety while designing and siting of water and sewer systems • Consider amending the Flood Damage Reduction ordinance to require the finished floor elevation of facilities be placed above the FEMA 0.2% Floodplain • Limit or prohibit expenditures on projects in a capital improvements program that would encourage new development in areas vulnerable to natural hazards. • Ensure public infrastructure and facilities are included in the Hazard Mitigation Plan. • Limit extending sewer service to highly vulnerable areas.	County, DNREC, DEMA	• Coastal Management Grant Program • Pre-Disaster Mitigation • Flood Mitigation Assistance	*Medium term*
LAND USE & GROWTH AREAS: • Ensure that new developments are not only resistant to current and future hazards, but also minimize contributing run-off to flood water receiving areas.	DNREC KCD, County, OSPC		*Medium term*
BUILDINGS: • Consider policies to encourage physical relocation and handling abandoned private buildings. • Evaluate additional flood protection measures for properties in the SLR inundation areas. • Monitor and update maps of the current high tide line, wetlands, and the corresponding RBA. • Provide public awareness and outreach to current residents, developers, and prospective homebuyers on flood hazards and sea level rise. • Consider establishing financial incentives to encourage development above the BFE and SLR inundation levels.	County, DNREC, DEMA	• Coastal Management Grant Program • Pre-Disaster Mitigation • Flood Mitigation Assistance	*Medium term*
OTHER: • Encourage acquisition of uplands adjacent to tidal marshes. • Consider contributions to a capital budget designated for sea level assessment and adaptation projects. • As part of Flood Vulnerability / Drainage Study, define and identify vulnerable populations, effective intervention measures, establish cooling shelters, and coordinate planning processes with the hazard mitigation plan. • Encourage and support Kent County's adoption of energy, residential, building, and property maintenance codes that foster increased efficiencies and resiliency to increasing temperatures, precipitation, and sea level rise.	County, DNREC		*Medium term*

APPENDIX A

COMMUNITY QUESTIONNAIRE

Frederica Comprehensive Plan
Community Questionnaire

May 2014

Instructions:

The Town of Frederica is in the process of developing a Comprehensive Land Use Plan that will guide growth and development in the town for the next ten years. Please share your thoughts and opinions with us by completing this survey and returning it to the Town of Frederica (2 W David St.). It may be dropped off in person, or mail it to P.O. Box 294, Frederica, DE 19946. Please return no later than **May 23, 2014**.

The results of this survey will be presented at a **Community Workshop** scheduled for **June 9, 2014** at **7:00 PM at Frederica Town Hall**.

Please Tell Us About Your Household:

Please mark the appropriate response. Do not write your name on the form. ***All responses are confidential, and will not be attributed to any individual.***

1) I live in the Town of Frederica. ☐ YES ☐ NO

If yes, please answer question 2. If no, please skip to question 3.

2) I would describe my residence as:

☐ A mobile home.
☐ An apartment.
☐ A duplex.
☐ A single-family home.
☐ Other_____

3) I own property in Frederica. ☐ YES ☐ NO

If yes, please answer question 4. If no, please answer question 5.

4) I own property in Frederica, and I use it for the following (check all that apply):

☐ Commercially (for a business).
☐ Residentially (I live there).
☐ To rent to someone else for commercial use.
☐ To rent to someone else for residential use.
☐ My property is vacant.

5) I do not own property in Frederica, however:

☐ I rent my residence in Frederica.
☐ I rent commercial/industrial space in Frederica.

6) I work in the Town of Frederica. ☐ YES ☐ NO

If yes, please skip to next section. If no, please answer question 7.

7) I work _____ miles outside of town.

For the majority of the questions, you will be asked to indicate your preferences using a scale. To complete the question, please enter the number indicating your preference in the far right column or circle the number in the box across from your preference.

1) Please prioritize the following community features on a scale from 1 to 8, with 1 being the most important to you and 8 being the least important. *Please use each number only once*.

Parks and open spaces near your neighborhood	
Streets that connect to adjacent neighborhoods	
Sidewalks along residential streets	
Bike paths along main roads	
Mature trees and new tree plantings and landscaping	
Neighborhood shopping (convenience stores, etc.) nearby, within walking distance	
Public Facilities nearby (community center, town library, community garden, farmers market, etc.)	
Other (please specify):	

2) How do you feel about the current amount of various housing types in Frederica?

Far Too Many	Slightly More than Enough	Enough	Slightly Less than Enough	Far Too Little
1	2	3	4	5

Apartments	1	2	3	4	5
Town Houses	1	2	3	4	5
Manufactured Housing (i.e. “mobile homes or trailers”)	1	2	3	4	5
Single family homes on larger lots	1	2	3	4	5
Single family homes on modest lots, within walking distance of Market Street and Front Street	1	2	3	4	5
Large, older homes converted to apartments	1	2	3	4	5
Condominium living: no maintenance responsibilities	1	2	3	4	5

3) The following is a list of potential issues along the main roads in Frederica (Market Street, Front Street, and David Street) and in the immediate area. Please prioritize the following community features on a scale from 1 to 8, with 1 being the most important to you and 8 being the least important. *Please use each number only one time*.

Traffic Congestion	
Shopping Opportunities	
Crime / Safety	
Parking	
Preservation of Historic Buildings	
Property Maintenance	
Pedestrian/Bicycle Safety	
Other (please specify):	

4) Please rate how much you agree with the following statements about transportation issues in Frederica using the following scale:

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1	2	3	4	5

There are too many cars using the main streets (Market/David/Front Streets).	1	2	3	4	5
There are too many trucks using the main streets.	1	2	3	4	5
There is too much traffic during the summer.	1	2	3	4	5
There is not adequate public transportation linking Frederica to larger towns like Harrington, Milford, Dover, and the resort areas.	1	2	3	4	5
There are not adequate sidewalks along the main roads in and around town.	1	2	3	4	5
There are not adequate bike routes along the roads in town.	1	2	3	4	5

5) The following are some services that are provided in Frederica. Please note your satisfaction with the current provision of these services.

Very Satisfied	Satisfied	No Opinion	Not Satisfied	Very Unsatisfied
1	2	3	4	5

Snow Removal	1	2	3	4	5
Street Maintenance	1	2	3	4	5
Drinking Water	1	2	3	4	5
Sewer Service	1	2	3	4	5
Trash Removal	1	2	3	4	5
Firefighting Service	1	2	3	4	5
Police Service	1	2	3	4	5
Emergency Medical Service	1	2	3	4	5
Stormwater Management	1	2	3	4	5
Other (please specify):	1	2	3	4	5

6) There is *some vacant land within Frederica*. How do you feel about the following types of land uses for vacant lands within the existing Frederica boundaries?

Highly Desirable	Desirable	Acceptable	Undesirable	Highly Undesirable
1	2	3	4	5

Residential Uses: new housing	1	2	3	4	5
Institutional Uses: churches, government buildings	1	2	3	4	5
Commercial: food stores, specialty shops, services, etc.	1	2	3	4	5
Industrial Uses: manufacturers and other industry	1	2	3	4	5
Parks and Outdoor Recreation Facilities: playground, ball fields and courts	1	2	3	4	5
Community Facilities / Places: community center, town library, community garden, farmers market, etc.	1	2	3	4	5
Agricultural Uses: continue the existing use for cropland	1	2	3	4	5
Office Uses	1	2	3	4	5

7) There might be the opportunity for additional commercial or industrial land uses in and around the town. What types of these land uses are desirable for the future of Frederica?

Highly Desirable	Desirable	Acceptable	Undesirable	Highly Undesirable
1	2	3	4	5

Local commercial (stores to serve the local community).	1	2	3	4	5
Highway commercial (stores to serve the local community as well as regional travelers).	1	2	3	4	5
Mixed commercial/business uses with big box retail outlets and offices.	1	2	3	4	5
Business park including uses such as offices, research & development facilities, etc.	1	2	3	4	5
Warehousing involving the storage and trucking/shipment of products.	1	2	3	4	5
Building contractor yards for storing construction equipment and materials.	1	2	3	4	5
Light manufacturing involving the assembly of products.	1	2	3	4	5
Heavy manufacturing involving the development of a product.	1	2	3	4	5

8) There is a great deal of vacant and agricultural land just outside of Frederica's boundaries. How should these areas be managed?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1	2	3	4	5

Frederica's small town atmosphere should be preserved.	1	2	3	4	5
Development should be encouraged primarily within the current boundaries.	1	2	3	4	5
Development should be encouraged primarily outside of the current town boundaries.	1	2	3	4	5
The town should seek to annex new areas of land adjacent to the current town boundaries.	1	2	3	4	5
New developments should be linked to the existing town with sidewalks and bike paths.	1	2	3	4	5
New roads should be designed to link in with the existing town street system, where possible.	1	2	3	4	5
Development should be balanced with protection of farmland and open space in the Frederica area.	1	2	3	4	5
Other (please specify):	1	2	3	4	5

9) The following items are new or additional facilities or institutions that the residents of Frederica may want for the town. How important are each of these items to you?

Extremely Important	Important	No Opinion	Not Important	Extremely Unimportant
1	2	3	4	5

More shopping opportunities.	1	2	3	4	5
More convenience stores.	1	2	3	4	5
Expanded dining opportunities (new restaurants).	1	2	3	4	5
Housing suitable for young families.	1	2	3	4	5
Senior housing and/or more facilities for the elderly population.	1	2	3	4	5
More businesses and more jobs for town residents.	1	2	3	4	5
More medical facilities.	1	2	3	4	5
More childcare facilities.	1	2	3	4	5
A town park with active recreational activities, like ball fields, courts, playgrounds, etc.	1	2	3	4	5
A town park with passive recreational activities, like a picnic pavilion, walking trails, etc.	1	2	3	4	5
Community places like a community center, town library, community garden, farmers market, etc.	1	2	3	4	5
Other (please specify):	1	2	3	4	5

10) Because of Delaware's coastal location and low average elevation the prospect of a rising sea level is of significant importance. Without a thoughtful approach to potential sea level rise impacts, Frederica may not be prepared for issues like loss of low-lying land or structures, saltwater intrusion into groundwater, or increased flooding during storms. In recognition of the serious implications sea level rise may have on various quality of life issues it is being included as a specific component in this plan.

Below are some questions meant to gauge your experience with various flooding and sea level rise issues. Please select the best response for each.

Is your property in a floodplain? ☐ YES ☐ NO ☐ I DO NOT KNOW

Is your property adjacent to a floodplain? ☐ YES ☐ NO ☐ I DO NOT KNOW

Is your property adjacent to a pond or stream? ☐ YES ☐ NO

Does your property have standing water on it when it rains? ☐ YES ☐ NO

How much do you worry about the problems sea level rise may cause in Frederica?

- ☐ A great deal
- ☐ A moderate amount
- ☐ Only a little
- ☐ Not at all
- ☐ Sea level rise will not have an impact on Frederica

How could Frederica better prepare for sea level rise? (Select all that apply)

- ☐ New development should minimize flooding impacts
- ☐ Implement flood damage protection measures for buildings in flood-prone areas
- ☐ Build bulkheads/ flood protection walls
- ☐ Use stormwater best management practices such as rain gardens, natural buffers, vegetated drainage areas, and reduced paved surfaces
- ☐ Public outreach/education programs on sea level rise
- ☐ Frederica does not need to do anything to prepare for sea level rise
- ☐ Other: _____

Do you know of any areas in Frederica that have issues with stormwater or flooding? These could be areas that you have seen with standing water after it rains, or areas that are covered by water from streams or ponds when it rains.

☐ YES ☐ NO **If yes, please list below:**

_____

_____

_____

_____

11) In the space below please add any additional comments on issues of importance to you for your town's future that should be considered in the development of the Frederica Comprehensive Plan. If you need additional space, please use a separate sheet of paper.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Please Tell Us About Yourself:

Please mark the appropriate response. ***Please remember that all responses are confidential, and will not be attributed to any individual.***

A) My age is: ☐ 16 to 24 ☐ 25 to 45 ☐ 46 to 65 ☐ 66 to 75 ☐ over 75

B) I consider my race to be: ☐ White ☐ Black ☐ Asian or Pacific Islander
☐ American Indian, Eskimo, Aleut
☐ More than 1 ☐ Other

C) I consider my ethnic background to be: ☐ Hispanic ☐ Non-hispanic

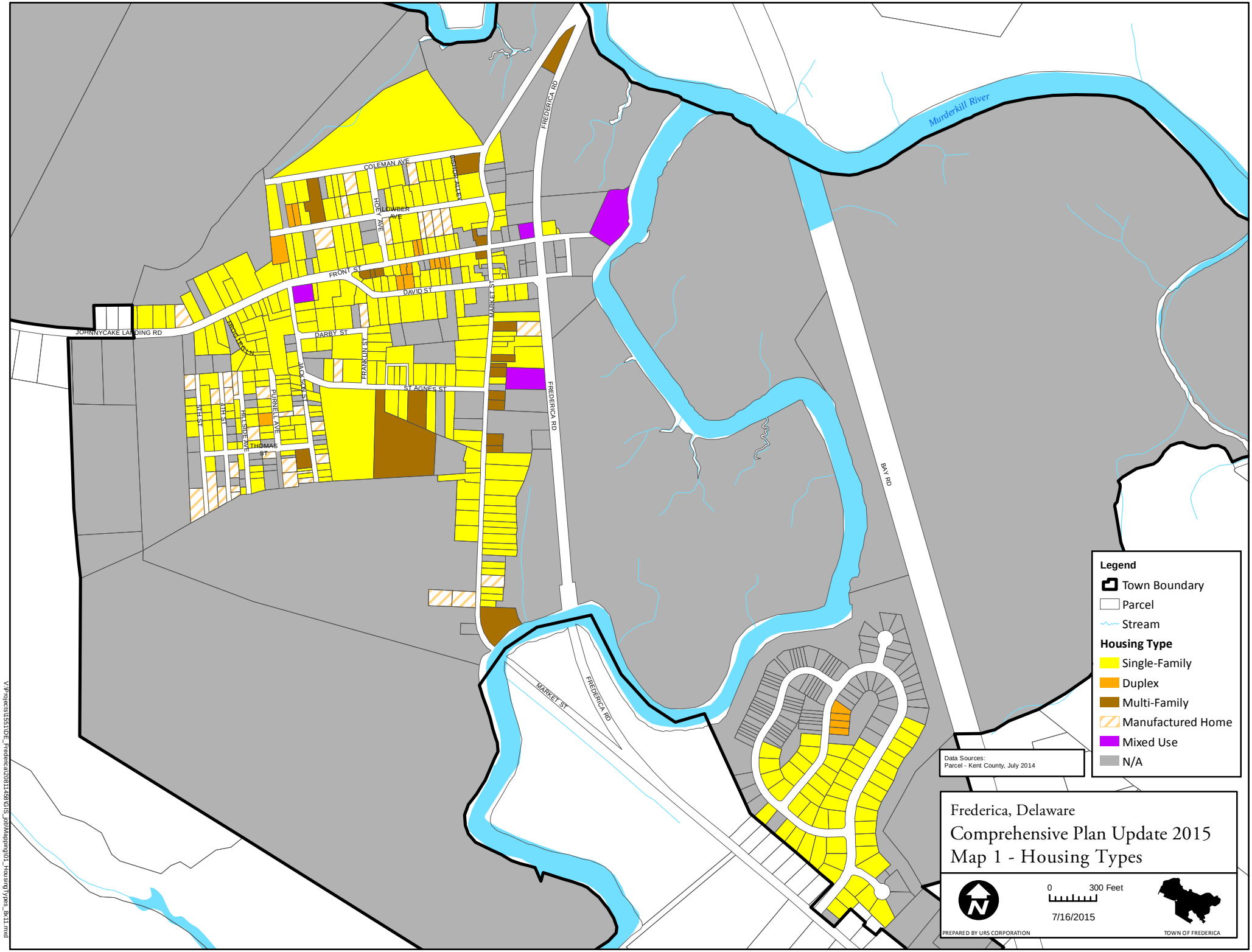
Please share your thoughts and opinions with us by completing this survey and returning it to Frederica Town Hall (2 W David Street). If you are unable to drop it off in person you may mail it to P.O. Box 294, Frederica, DE 19946.

Please return no later than MAY 23, 2014.

Thank you!

APPENDIX B

MAPS



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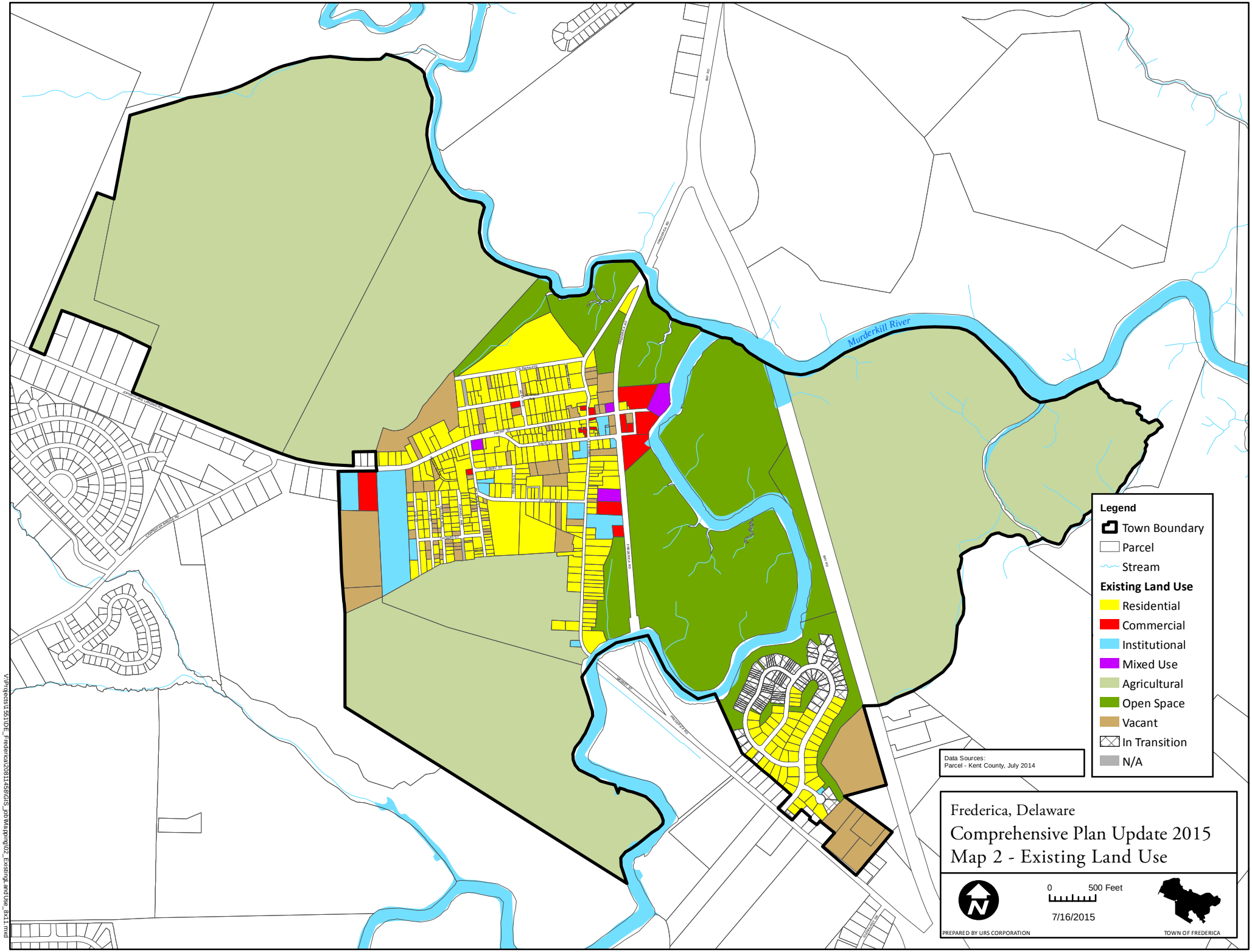
Legend
Town Boundary
Parcel
Stream
Existing Land Use
Residential
Commercial
Institutional
Mixed Use
Agricultural
Open Space
Vacant
In Transition
N/A
Data Sources:
Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 2 - Existing Land Use
0
500 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
Murderkill River
COLEMANS
FRONT ST
MAIN ST
FREDERICA RD
MAY RD
ROBERTS RD
SAINT JOHN'S CHURCH RD
MILFORD HARRINGTON HWY
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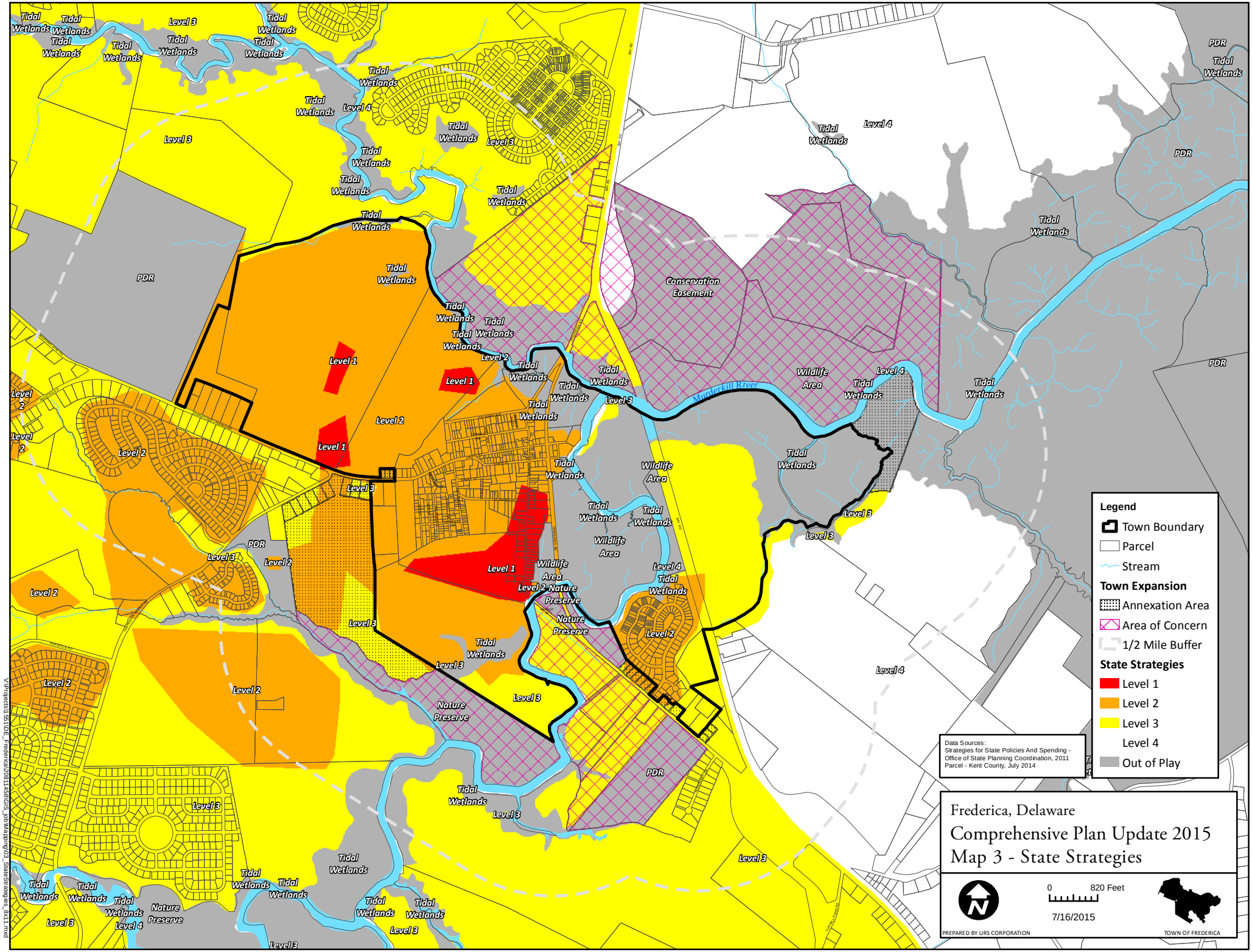
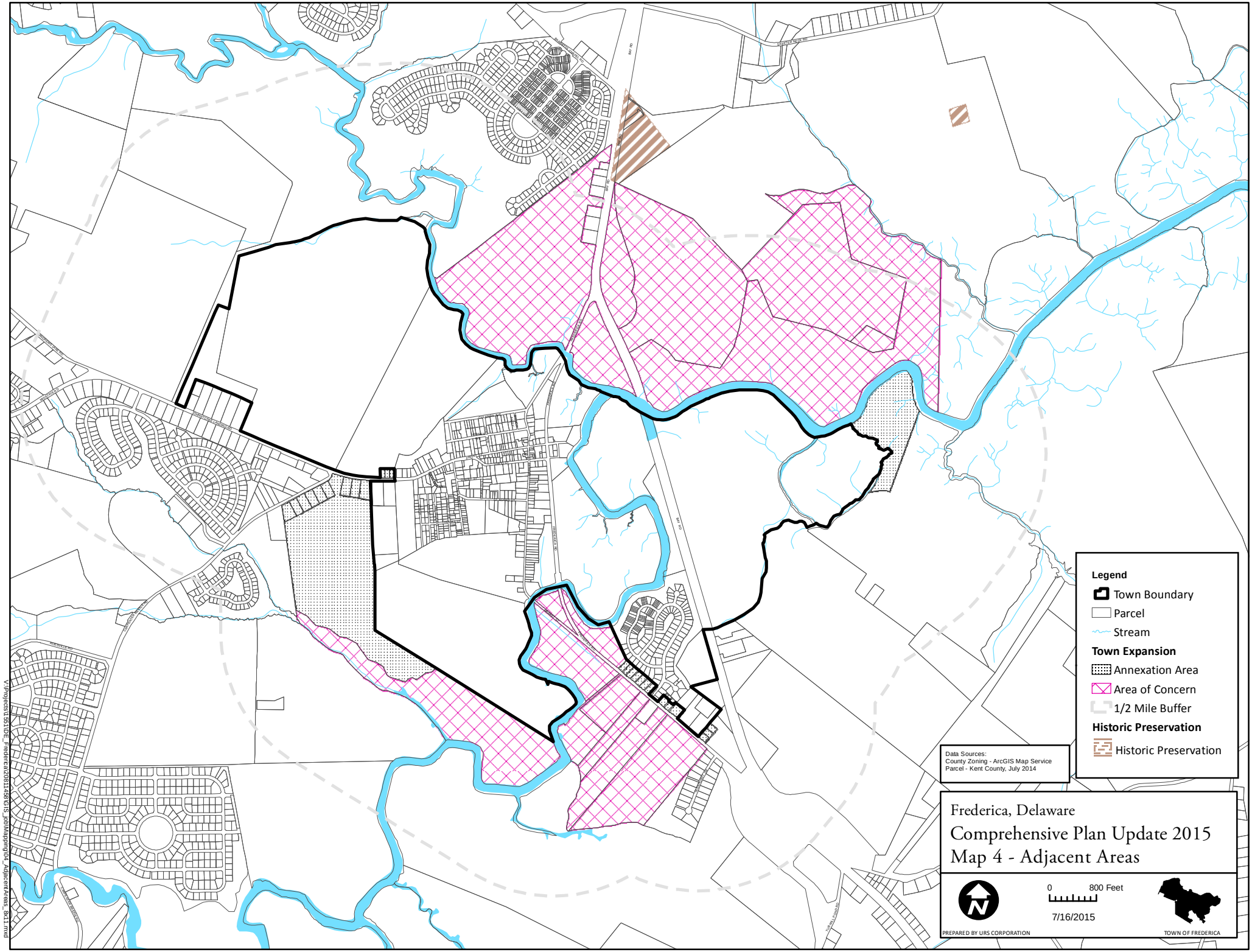
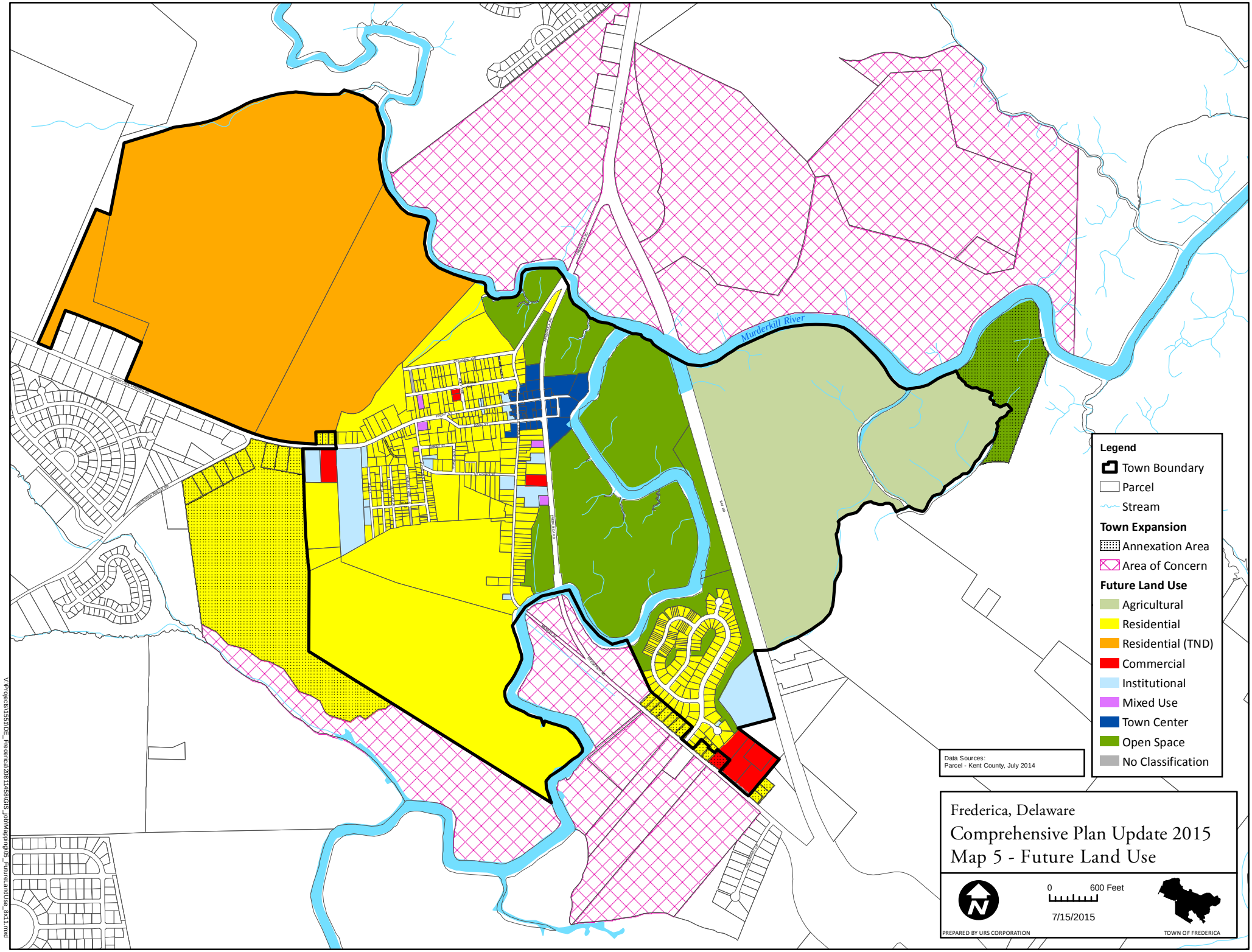

Legend
Town Boundary
Parcel
Stream
Town Expansion
Annexation Area
Area of Concern
1/2 Mile Buffer
State Strategies
Level 1
Level 2
Level 3
Level 4
Out of Play
Data Sources:
Strategies for State Policies And Spending - Office of State Planning Coordination, 2011
Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 3 - State Strategies
0
820 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
Murderkill River
Conservation Easement
Wildlife Area
Nature Preserve
Tidal Wetlands
PDR


Legend
Town Boundary
Parcel
Stream
Town Expansion
Annexation Area
Area of Concern
1/2 Mile Buffer
Historic Preservation
Historic Preservation
Data Sources:
County Zoning - ArcGIS Map Service
Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 4 - Adjacent Areas
0
800 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
V:\Projects\51DE_Frederica\28811459\GIS_pub\Mapping\04_AdjacentAreas_8x11.mxd



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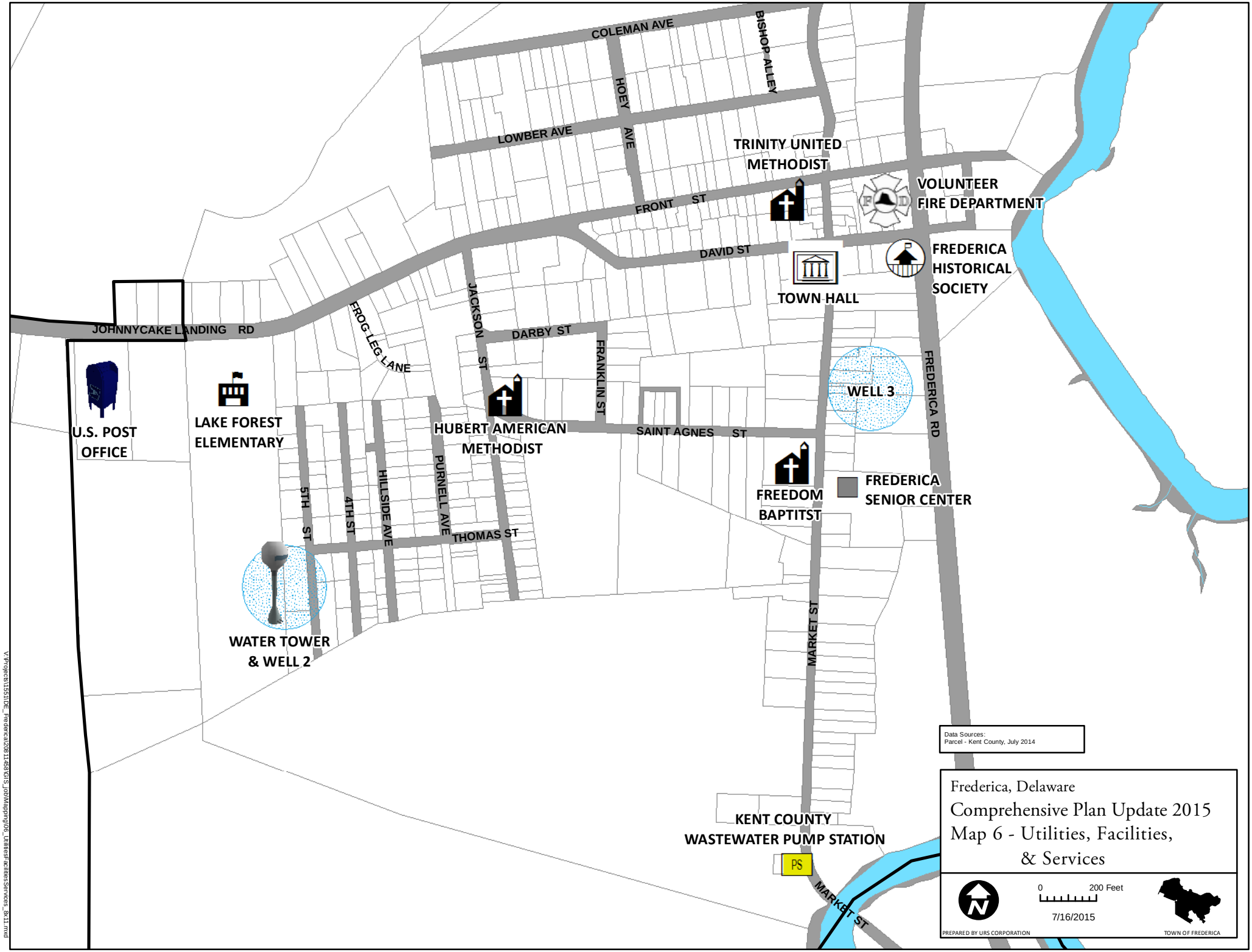

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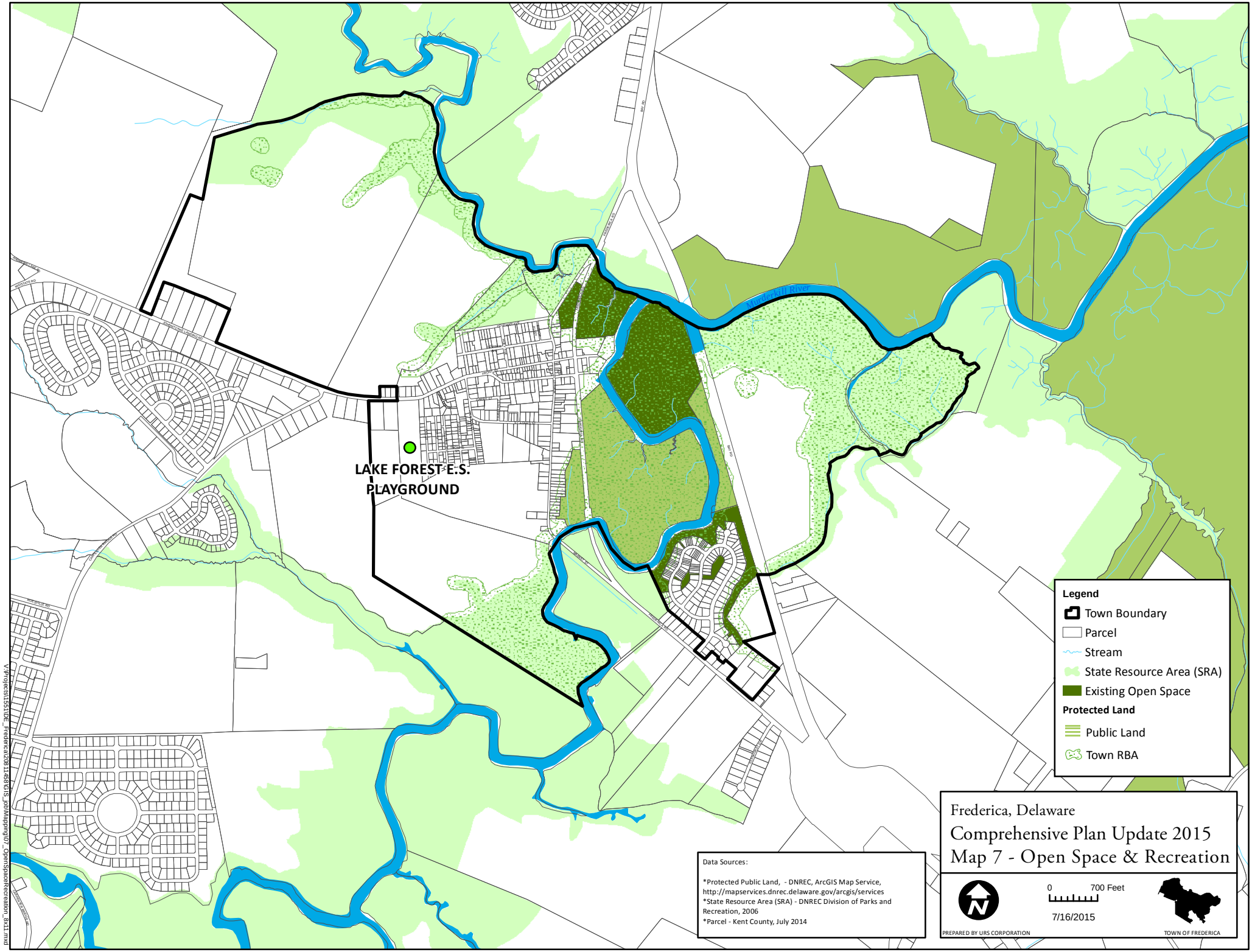
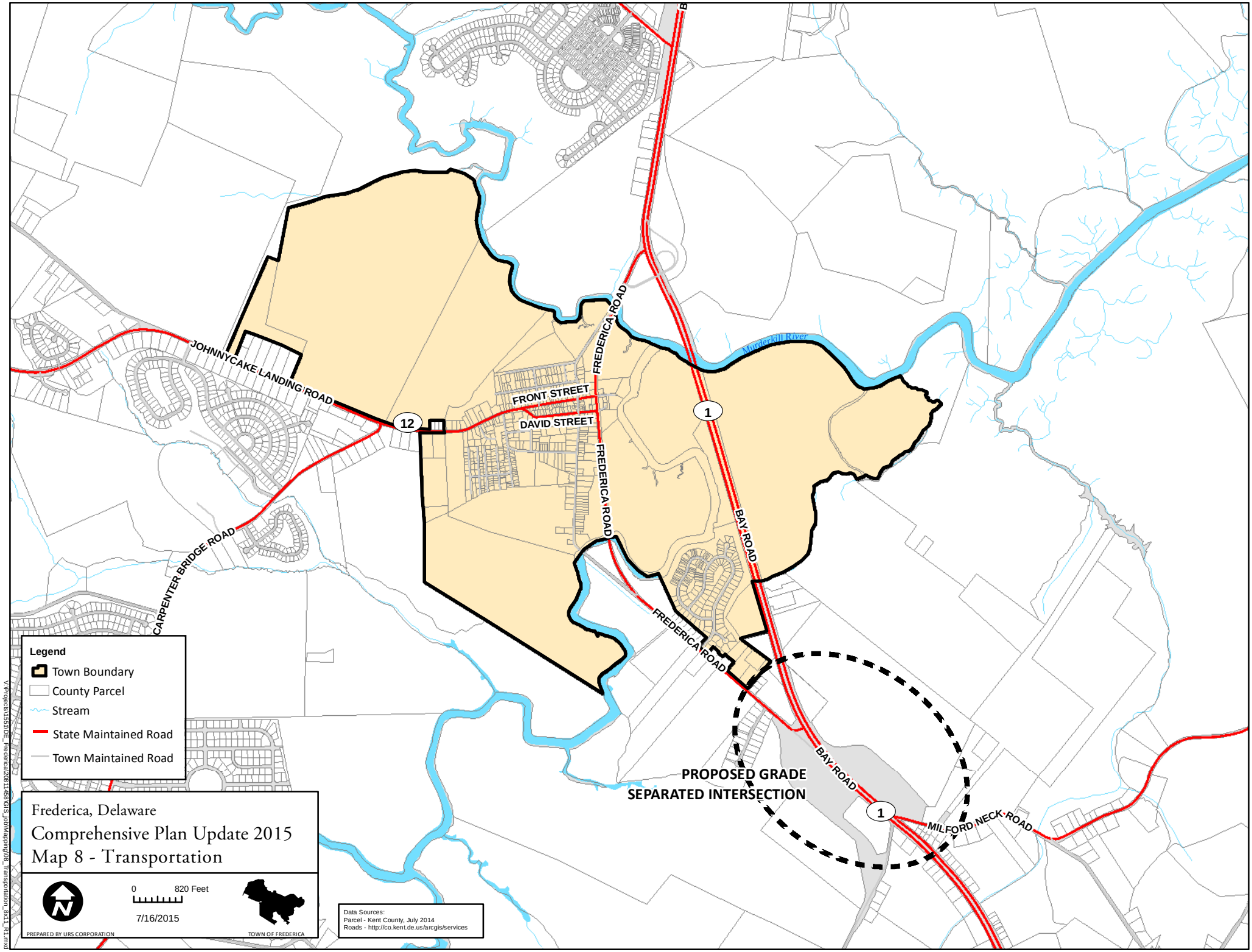
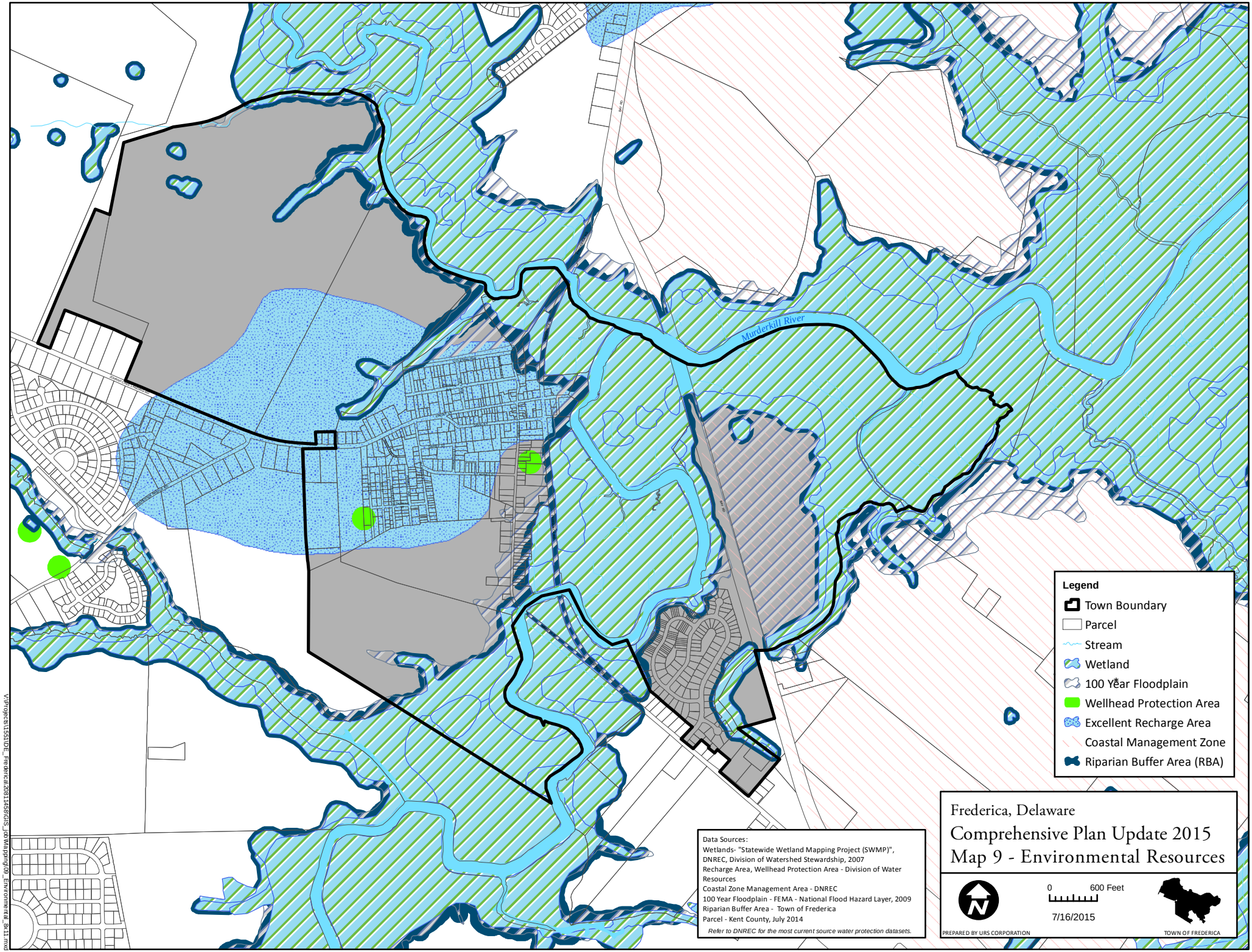
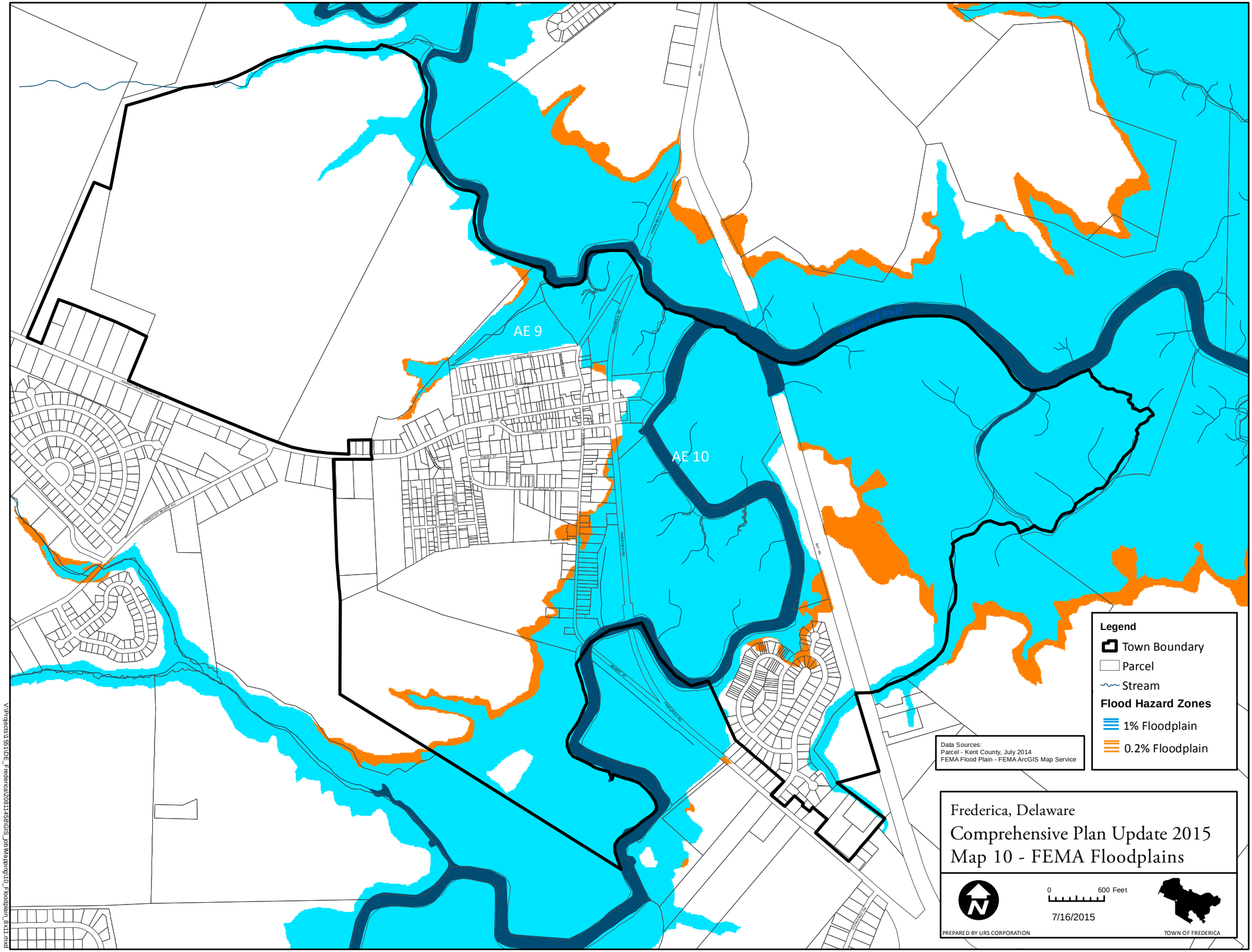

LAKE FOREST E.S.
PLAYGROUND
Mispillion River
Legend
Town Boundary
Parcel
Stream
State Resource Area (SRA)
Existing Open Space
Protected Land
Public Land
Town RBA
Data Sources:
*Protected Public Land, - DNREC, ArcGIS Map Service, http://mapservices.dnrec.delaware.gov/arcgis/services
*State Resource Area (SRA) - DNREC Division of Parks and Recreation, 2006
*Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 7 - Open Space & Recreation
0
700 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA


JOHNNYCAKE LANDING ROAD
12
FRONT STREET
DAVID STREET
FREDERICA ROAD
FREDERICA ROAD
1
Murderkill River
BAY ROAD
CARPENTER BRIDGE ROAD
FREDERICA ROAD
PROPOSED GRADE
SEPARATED INTERSECTION
BAY ROAD
1
MILFORD NECK ROAD
Legend
Town Boundary
County Parcel
Stream
State Maintained Road
Town Maintained Road
Frederica, Delaware
Comprehensive Plan Update 2015
Map 8 - Transportation
0
820 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
Data Sources:
Parcel - Kent County, July 2014
Roads - http://co.kent.de.us/arcgis/services


Murderkill River
Legend
Town Boundary
Parcel
Stream
Wetland
100 Year Floodplain
Wellhead Protection Area
Excellent Recharge Area
Coastal Management Zone
Riparian Buffer Area (RBA)
Data Sources:
Wetlands- "Statewide Wetland Mapping Project (SWMP)", DNREC, Division of Watershed Stewardship, 2007
Recharge Area, Wellhead Protection Area - Division of Water Resources
Coastal Zone Management Area - DNREC
100 Year Floodplain - FEMA - National Flood Hazard Layer, 2009
Riparian Buffer Area - Town of Frederica
Parcel - Kent County, July 2014
Refer to DNREC for the most current source water protection datasets.
Frederica, Delaware
Comprehensive Plan Update 2015
Map 9 - Environmental Resources
0
600 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA



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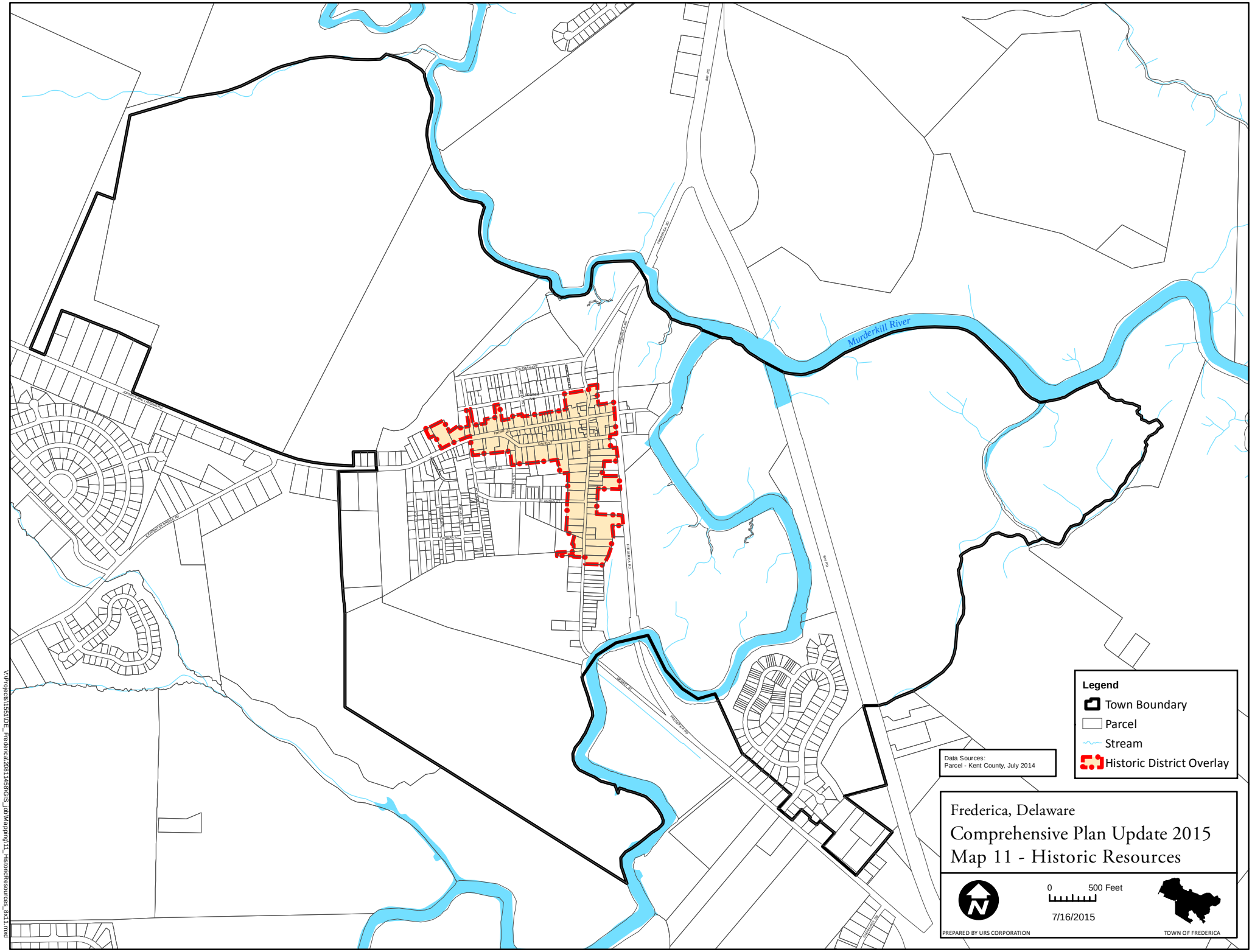
Murderkill River
Legend
Town Boundary
Parcel
Stream
Historic District Overlay
Data Sources:
Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 11 - Historic Resources
0
500 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
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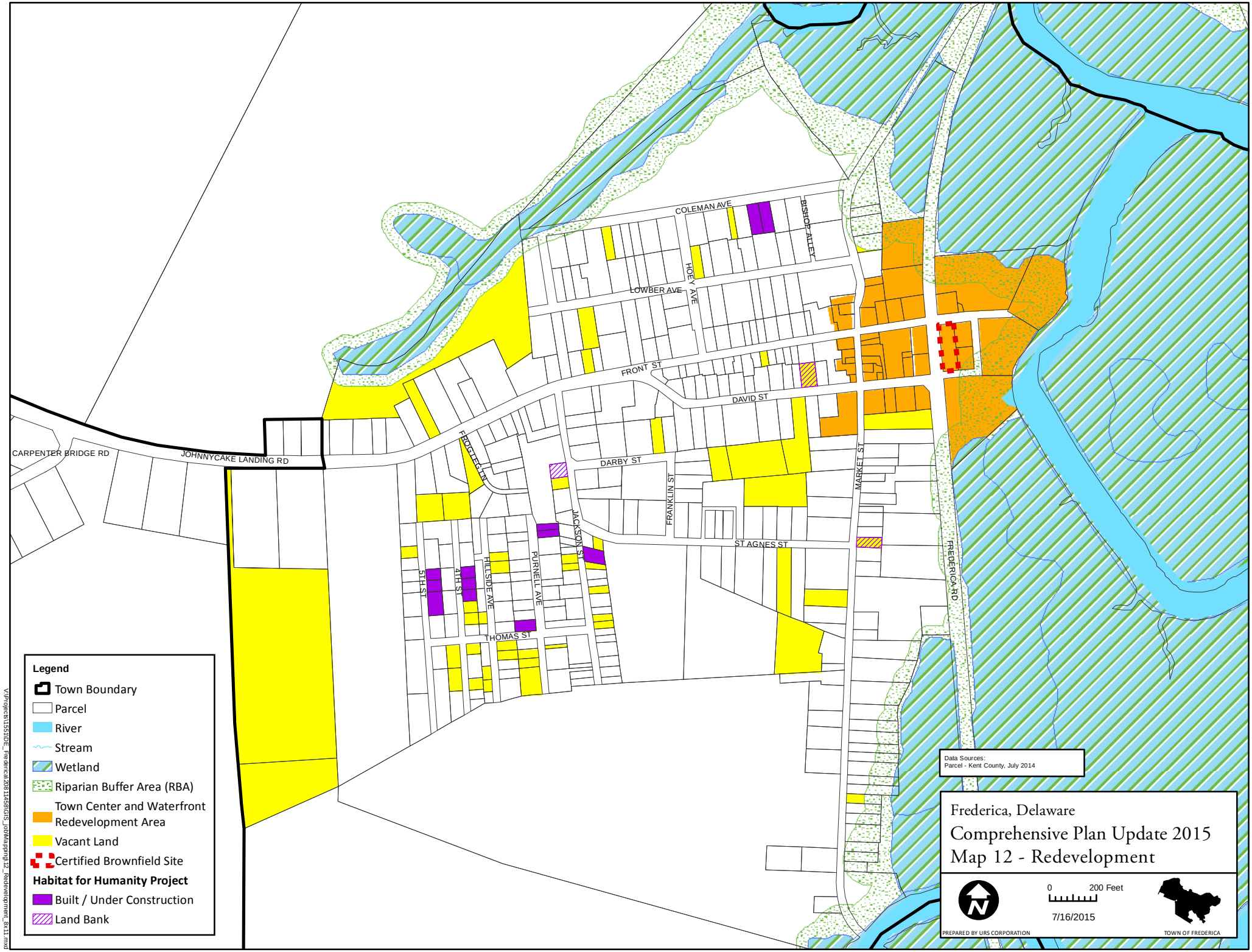
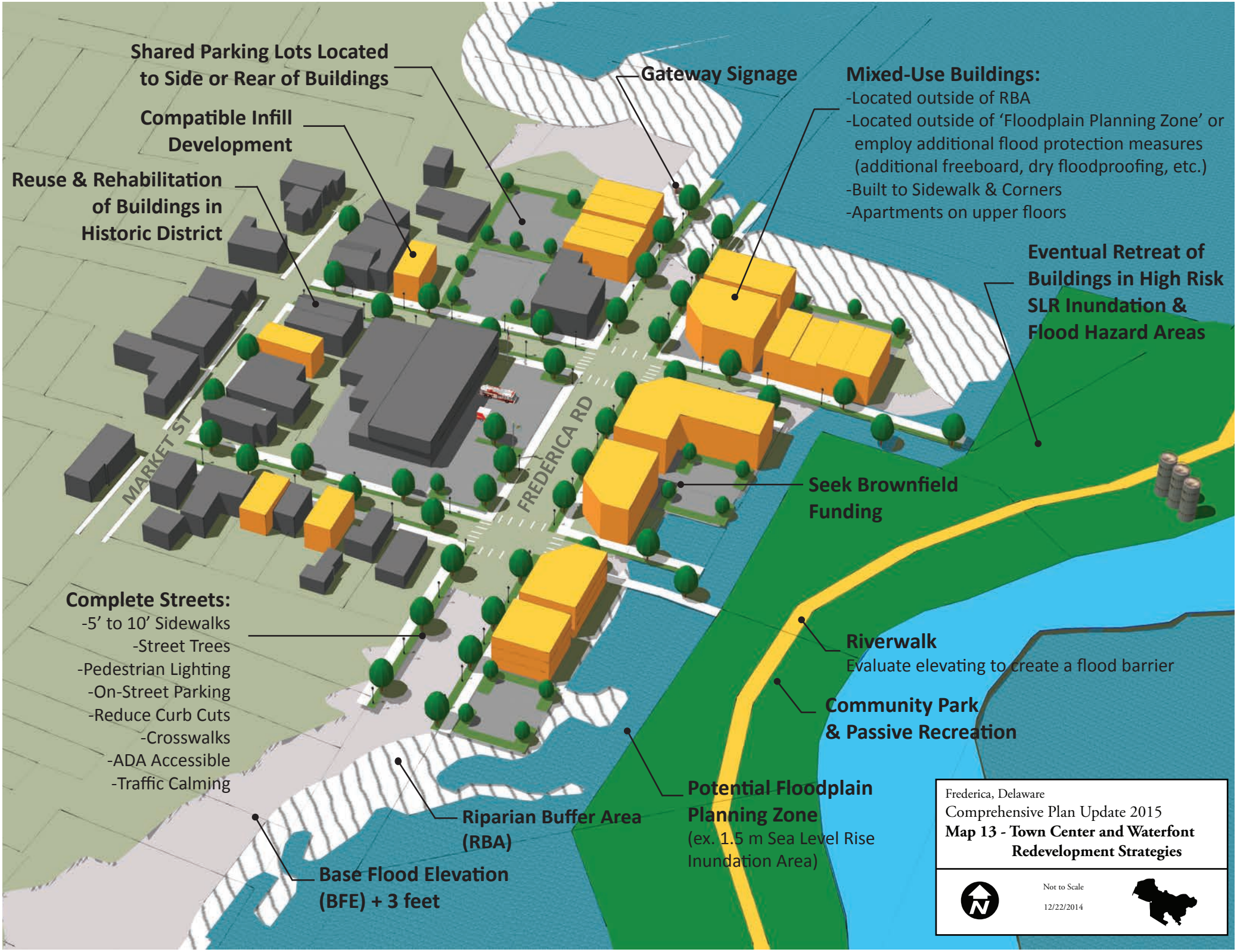
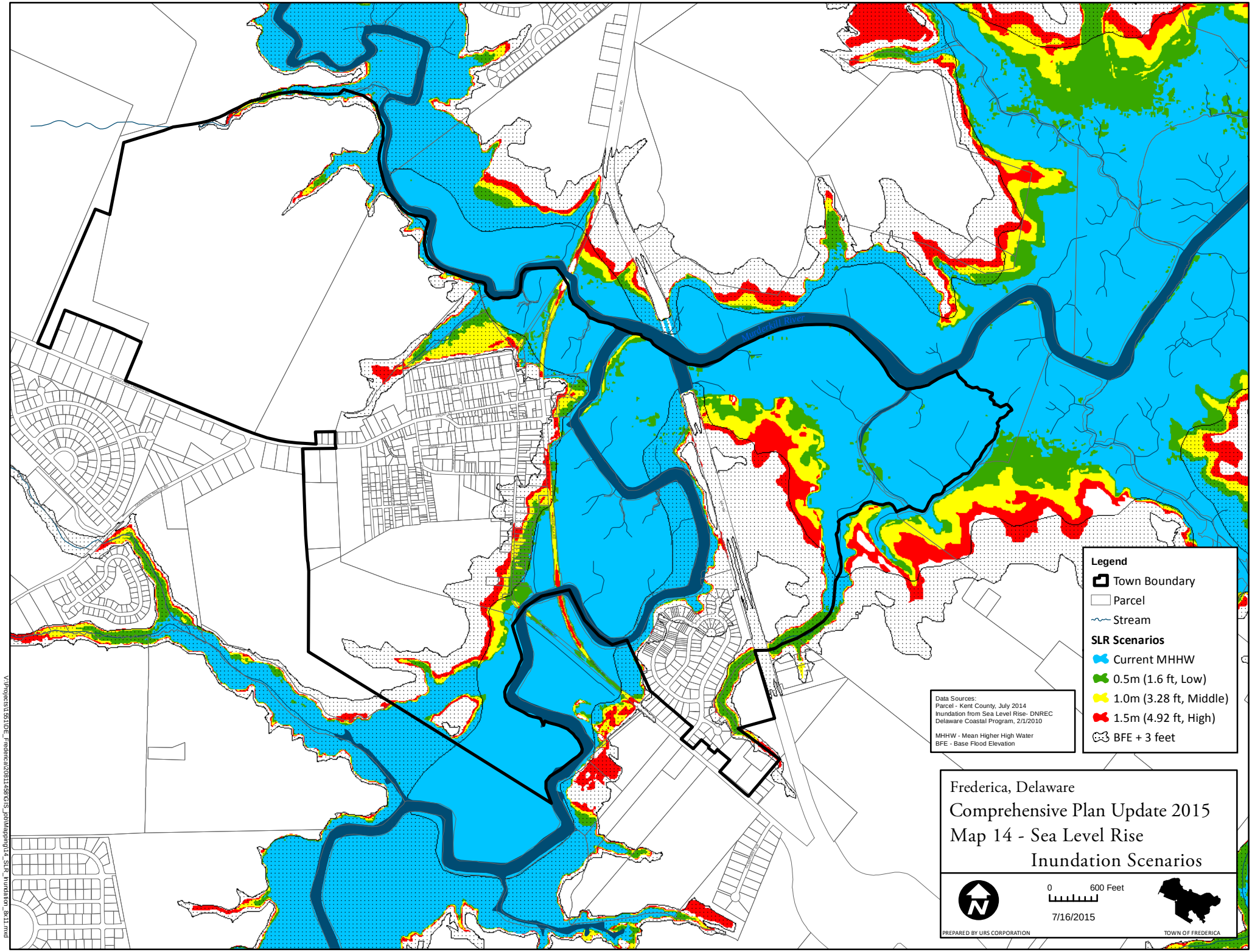

COLEMAN AVE
BISHOP ALLEY
HOEY AVE
LOWBER AVE
FRONT ST
DAVID ST
CARPENTER BRIDGE RD
JOHNNYCAKE LANDING RD
FOGGY LN
DARBY ST
FRANKLIN ST
MARKET ST
JACKSON ST
ST AGNES ST
FREDERICA RD
5TH ST
4TH ST
HILLSIDE AVE
PURNELL AVE
THOMAS ST
Legend
Town Boundary
Parcel
River
Stream
Wetland
Riparian Buffer Area (RBA)
Town Center and Waterfront Redevelopment Area
Vacant Land
Certified Brownfield Site
Habitat for Humanity Project
Built / Under Construction
Land Bank
Data Sources:
Parcel - Kent County, July 2014
Frederica, Delaware
Comprehensive Plan Update 2015
Map 12 - Redevelopment
0
200 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA


Shared Parking Lots Located to Side or Rear of Buildings
Compatible Infill Development
Reuse & Rehabilitation of Buildings in Historic District
Gateway Signage
Mixed-Use Buildings:
-Located outside of RBA
-Located outside of 'Floodplain Planning Zone' or employ additional flood protection measures (additional freeboard, dry floodproofing, etc.)
-Built to Sidewalk & Corners
-Apartments on upper floors
Eventual Retreat of Buildings in High Risk SLR Inundation & Flood Hazard Areas
MARKET ST
FREDERICA RD
Seek Brownfield Funding
Complete Streets:
-5' to 10' Sidewalks
-Street Trees
-Pedestrian Lighting
-On-Street Parking
-Reduce Curb Cuts
-Crosswalks
-ADA Accessible
-Traffic Calming
Riverwalk
Evaluate elevating to create a flood barrier
Community Park & Passive Recreation
Potential Floodplain Planning Zone
(ex. 1.5 m Sea Level Rise Inundation Area)
Riparian Buffer Area (RBA)
Base Flood Elevation (BFE) + 3 feet
Frederica, Delaware
Comprehensive Plan Update 2015
Map 13 - Town Center and Waterfont Redevelopment Strategies
Not to Scale
12/22/2014


Murderkill River
Legend
Town Boundary
Parcel
Stream
SLR Scenarios
Current MHHW
0.5m (1.6 ft, Low)
1.0m (3.28 ft, Middle)
1.5m (4.92 ft, High)
BFE + 3 feet
Data Sources:
Parcel - Kent County, July 2014
Inundation from Sea Level Rise- DNREC
Delaware Coastal Program, 2/1/2010
MHHW - Mean Higher High Water
BFE - Base Flood Elevation
Frederica, Delaware
Comprehensive Plan Update 2015
Map 14 - Sea Level Rise
Inundation Scenarios
0
600 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
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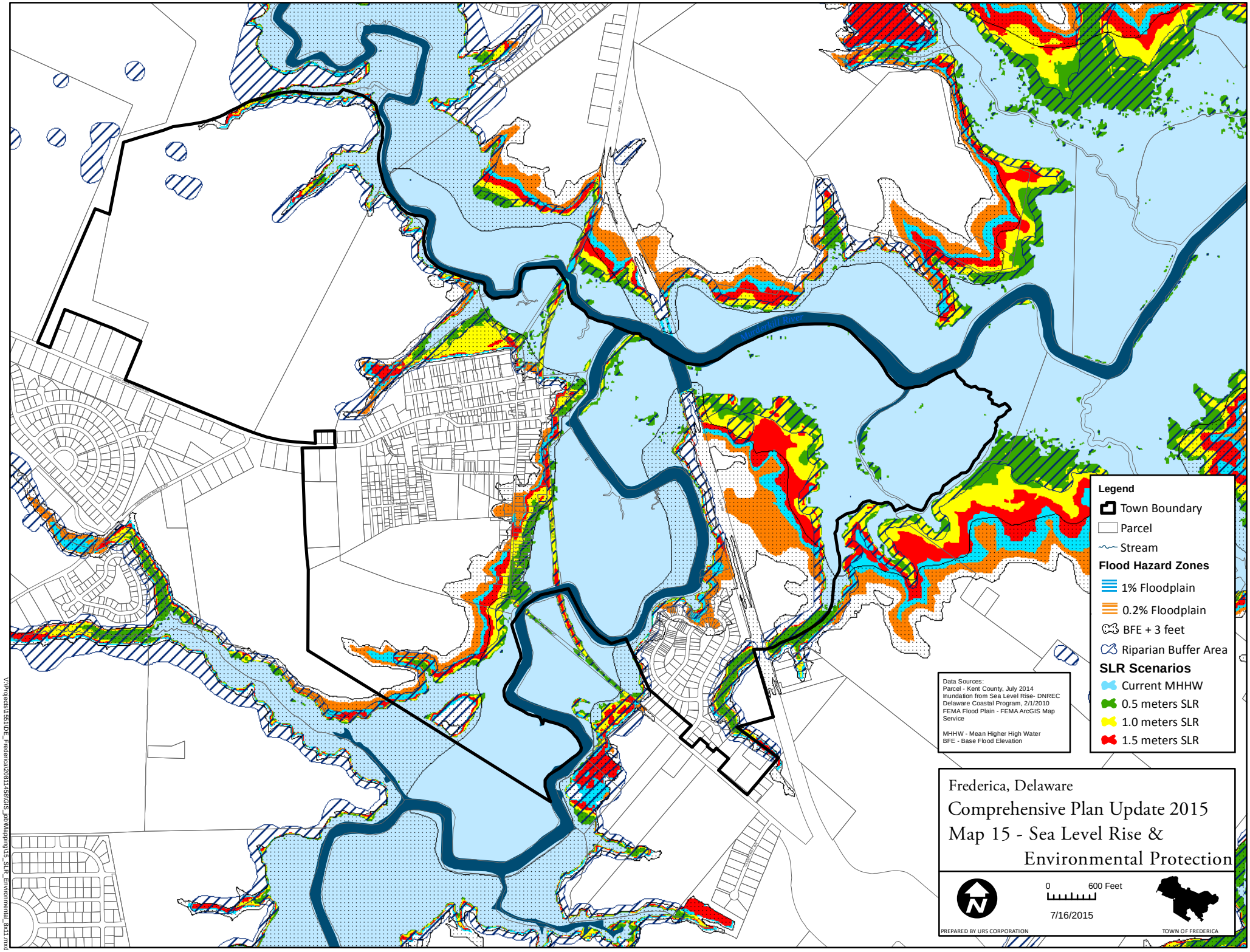
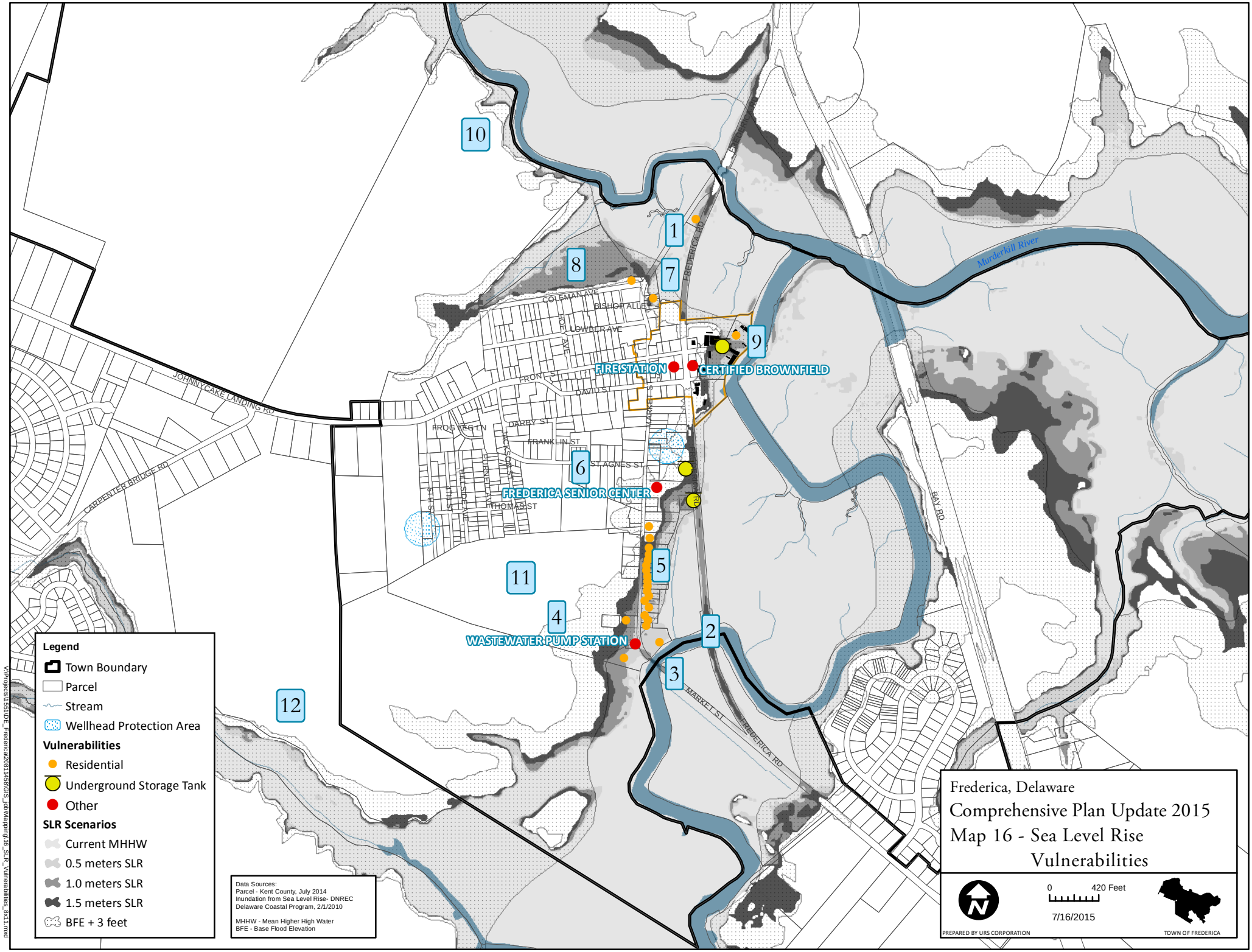

Murderkill River
Legend
Town Boundary
Parcel
Stream
Flood Hazard Zones
1% Floodplain
0.2% Floodplain
BFE + 3 feet
Riparian Buffer Area
SLR Scenarios
Current MHHW
0.5 meters SLR
1.0 meters SLR
1.5 meters SLR
Data Sources:
Parcel - Kent County, July 2014
Inundation from Sea Level Rise- DNREC Delaware Coastal Program, 2/1/2010
FEMA Flood Plain - FEMA ArcGIS Map Service
MHHW - Mean Higher High Water
BFE - Base Flood Elevation
Frederica, Delaware
Comprehensive Plan Update 2015
Map 15 - Sea Level Rise &
Environmental Protection
0
600 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA


Frederica, Delaware
Comprehensive Plan Update 2015
Map 16 - Sea Level Rise Vulnerabilities
0 420 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
Legend
Town Boundary
Parcel
Stream
Wellhead Protection Area
Vulnerabilities
Residential
Underground Storage Tank
Other
SLR Scenarios
Current MHHW
0.5 meters SLR
1.0 meters SLR
1.5 meters SLR
BFE + 3 feet
Data Sources:
Parcel - Kent County, July 2014
Inundation from Sea Level Rise- DNREC
Delaware Coastal Program, 2/1/2010
MHHW - Mean Higher High Water
BFE - Base Flood Elevation
FIRE STATION
CERTIFIED BROWNFIELD
FREDERICA SENIOR CENTER
WASTEWATER PUMP STATION
Murderkill River
FREDERICA RD
MARKET ST
BAY RD
JOHNNYCAKE LANDING RD
CARPENTER BRIDGE RD
COLEMAN AVE
BISHOP ALLEN
LOWBER AVE
FRONT ST
DAVID ST
DARBY ST
FROG EGG LN
FRANKLIN ST
ST AGNES ST
THOMAS ST
1
2
3
4
5
6
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8
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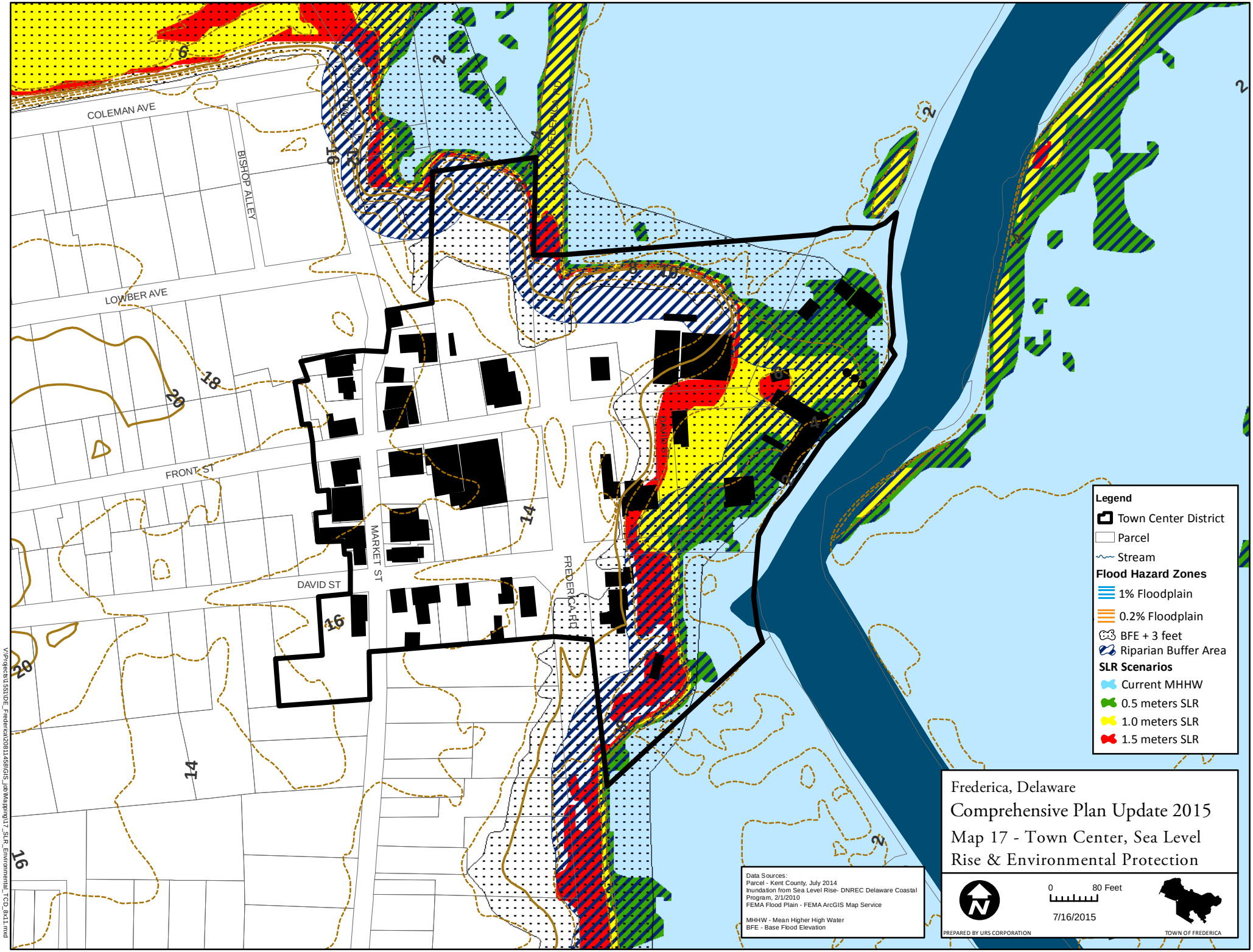
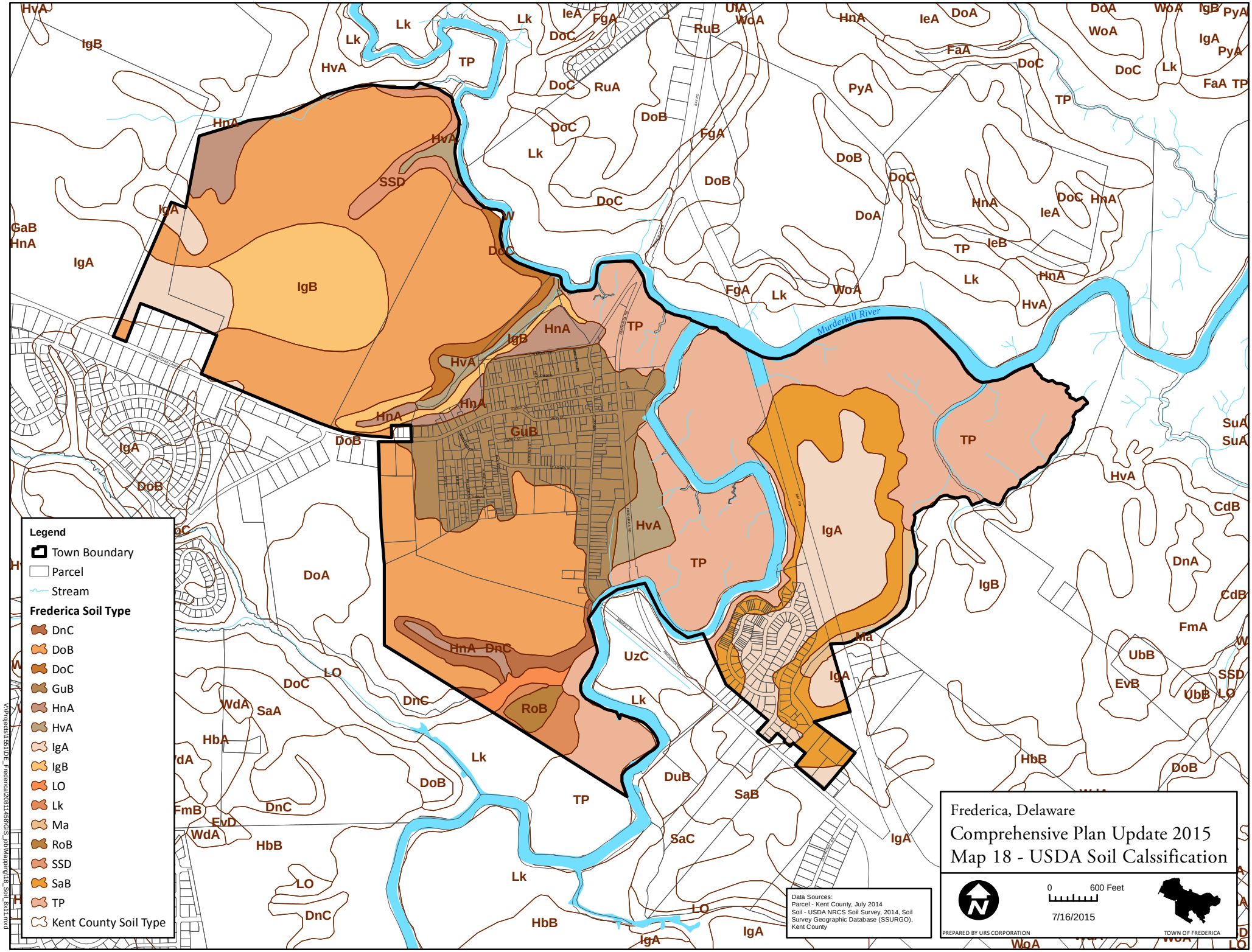
11
12



Frederica, Delaware

Comprehensive Plan Update 2015

Map 17 - Town Center, Sea Level Rise & Environmental Protection


Legend
Town Boundary
Parcel
Stream
Frederica Soil Type
DnC
DoB
DoC
GuB
HnA
HvA
IgA
IgB
LO
Lk
Ma
RoB
SSD
SaB
TP
Kent County Soil Type
Murderkill River
Frederica, Delaware
Comprehensive Plan Update 2015
Map 18 - USDA Soil Calssification
0
600 Feet
7/16/2015
PREPARED BY URS CORPORATION
TOWN OF FREDERICA
Data Sources:
Parcel - Kent County, July 2014
Soil - USDA NRCS Soil Survey, 2014, Soil Survey Geographic Database (SSURGO), Kent County

draft July 2015
Prepared by the Town of Frederica
with the assistance of AECOM (formerly URS)