

# Preliminary Land Use Service (PLUS) Application Municipal Comprehensive Plans

Delaware State Planning Coordination  
122 Martin Luther King, Jr. Blvd • Dover, DE 19901 • Phone: 302-739-3090 • Fax: 302-739-5661

Please complete this “PLUS application in its entirety. **All questions must be answered. If a question is unknown at this time or not applicable, please explain.** Unanswered questions on this form could lead to delays in scheduling your review. This form will enable the state staff to review the project before the scheduled meeting and to have beneficial information available for the applicant and/or developer at the time of review. If you need assistance or clarification, please call the State Planning Office at (302) 739-3090. Possible resources for completing the required information are as follows:

[www.state.de.us/planning](http://www.state.de.us/planning)  
[www.dnrec.state.de.us/dnrec2000/](http://www.dnrec.state.de.us/dnrec2000/)  
[www.dnrec.state.de.us/DNRECeis/  
datamil.delaware.gov](http://www.dnrec.state.de.us/DNRECeis/datamil.delaware.gov)  
[www.state.de.us/deptagri/](http://www.state.de.us/deptagri/)

**Preliminary Land Use Service (PLUS) Application  
Municipal Comprehensive Plans**

Delaware State Planning Coordination  
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<b>Name of Municipality:</b>	
<b>Address:</b>	<b>Contact Person:</b>
	<b>Phone Number:</b>
	<b>Fax Number:</b>
	<b>E-mail Address:</b>

**Date of Most Recently Certified Comprehensive Plan:** \_\_\_\_\_

<b>Information prepared by:</b>	
<b>Address:</b>	<b>Contact Person:</b>
	<b>Phone Number:</b>
	<b>Fax Number:</b>
	<b>E-mail Address:</b>

<b>Maps Prepared by:</b>	
<b>Address:</b>	<b>Contact Person:</b>
	<b>Phone Number:</b>
	<b>Fax Number:</b>
	<b>E-mail Address:</b>

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## **General Plan Approval Process**

- Step 1:** Draft prepared by local government.
- Step 2:** Planning Commission and/or Legislative Body approves to send to PLUS at the time the plan is released for public review.
- Step 3:** PLUS meeting, application submitted by 1<sup>st</sup> business day of the month for that month's meeting.
- Step 4:** State comments submitted to local government within 20 business days of meeting.
- Step 5:** Local government replies to state comments in writing and submits revised plan to Office of State Planning Coordination (O S P C) for review.
- Step 6:** OSPC requires 20 working days to reply to revised plan. State sends a letter accepting changes or noting discussion items.
- Step 7:** Once you receive the Office of State Planning Coordination letter stating that all certification items have been addressed, your Planning Commission and Council should adopt the plan pending State certification. We strongly recommend that your Council adopt the plan by ordinance. The ordinance should be written so that the plan will go into effect upon receipt of the certification letter from the Governor.
- Step 8:** Send our office a copy of the ordinance (or other documentation) that formally adopts your plan along with an electronic or paper copy of the final plan. We will forward these materials to the Governor for consideration. At the discretion of the Governor a certification letter will be issued to your town. The plan is effective on the date of adoption.
- Step 9:** Once you receive your certification letter, please forward two (2) bound paper copies and one electronic copy of your plan to our office for our records. It is suggested that you incorporate a copy of the State's PLUS letter and the Governor's certification letter into the final comprehensive plan document.

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## **Comprehensive Plan / Amendment Checklist<sup>1</sup>**

Please check yes or no as to whether the following information has or has not been included in the comprehensive plan and indicate page numbers where information may be found.

<b>Public Participation</b>	<b>Yes</b>	<b>No</b>	<b>Page # / Sections</b>
Public Participation Summary and Results			

<b>Population Data and Analysis</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Past Population Trends			
Population Projections			
Demographics			
Position on Population Growth			

<b>Housing</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Housing Stock Inventory			
Housing Pipeline			
Housing Needs Analysis			
Position on Housing Growth			
Affordable Housing Plan			

<b>Annexation</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Analysis of Surrounding Land Uses			
Annexation Plan			

<b>Redevelopment Potential</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Identification of Redevelopment Areas and Issues			
Redevelopment Strategy			
Community Development Strategy			

<sup>1</sup> Please go to the following website for detailed checklist information:  
<http://www.state.de.us/planning/services/circuit.shtml>.

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<b>Community Character</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
History of the Town or City			
Physical Conditions			
Significant Natural Features			
Community Character			
Historic and Cultural Resources Plan			
Community Design Plan			
Environmental Protection Plan			

<b>Land Use Plan</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Existing Land Use			
Land Use Plan			

<b>Critical Community Development and Infrastructure Issues</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Review of Community Conditions			
Inventory of Community Infrastructure			
Inventory and Analysis of Community Services			
Water and Wastewater Plan			
Transportation Plan			
Community Development Plan			
Community Facilities Plan			

<b>Intergovernmental Coordination</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Description of Intergovernmental Relationships			
Intergovernmental Coordination Strategy			
Analysis and Comparison of Other Relevant Planning Documents			

<b>Economic Conditions</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Economic Base / Major Employers			
Labor Market			
Income and Poverty			
Economic Development Plan			

<b>Open Space and Recreation</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Inventory of Open Space and Recreation Facilities			
Open Space and Recreation Plan			

# Preliminary Land Use Service (PLUS) Application Municipal Comprehensive Plans

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<b>Implementation Strategies</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Evaluation of Current Codes and Ordinances			
Zoning Map Revisions			
Zoning and Subdivision Code Revisions			
Implementation Plan			
Coordination with Other Government Agencies			

<b>Other State Programs, Policies, and Issues</b>	<b>Yes</b>	<b>No</b>	<b>Page #</b>
Total Maximum Daily Loads			
Corridor Capacity Preservation Program			
Agricultural Preservation Program			
Sourcewater Protection			

**Additional Comments:**

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**Summary:**

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# Little Creek DELAWARE

Draft  
June 2016



## Comprehensive Plan Update 2016



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## Acknowledgements

### 2016 Comprehensive Plan

The 2016 Comprehensive Plan Update was prepared by the Town of Little Creek with technical and administrative assistance from the Town's planning consultant, AECOM. Town officials and staff extend their sincere gratitude to the Office of State Planning Coordination (OSPC) 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 Sea Level Rise component of this Update was made possible through grants funded by the Coastal Management Assistance Grant administered by the Coastal Program. The Transportation component of this Update was made possible by the Dover / Kent County Metropolitan Planning Organization (MPO). The Town offers a special thanks to following organizations for their extensive knowledge share and technical assistance in in the planning process.



Office of State Planning



Delaware Coastal Programs



Division of Energy and Climate


 Dover/Kent County  
Metropolitan Planning Organization (MPO)


Delaware Department of Transportation



University of Delaware



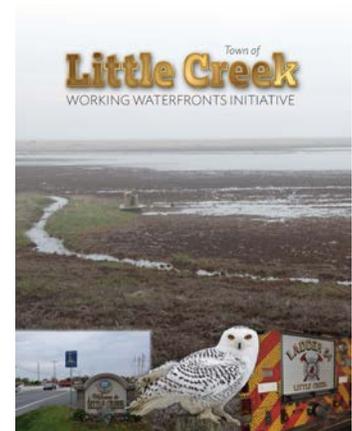
Sea Grant Delaware



AECOM- Planning and Engineering Consultant

### Town of Little Creek Working Waterfront Initiative

The Town acknowledges the University of Delaware and project partners for their exceptional work on the Town of Little Creek Working Waterfronts Initiative, which is a separate but collaborative plan to this Comprehensive Plan Update. The main purpose of the Working Waterfronts Initiative is to develop sustainability strategies for preserving and maintaining the State's traditional maritime communities. Little Creek's Working Waterfront Initiative includes development and community engagement strategies intended to "help the Town revitalize commercial and water-dependent businesses while preserving the many characteristics that make it a unique, maritime community rich with history." The development and community engagement strategies set forth in the Initiative are inextricably linked to the vision, goals and strategies in this Plan. The document is, therefore, incorporated by reference, and is provided in **Appendix C**.





## 2006 Comprehensive Plan

The 2006 Plan was developed between January 2005 and August 2005 by the Town of Little Creek Planning Commission with assistance from the Delaware OSPC. The State Planning Office was assisted by students and staff at the University of Delaware, Institute for Public Administration for certain aspects of plan development and mapping. The following is a list of personnel who worked with Little Creek to develop and draft this plan: David L. Edgell (Project Manager) of OSPC, D. Barrett Edwards (Principal Drafter), and Nicole Minni (GIS and Mapping Support) of the University of Delaware. The following staff collaborated with the Planning Commission and contributed to the completion of this plan: Dave Carter, Laura Herr, Wayne Lehman, Susan Love and Mike Powell, all from DNREC, Hans Medlarz from Kent County, and Thomas Wuerzer from IPA.

## Town, County, and State Officials

### Town of Little Creek

Mayor and Council	Glenn Gauvry, Mayor Cheryl Bundeck, Commissioner Penny Gentry, Commissioner / Secretary Judith A. Hegman, Commissioner / Treasurer Virginia Stanley, Commissioner
Planning Commission	Carol Williams
Town Solicitor	Sandra W. Dean Law, P. A.

### 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

### State of Delaware

Governor	Jack A. Markell
Senate	Colin R. J. Bonini, Senator, 16th District
House of Representatives	William J. Carson, Representative, 28th District
Office of State Planning	Constance C. Holland, AICP, Director

# Overview

# Comprehensive Plan

## Little Creek, Delaware

### 2016 – Draft

## Overview

The Town of Little Creek’s Comprehensive Plan provides a framework for development and annexation for the Town and is used to inform the land use policies and decisions. This Comprehensive Plan serves as an official statement about the future of the Town. The plan is a unified advisory document to the Council and the Planning Commission on land use and growth issues. It should be used to guide future development decisions, re-zonings, annexations, and capital improvements throughout the Town. Little Creek will use the plan as the basis to update its zoning code, other land use ordinances, and zoning map.

The plan is also an informational document for the public. Citizens, business people, and government officials can turn to the plan to learn more about Little Creek and its policies for future land use decisions. Current and potential new residents or business owners can use the documents as an informational resource about the Town, its characteristics, and facilities. This document serves as a consolidated reference guide, containing demographic, economic, environmental, and historical information about Little Creek.

Finally, the Little Creek Comprehensive Plan is a legal document. The Delaware Code specifies that “...any incorporated municipality under this chapter shall prepare a comprehensive plan for the city or town or portions thereof as the commission deems appropriate.” The Code further specifies that “after a comprehensive plan or portion thereof has been adopted by the municipality in accordance with this chapter, the comprehensive plan shall have the force of law and no development shall be permitted except as consistent with the plan.” (§ 702, Title 22, Delaware Code).

The Plan Update generally follows the format of the 2006 Plan and expands on each section. A new section has been added, titled Sea Level Rise Vulnerability and Adaptation. The Plan is divided into three main chapters: 1) Background 2) Municipal Development Strategy, and 3) Implementation.

**Chapter 1. Background** provides a history and overview of the community, information on the planning process, 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 and priorities for implementing the plan.

# Chapter 1



## Background



General Store and Post Office (1938)  
Source: *Town website*

## 1.1 Brief Overview of the Community

### 1.1 a. Location and Overview

The Town of Little Creek is a small community located in rural eastern Kent County, Delaware, a few miles east of the City of Dover and a few miles west of the Delaware Bay. Little Creek is situated in the midst of actively farmed agricultural land and protected wetlands north of the Little River. The Town is approximately 65 acres, consisting of 122 parcels and 224 residents. The most prevalent use of land in Town is residential, followed by vacant and agricultural land uses. It is a quiet, historic riverfront Town that demonstrates Delaware's coastal heritage, and is a destination stop along Delaware's Bayshore Scenic Byway (Route 9).

#### Location Map



### 1.1 b. History of the Town

Not far from Little Creek was one of the earliest settlements in the region, Cowgill Corner. This area was named after the first settler, Henry Cowgill, who acquired the land in 1794 and settled the region shortly thereafter. As the number of inhabitants increased, a town began to form. This town was initially known as Little Creek Landing, which provided boat access to the Delaware Bay via the Little River. The town would later be known as Little Creek.

The first school-house was established in 1861, known as the District 85 Little Creek Landing School. The initial school was in a blacksmith shop, but in 1865 a school-house was erected with William D. Learned as the first teacher. Just a few years later in 1868, the Town of Little Creek received a post-office, and William Hobson was the first postmaster.

In 1888, Little Creek had approximately 350 inhabitants and was one of the most prosperous towns in the state. The Town's prosperity was largely due to the oyster industry that had received more than \$50,000 in investments. The industry was so successful that the oyster beds were under the protection of the state, and police boats constantly patrolled the beds.

Figure 1: Oyster Fleet at Little Creek, 1924



Oyster Fleet at Little Creek, April 27, 1924

Port Mahon, located just northeast of Little Creek, was at one time the best shipping point on the Delaware Bay and had the capacity to load up to 10 vessels at once. In addition to oysters, there were 1,000 tons of marsh hay and 50,000 bushels of grain that were annually shipped out of the landing.

<sup>1</sup>Unless otherwise noted, all historical information was taken from J. Thomas Scharf's 1888 book entitled: *History of Delaware: 1609-1888*.

The State of Delaware Legislature incorporated the Town of Little Creek in 1899, stating, "That the citizens of the Town of Little Creek shall be and they are hereby created a body politic and corporate in law and in equity, and shall be able and capable to sue and be sued, plead and be impleaded in courts of law and equity in this State and elsewhere, by the corporate name of the Town of Little Creek..."<sup>2</sup>

Today, the town is quiet, the waterfront is vacant, and so are many of the formerly thriving businesses. The majority of previous auto traffic on Route 9 now bypasses the Town on U.S. Route 1. Protected from change brought about in other parts of the county, Little Creek offers a rare look at one of Delaware's earliest bayshore economies.

## 1.2 Authority of the Plan

Delaware law requires that municipalities engage in comprehensive planning activities for the purpose of encouraging "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...." This plan was written to comply with requirements of a municipal development strategy as described in the Delaware Code for towns with a population of 2,000 or fewer.

The municipal development strategy for small communities (such as Little Creek) 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 jurisdiction, expansion of its boundaries, development of adjacent areas, redevelopment potential, community character, and 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 Little Creek's municipal development strategy as required by state law and it is intended to cover a ten-year planning period and be reviewed at least every five years.

## 1.3 Town Governance, Land Use Planning, and Regulation Process

The Town of Little Creek was incorporated March 23, 1899 by the Delaware General Assembly. A five member Town Commission governs the Town and elections are held the first Saturday in March. Commission members are elected for terms lasting two years each. In every even numbered year there is an election for three commission members, and in each odd numbered year there is an election for two commission members. The minimum requirements for holding office are being above age 21, owning real estate within Little Creek, being a non-delinquent payer of taxes to the Town of Little Creek, and a Town resident for at least two years.

Town Council conducts Town business and administers the land use planning and regulation process ensuring compliance with Town Code, Land Development Ordinance and Town Charter. The Council meets on the first Monday of every month at the Little Creek Fire Hall located on Main Street.

**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 OSPC and Kent County for compliance with state and county land use policies and plans.

**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 OSPC's PLUS

<sup>2</sup>Laws of Delaware. Vol. 21, Ch. 283, 1898-1899

review process for development applications and planning document updates. More specific coordination initiatives are summarized in Chapter 3.

Volunteers, such as the Little Creek Volunteer Fire Department personnel, and the county, state, and federal levels of government provide the remaining services to the citizens.

**Code Enforcement:** Kent County's Division of Inspections and Enforcements has the responsibility for building inspections within the Town of Little Creek. Currently, the county utilizes International Code Council (2012). The Town also adopted the International Property Maintenance Code (2012).

**Town Charter:** The Little Creek Town Charter serves as the guiding legal document for the Town. While it is a valuable source of information, Section 2 of the charter has become outdated. Section 2, which describes the Town's boundaries and street names, needs to be revised and updated in order to be of further value to local officials and town residents. It is very important that the Town charter be kept up-to-date, especially when dealing with annexation.

**Progress Reports:** State law requires that municipalities annually provide the OSPC 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 Review of Other Planning Documents and Policies

### Strategies for State Policies and 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 14, 2016, Delaware Governor Jack Markell signed Executive Order #59, approving an update of the Strategies for State Policies and Spending. The strategies represent 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 Little Creek. See **Map 2 - State Strategies.**

Most of Little Creek lies within the State's Level 3 area. Level 3 areas reflect areas where growth is anticipated by local, county, and state plans in the longer term, or areas that may have environmentally 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 adjacent to Little Creek's Town boundary is within the State's Level 4 and Out-of-Play areas. 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. Out-of-Play lands, which are not available for private development, include publicly-owned lands, private conservation lands, lands for which serious legal and / or environmental constraints on development are identified, and lands in some form of permanent open-space protection (such agricultural preservation easements and conservation easements). Out-of-Play areas are generally not expected to be the location of private development activities, such as residential subdivisions or commercial shopping centers. However, government entities, private property owners, and conservation organizations are still expected to invest in these areas for the purposes in which they were acquired and preserved. Most of the area east of Town is Out-of-Play due to tidal wetlands or because development rights were purchased through the Agricultural Preservation Program administered by the Delaware Department of Agriculture. A permanent agricultural conservation easement has been imposed on these lands.

## Agricultural Preservation Districts

There is a significant amount of agricultural land surrounding Little Creek. Many of these lands are protected by the Delaware Agricultural Lands Preservation Program. The Agricultural Preservation Districts are properties enrolled in the Delaware Agricultural Lands Preservation Program. Qualifying parcels are designated as either a District (200 acres or more) or an Expansion (less than 200 acres) to a district. These properties are preserved from development for 10 years with the option to renew. If the owner sells the property's development rights to the State, a preservation tool referred to as Purchase of Development Rights (PDR), then the area is designated as an Easement, indicating that the area is permanently preserved.

Properties currently participating in an agricultural district program or easement restricted from future development are identified on **Map 6 – Development Potential**.<sup>3</sup>

## Kent County Comprehensive Plan and Zoning

Unlike most municipalities in Kent County, Little Creek does not lie within the Growth Overlay Zone, as defined by Kent County's Comprehensive Plan, adopted in October 2008. The 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. The County would like to see growth focused in this area since infrastructure to support such growth is in place or can be relatively easily provided for. None of the development incentives or density bonuses related to this zone apply to lands within and around Little Creek. In general, the County's vision and goals for lands surrounding Little Creek are for preservation and low-density residential development.

Kent County's Comprehensive Plan designates the future land use for the majority of area surrounding Little Creek for Low Density Residential. A few parcels located to the south of Town and on the other side of Little River are designated for Highway Commercial. The respective county zoning districts are Agricultural Conservation (AC) and General Business (BG). The

AC zone allows agricultural uses as well as low-density residential uses and cluster residential developments in a rural setting. The BG zone provides locations for commercial establishments offering general retail shopping and personal services that are adjacent to and compatible with residential neighborhoods.

Kent County adopted a Transfer Development Rights program (TDR) program in 2004, where development rights can be transferred from one property to another to preserve the rural character of the land in the County. Being located outside of the Growth Overlay Zone, Little Creek and the surrounding area are designated as a high priority sending area. A TDR program harnesses private market forces to protect rural character and direct development to areas deemed more suitable for development. TDR severs the development rights from a parcel of land in exchange for a right to develop or use another parcel of land more intensively. It is a land preservation tool that relies upon the free market rather than government funding. The program relies entirely on willing buyers and willing sellers.

## Delaware Bayshore Byway Corridor Management Plan

Delaware's Bayshore Byway links multiple Delaware coastal towns and natural areas by means of a physical route as well as shared vision, mission, and goals to protect the region's rich maritime heritage and abundant natural resources. Yet, as stated in the Byway Corridor Management Plan (CMP), "each of the communities has different histories and visions of the future. Although the natural areas have many similarities, they are also very different when it comes to ecological and cultural features and activity levels that can be supported. It is because of these similarities and differences that the concept of Discovery Zones emerged." Discovery Zones, including Little Creek, are "destinations that embody activity areas where travelers can learn about the byway, engage in outdoor recreational activities and other byway pursuits and events, and are directed toward visitor amenities. The CMP sets forth the State's Bayshore Initiative and tells the story and the aspirations of each Discovery Zone. The CMP also sets forth tools to preserve and enhance

<sup>3</sup> DALPF Delaware Agricultural Lands Preservation Foundation

the Byway, and how various agencies and stakeholders can work together to implement the recommendations. Little Creek embraces its role as a Discovery Zone and this Comprehensive Plan seeks to augment and build upon the strategies and recommendations provided in the CMP.

### Intergovernmental Review

Through the public review and comment period, a copy of this plan was sent to the State of Delaware for review through the Preliminary Land Use Service (PLUS). Copies of this plan were also sent to the City of Dover, the Kent County Department of Planning Services, and the Kent/Dover Metropolitan Planning Organization (MPO) for their review and comment. Representatives from various state agencies were also invited to the public meetings for the preparation of this plan.

## 1.5. Public Participation

2006: The Town of Little Creek has and continues to employ an extensive public participation process in its comprehensive planning endeavors. The drafting of the 2006 Comprehensive Plan provided residents the opportunity to voice their opinion through a community planning questionnaire. In addition, residents are provided the opportunity to interact with officials to discuss their likes, concerns, and ideas for improving life in Town through public participation meeting.

In this 2016 Plan Update, the Comprehensive Planning Team conducted a similar, multi-faceted outreach strategy. The team administered a public-opinion questionnaire and held four community meetings. Representatives of the University of Delaware's Sustainable Coastal Communities Initiative also held individual interviews for a separate, but collaborative, project to this Comprehensive Plan Update, the Working Waterfront Initiative.

Two of the community meetings focused on specific topics, Sea Level Rise and Transportation, and were geared toward agency coordination.

This public participation process for this 2016 Plan Update sought to re-evaluate, affirm and

prioritize the 2005 issues, vision, and goals, and then garner support on implementation objectives and strategies aimed to support these goals. The key findings of the public participation process for the 2006 Comprehensive Plan and 2016 Update are summarized below and integrated throughout the Plan.

### 1.5 a. Community Planning Questionnaire

2006: The community planning questionnaire was distributed to all town residents. There were 46 responses received back from the 195 residents in Town, representing a 24% response rate. The purpose of the survey was to identify the key issues Little Creek residents were most concerned with, and the following is a summary of the questionnaire's results.

The majority of the survey respondents lived in the Town of Little Creek and owned their own home. The race of the respondents was almost entirely white, the age distribution was evenly distributed, and the majority of the respondents falling within the 25 to 65-year-old age range.

The idea that Little Creek's small-town atmosphere should be preserved was almost unanimously expressed throughout the questionnaire. The respondents placed high value on the farmland surrounding the Town and want to preserve the rural atmosphere it brings. At the same time, residents believe that any development should be balanced with the farmland and open space.

While the respondents were largely pleased with the community services offered in the Town of Little Creek, concern was expressed over stormwater management, mosquito control, and the maintenance and use of the river. Respondents were also concerned about the frequency of trucks traveling down Main Street and the lack of bike routes in the Town.

When asked what the future needs of the Town are, the respondents largely supported a Town park as the top priority, followed next by the need for a public water system.

2016: In July 2015, the Comprehensive Planning Team administered another community questionnaire that was very similar to the 2006 questionnaire. The questionnaire was designed to help prioritize community issues, goals and strategies related to future growth and development in and around the Town. See **Appendix B - Community Questionnaire**. The questionnaire results offer a glimpse of public opinion on issues that currently impact, and will likely continue to impact, life in Little Creek. The questionnaires were mailed out to all households, and 39 were returned. The results of the survey are provided in Appendix A, and are integrated throughout this Plan Update. There are three key themes and top priorities that can be inferred from the combined results:

1. Residents wish to preserve the small-town character by balancing any new development with preservation of agricultural lands and open space. Annexation and new residential developments are generally not desired and are not a priority;
2. Residents desire to re-establish public access to Little River for commercial fishing and for recreational boating and fishing; thereby restoring their working waterfront and maritime heritage; and
3. Residents recognize that sea level rise is happening and they generally support action to adapt and become a resilient community.

### 1.5 b. Community Meetings

2006: The 2006 meeting was well attended by the residents of Little Creek. This meeting gave residents the opportunity to interact with officials to discuss their likes, concerns, and ideas for improving Little Creek.

Residents mentioned many things they liked about Little Creek, including the small-town atmosphere, close-knit neighborhoods, low crime rate, historic atmosphere, river and wildlife, and close proximity to Dover and Wilmington.

Public participants expressed various concerns and ideas for improvement regarding Little Creek and the surrounding area. It was mentioned there needs to be better recreational opportunities for

youth. Meeting attendees expressed uneasiness about being on the explosive route to Dover Air Force Base (DAFB) and mentioned the need for an accident prevention plan and a disaster plan. Participants were also concerned about Town and farmer relations. They want to improve code enforcement with the help of the county and State, while encouraging more coordination with local landowners.

Regarding the environmental situation in and around the Town, attendees expressed concern about the future of the river and wildlife, along with stormwater management, mosquito control, and channel dredging. Some ideas to resolve these problems include property cleanup efforts to beautify the Town, placing emphasis on the Town's maritime heritage, redeveloping Port Mahon and the river, and doing something with the former Laughing Gull bar site located on the south side of Town.

Transportation issues were another area of concern for those attending the public participation meeting. The lack of elderly transportation was mentioned, along with the idea to improve public transportation by making more than just Paratransit available to Little Creek residents. The opportunity and effects associated with making Route 9 into a Historic National Park and Scenic Highway Designation concerned many residents, as did problems associated with recreational traffic, and the conditions with Port Mahon Road.

2016: The community meetings consisted of members and representatives from the following: Town Council, Town Planning Commission, Town Volunteer Fire Department, Kent County Planning and Zoning, Dover Kent MPO, DNREC, DeIDOT, Office of State Planning, University of Delaware, County Representative (Allan Angel) and State Representative (William Carson). Representatives of the Working Waterfront Initiative also participated. The planning consultants helped facilitate the meetings by preparing documents and visuals to be used during the meetings, and presenting an overview on the topics to be discussed at each meeting. The Town leaders and the agency representatives led the discussion providing insight and strategies moving forward.

### *Visioning Meeting*

The planning team held a Public Workshop on October 20, 2015 where an overview of the planning process and a background on the key topics were discussed. The results of the Community Questionnaire were also presented. A major topic of discussion was land use, specifically as it pertains to the Commercial District and the Little River waterfront area and sea level rise vulnerabilities. The Office of State Planning facilitated the meeting and led the discussion on the vision and goals that would be the overarching guidance statements for the plan recommendations. A University of Delaware representative presented an overview of the Working Waterfronts Initiative and the outreach results. The meeting resulted in a general overview and understanding of the key issues, confirmation of the vision statement, and refinement of goals.

### *Sea Level Rise Meeting*

This meeting was held on December 7, 2015 with Town officials and staff, and representatives from DNREC, Coastal Programs, and OSPC. This meeting picked up where the workshop left off, as the specifics of how sea level rise impacts Little Creek were discussed. We discussed the current hazards and forecasted vulnerabilities and current regulations that address hazards. The discussion on vulnerabilities was grouped into the following categories: Buildings and Property, Commercial District, Facilities, Transportation, and Natural Resources. We also reviewed and selected the draft goals and objective statements for sea level rise. Adaptation options and preliminary strategies were also discussed. The discussion included a wide range of options, including, but not limited to: the creation of a new zoning district or hazard overlay zone, expanding floodplain requirements and floodproofing measures, wetland restoration, riparian corridor enhancements, monitoring drinking water wells, various FEMA programs, and ways to provide homeowner / builder awareness and education.

### *Transportation Meeting*

The meeting on transportation was held on February 8, 2016. Three presentations were given that included group discussions. The planning consultant presented on Sea Level Rise vulnerabilities and adaptation options within the context of roads, bridges, hazard mitigation, and emergency response were also thoroughly evaluated and discussed at this meeting. Dover Kent MPO presented an overview on the MPO and the comprehensive transportation planning process, as well as existing conditions in Town and potential needs and opportunities. The DelDOT Delaware Bayshore Byway Coordinator presented an update of the Byway wayfinding project. The planning consultant presented on the background and status of the planning process, the questionnaire results, vision and goals, as well as a brief overview of the discussion topics on the meeting agenda. The discussion topics were: street and sidewalk maintenance, traffic calming, the Bayshore Byway, and flood hazards and sea level rise.

### *Strategies Meeting*

The last meeting was held on March 8, 2016 to review and discuss overall community development and sea level adaptation strategies. The University of Delaware representatives presented on the status of the Working Waterfronts and provided an update on the outreach results. The planning consultant presented a recap of the vision and goals, and the summary of draft recommendations that reflected ideas received throughout the planning process. An illustrative plan was presented to help summarize and visualize the key strategies, and to solicit feedback and direction on the plan recommendations.

### *Working Waterfront Initiative Interviews*

As part of the Working Waterfronts Initiative, 22 selected individuals comprised of a diverse group of community leaders, residents, and state and federal personnel that have jurisdictional responsibility were interviewed with specific questions on flooding and sea level rise. A summary of the interview methodology, interview

results, and overall project findings are provided in the draft Working Waterfronts Initiative Plan.

The objectives and strategies integrated throughout this Plan are the direct result of the ideas, comments and buy-in from this extensive outreach process.

## 1.6 Little Creek's Planning Goals and Vision

### 1.6 a. Vision for Little Creek

Little Creek is a historic, small-town with a rich maritime heritage that will maintain its small-town character while allowing for modest growth and redevelopment that is consistent with its rural surroundings, while adapting to sea level rise.

### 1.6 b. Position on Population Growth and Development

Little Creek is a small community located between actively farmed agricultural land and environmentally sensitive wetland areas. The Town has no central water system and is not situated in a location conducive to substantial future growth.

The Town desires to revitalize the waterfront and commercial district in order to restore and reinvent their maritime cultural heritage with context- and environmentally-sensitive development. The Town seeks to maintain its small-town atmosphere in a rural, agricultural setting, while promoting its designation as a Discovery Zone along the Bayshore Byway. Little Creek will support modest residential growth and will promote low impact commercial development in Town that recognizes the vulnerabilities and sensitivities of the unique waterfront environment. The Town is not interested in new large scale developments outside of Town boundaries, as the priorities are to improve conditions in Town and preserve adjacent farmland, open space and wetlands that provide numerous benefits to the Town and region. Town leaders envision a greenbelt around Town boundaries as a distinct rural edge.

With this vision and position on growth in mind, the Town's development strategies include: directing compatible infill development on vacant and underutilized properties in Town, promoting place-making design principles, and enhancing the Town's natural, cultural and recreational assets. Towards becoming a sustainable and resilient community, economic and community development will re-connect the public to Little Creek while minimizing risks to flood hazards and sea level rise inundation.

Working towards fulfilling the Town's vision and position on growth, the Town developed planning goals in which the strategies throughout this Plan aim to achieve.

### 1.6 c. Planning Goals

1. Maintain Little Creek's small-town atmosphere and rural setting through the adoption of appropriate zoning and land use ordinances.
2. Preserve Little Creek's rural atmosphere by balancing the protection of rural land with the needs of Town residents.
3. Ensure the protection of natural resources for the enjoyment and health of existing and future residents of Little Creek and the surrounding region.
4. Improve stormwater drainage and reduce the number of mosquitoes in Town through the implementation of environmental restoration practices.
5. Restore and maintain the river so that it becomes usable to Town residents.
6. Encourage homeownership in the Town of Little Creek.
7. Reduce Little Creek's vulnerability to natural hazards, particularly flooding and sea level rise.
8. Be a resilient community that is prepared for natural hazards and thrives after a hazard strikes.

# Chapter 2

## Municipal Development Strategy

Agricultural lands at the Town's  
western boundary



## 2.1 Demographics, Future Population, and Housing Growth

Data on population, demography, housing, and economic conditions in Little Creek are outlined in the following section, along with appropriate comparisons to Kent County and the State of Delaware.

The U.S. Census has been the primary data source, with information taken from Summary File 1 (SF-1) and Summary File 3 (SF-3), and the American Community Survey. SF-1 is a direct information count considered to be very reliable, while SF-3 is an estimate based on sample data, which is less accurate for towns like Little Creek with very small populations.

### 2.1 a. Population

The U.S. Census is intended to be a count of all people, though errors, omissions, and overcounts undoubtedly occur. While small errors have minimal effect on large populations, the same inaccuracies significantly impact small populations, such as Little Creek, creating questions regarding the data's validity. Factors ranging from government policies to economic conditions can alter trends and eventually effect population projections. However, the statistics are included for the value gained by comparing them to state and county level data to illustrate demographic and population trends.

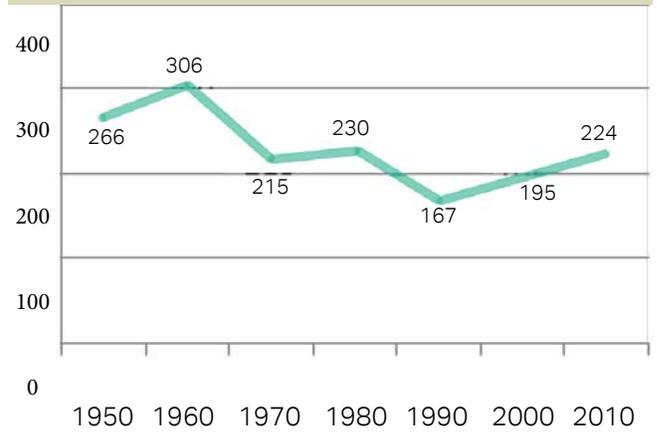
A review of information collected through the U.S. Census indicates that from 1950 to 2010, while the population in Delaware and Kent County has steadily increased, the population in Little Creek has fluctuated with an overall decrease in population.

The 2000 Census reported 195 people living in Little Creek and the 2010 Census shows Little Creek's population increased by 29 individuals, or 15%, to 224. During the same timeframe, Kent County's population grew from 126,697 to 162,310, an increase of 28%. Additionally, the State's population grew by 13% from 783,600 in 2000 to 897,934 in 2010. Little Creek's total population in 2010 was 224 individuals, of which

50% were male and 50% were female.

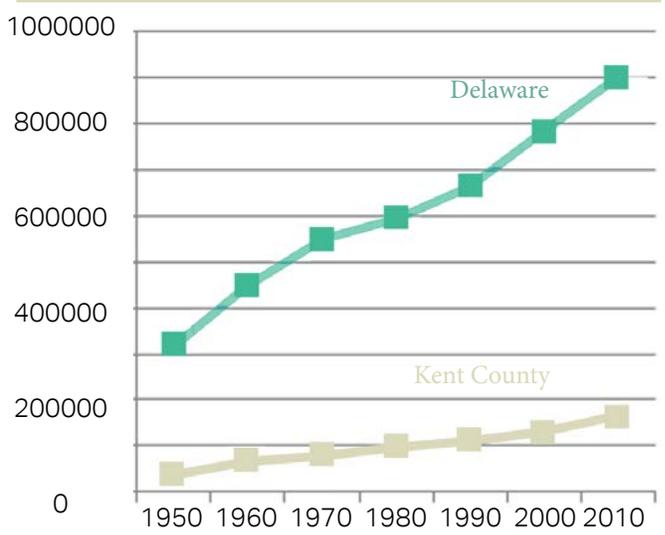
The following charts show the population trends for Little Creek, Kent County, and the State. Chart 1 shows the population for Little Creek from 1950 to 2010. Chart 2 shows the population trends for Kent County and the State of Delaware during the same time period.

Chart 1: Little Creek Population Trends (1950 - 2010)



Source: US Census 1950 - 2010

Chart 2: Population for Delaware and Kent County (1950 - 2010)



Source: US Census 1950 - 2010

## 2.1 b. Population Projections

Population projections for communities as small as Little Creek 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, two population projections were prepared to the year 2040 representing alternative scenarios. These projections were numerically graphed and the data points for each five-year increment are provided in Chart 3. The two scenarios estimate varying results that have been averaged to a projected population of 287 people by the year 2040 - an increase of 63. The population projections in Table 2 have been prepared using the 2000 U.S. Census information and growth rates from the Delaware Population

Consortium estimates for population growth in Kent County.

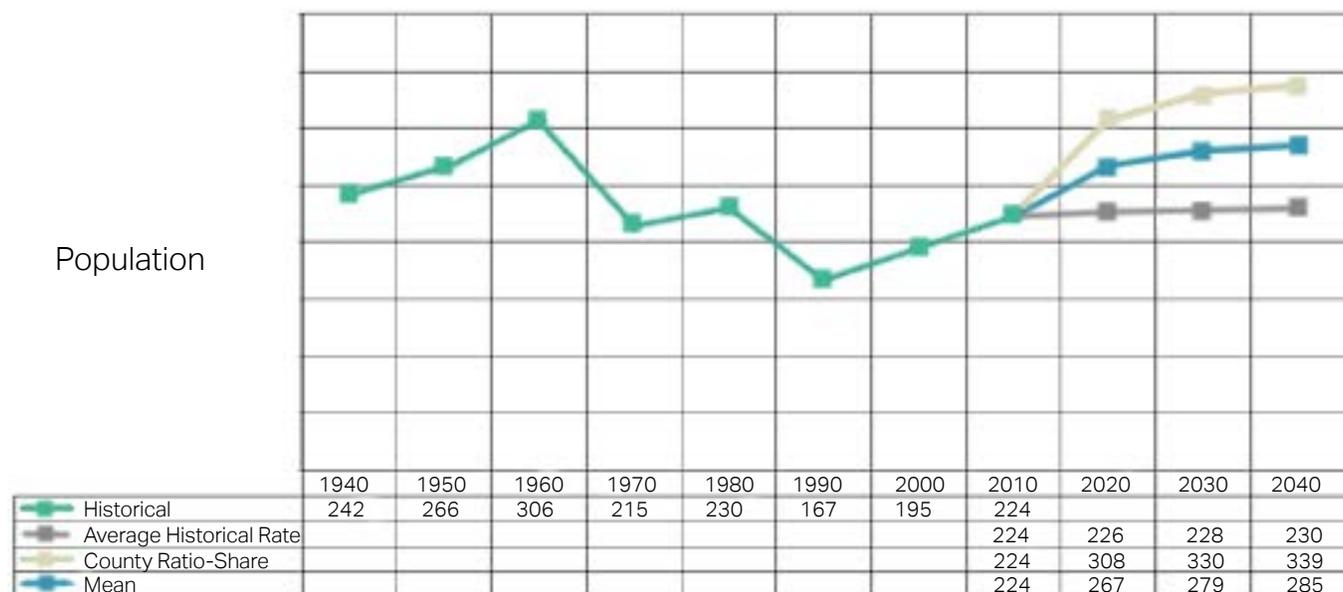
### Average Historical Growth Rate

The Average Historical Growth Rate for projecting growth uses the mean growth rate change over a 80 year period from 1940 to 2010, which equates to 0.9%. Applying this rate of population growth to each year until 2040, Little Creek's population will have increased by six people, totalling 230 people. This projection methodology assumes a steady rate change and that the Town will experience similar trends experienced since 1940.

### 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 0.17%, the population projection of Little Creek in 2040 is 339 people. The County population projections were obtained from the Delaware Population Consortium. This projection methodology assumes 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.

Chart 3: Future Population Projections



Source: 1940-2010, U.S. Census Bureau. 2010-2030, Delaware Population Consortium, Population Projection Series October 31, 2013.

Based on the two alternative population projections derived from use of various assumptions, a mean projection is estimated to be 285 people by 2040, as shown in Chart 3. This mean population projection is used throughout the Comprehensive Plan in evaluating projected influences of growth on the Town.

### 2.1 c. Racial Composition

In 2000, Little Creek was very homogeneous with a 91% white population, contrasting Kent County and the State of Delaware who had populations of 74% white and 75% white, respectively, as seen in Table 1.

Census 2010 data indicates that Little Creek became less diverse during the 2000's as the white population as a percentage of the total population increased from 91% in 2000 to 93% in 2010. During the same period, the black population decreased from 7% in 2000 to 2% in the year 2010. Little Creek is still more homogeneous than Kent County and the State of Delaware, which also are becoming more diverse.

Table 1: Racial Composition of Little Creek, Kent County, and Delaware

Race	Little Creek		Kent County		Delaware	
	2000	2010	2000	2010	2000	2010
White	91%	93%	74%	68%	75%	69%
Black	7%	2%	21%	24%	19%	21%
Other	2%	5%	5%	8%	6%	10%

Source: U.S. Census 2000 and 2010, SF-1

### 2.1 d. Age Profile

Census 2010 indicates that the median age of a Little Creek resident is 41.6 years, somewhat older than that of Kent County (36.6 years) and of Delaware (38.8 years). Table 2 shows the age distribution for Little Creek, Kent County, and Delaware.

Since the 2000 Census, a substantial change has occurred in Little Creek's child population (ages 0-14). In 2000, the total child population in Little Creek was about 29% of the total population,

Table 2: Age Profiles for Little Creek, Kent County, and Delaware (2010)

Age	Little Creek		Kent County		Delaware	
	Number	Percent	Number	Percent	Number	Percent
<5	12	5.4%	11,150	6.9%	55,886	6.2%
5-9	10	4.5%	11,286	7.0%	54,486	6.3%
10-14	15	6.7%	11,119	6.9%	56,848	6.3%
15-19	13	5.8%	12,370	7.6%	64,583	7.2%
20-24	14	6.3%	12,237	7.5%	62,864	7.0%
25-34	32	14.3%	20,017	12.4%	111,417	12.4%
35-44	25	11.2%	20,570	12.7%	116,087	13.0%
45-54	41	18.3%	23,177	14.3%	133,554	14.8%
55-59	12	5.4%	9,428	5.8%	57,816	6.4%
60-64	10	4.5%	8,974	5.5%	53,113	5.9%
65-74	21	9.4%	12,699	7.9%	72,453	8.1%
75-84	17	7.6%	6,880	4.2%	41,080	4.6%
85+	2	0.9%	2,403	1.5%	15,744	1.8%

Source: U.S. Census 2010, SF-1

more than both Kent County (23%) and the State of Delaware (21%). The 2010 Census indicates that the child population as a percentage of the total population in Little Creek decreased significantly over the past decade to 17%, while over the same time period, the child population as a percentage of total population in Kent County (21%) and the State (19%) decreased slightly.

### 2.1 e. Educational Attainment

The average education level of Little Creek's population age 25 or older differs from that of the residents of Kent County and the State, as seen in Table 3. According to the 2009 – 2013 American Community Survey, 75% of Little Creek residents 25 years of age or older have at least completed a high school education, compared to 85% of Kent County residents and 88% of Delaware residents.

Table 3 also shows how the percentage of Little Creek residents age 25 or older who have earned a bachelor's degree or higher differs from that of Kent County and the state.

Table 3: Educational Attainment for Little Creek, Kent County, and Delaware

	High School Graduate or Higher	Bachelor's Degree or Higher
Little Creek	75%	7%
Kent County	85%	21%
Delaware	88%	29%

Source: 2009-2013 American Community Survey 5-year Estimates

## 2.1 f. Housing

Table 4 compares Little Creek's total housing unit changes to those of Kent County and the State of Delaware, as recorded by the U.S. Census Bureau. Little Creek experienced little growth from 1970 to 1980, during which time the housing stock in both Kent County and the State of Delaware increased significantly. From 2000 to 2010, there was a net gain of 23 dwelling units in Little Creek, an increase of 31%, compared to the housing growth rate in Kent County (29%) and Delaware (18%). Changes in the state and county are consistent with population trends during the same time period.

Table 4: Dwelling Units in Little Creek, Kent County, and Delaware

Year	Little Creek		Kent County		Delaware	
	Number	Change	Number	Change	Number	Change
1970	61*	***	25,242	***	180,233	***
1980	64*	5%	35,354	40%	238,611	32%
1990	87	36%	42,106	19%	289,919	22%
2000	74	-15%	50,481	20%	343,072	18%
2010	97	31%	65,338	29%	405,885	18%

Source: U.S. Census 1970 - 2010, SF-1. \* These numbers were estimated from the "year structure built" data.

As previously noted, U.S. Census results for Little Creek are likely to be inaccurate due to the extremely small population size. A field survey of housing units in April 2005, conducted by State Planning Office and University of Delaware staff, demonstrated there were approximately 87 residential dwellings in Little Creek. Thus, any recorded loss in housing stock since 1990 was either a miscalculation, or has been offset by new dwelling units built in Town since the 2010 Census.

## Type of Housing Stock

Table 5 summarizes the types of housing in Little Creek, Kent County, and the State. The American Community Survey estimates that in 2013, 92% of all housing in Little Creek was single family detached housing, which was significantly higher than the same types of units in Kent County (64%) and in the State of Delaware (58%). These estimates represent an increase in the percentage of single family homes when compared to the 2000 Census, when only 81% of the housing stock in Little Creek was comprised of single family homes. Both the 2000 Census and the 2009 – 2013 American Community Survey represent estimates of the housing stock in Little Creek. Again, due to the small population size, there is a high margin of error. To demonstrate this, it is useful to consider the results of the last field survey of housing units in Little Creek in 2005. The planners that conducted the survey identified 87 housing units in the Town, compared to only 74 housing units estimated by the 2000 Census.

## Age of Housing Stock

Little Creek has retained many of its older structures. The 2009 – 2013 American Community Survey 5-Year Estimates indicate that 49% of Little Creek's houses were built before 1939, while 79% of the Town's structures were built before 1959. The median year the structures were built in Little Creek is 1941. Kent County and Delaware have relatively younger housing structures, with the median year structures were built being 1989 and 1981, respectively.

Table 5: Composition of Housing in Little Creek, Kent County, and Delaware in 2013 (Estimated)

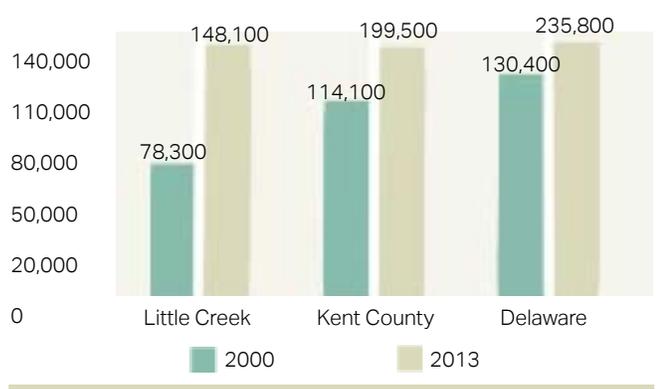
Housing Type	Little Creek		Kent County		Delaware	
	Number	Percent	Number	Percent	Number	Percent
Single Family Detached	77	92%	42,506	64%	238,344	58%
Single Family Attached	0	0%	5,808	9%	60,267	15%
Multi-Family	0	0%	8,774	13%	71,715	18%
Mobile Homes	7	8%	8,812	13%	37,448	9%
Other	0	0%	24	>1%	91	>1%
<b>Total</b>	<b>84</b>	<b>100%</b>	<b>65,924</b>	<b>100%</b>	<b>407,865</b>	<b>100%</b>

Source: 2009-2013 American Community Survey 5-year Estimates

### Housing Value

Chart 4 compares Little Creek’s 2000 and estimated 2013 median housing value with housing values in Kent County and the State of Delaware. With a value of owner-occupied housing units of \$78,300 in 2000 and \$148,100 in 2013, Little Creek has a lower median housing value than found in Kent County (\$114,100 in 2000 and \$199,500 in 2013) and Delaware (\$130,400 in 2000 and \$235,800 in 2013).

Chart 4: Median Housing Values for Little Creek, Kent County, and Delaware 2000 and 2013 (Estimated)

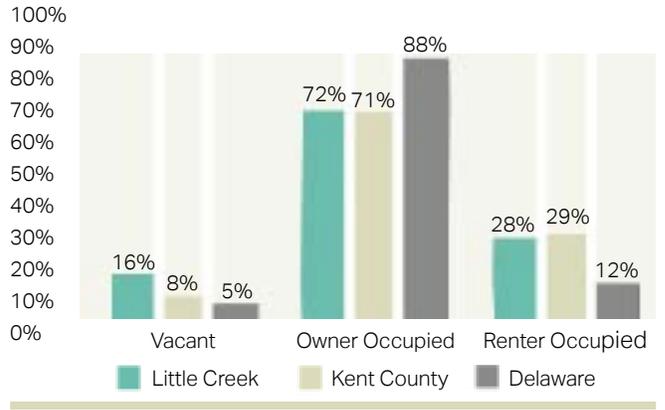


Source: 2000 U.S. Census, SF-3, 2009-2013 ACS 5-Year Estimates

### Ownership and Vacancy

Chart 5 compares the proportion of vacant units, owner-occupied units, and renter occupied units found in Little Creek with those in Kent County and the State. As seen from the chart, Little Creek fares quite well with fewer renters and more homeowners than in Kent County and Delaware. Little Creek posts a vacancy rate higher than Kent County and lower than the State.

Chart 5: Ownership and Vacancy Rates for Little Creek, Kent County, and Delaware 2010



Source: 2010 U.S. Census, SF-1

## 2.1 g. Economic Profile

This section discusses economic information for Little Creek, Kent County, and Delaware. Little Creek's estimated median income in 2013 was \$53,031, 4% lower than the median household income in Kent County (\$55,149) and 11% lower than that of the State (\$59,878). Census information indicates Little Creek has about the same percentage of households receiving Social Security and retirement than Kent County or the State. Thirty-two percent of households in Little Creek receive Social Security income, while the number for the county and the State is 33% and 32%, respectively. Fewer Little Creek residents receive retirement income (10%) than Kent County (26%) and the State (24%). Fourteen percent of Little Creek residents are below the poverty line, which is higher than the State average of 12%. Twenty-nine percent of seniors (65+) in Little Creek live below the poverty level, which is considerably more than the County or the State (both 7%).

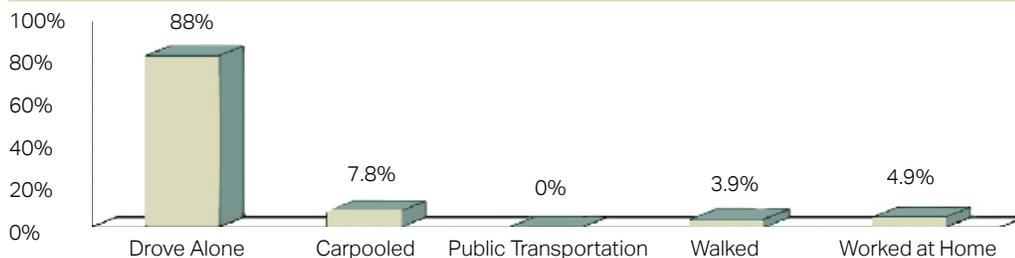
Table 6: Selected Income Data for Little Creek, Kent County, and Delaware 2013 (Estimated)

Income Category	Little Creek	Kent County	Delaware
Median household income	\$53,031	\$55,149	\$59,878
% of households with earnings	84%	77%	78%
% of households with Social Security Income	32%	33%	32%
Mean Social Security income	\$12,922	\$17,977	\$18,654
% of households with retirement income	10%	26%	24%
Mean retirement income	\$17,780	\$23,029	\$24,596
% of household with public assistance income	2%	3%	3%
Mean public assistance income	\$8,200	\$2,501	\$3,028
% of population below poverty	14.2%	12.9%	11.7%
% of seniors (65+) below poverty line	29.2%	7%	7%

Source: 2009-2013 American Community Survey 5-year Estimates

Chart 6 shows the number of residents in Little Creek that commute daily to work.

Chart 6: Method of Commuting to Work for Little Creek Residents, 2010



Source: 2009-2013 American Community Survey 5-year Estimates

Table 7 shows that workers in Little Creek take part in a variety of industries, the most prevalent of which is retail trade (35%). Education, health and social services (23%) and construction (14%) are also popular employment fields.

Table 7: Industry of Workers 16 Years and Older

Industry	Number	Percentage
Agriculture	0	0%
Construction	14	14%
Manufacturing	0	0%
Wholesale trade	1	1%
Retail trade	35	35%
Transportation and warehousing, and utilities	1	1%
Information	1	1%
Finance, insurance, real estate and rental and leasing	0	0%
Professional, scientific, management, administrative, and waste management services	8	8%
Educational, health, and social services	23	23%
Arts, entertainment, recreation, accommodation, and food services	10	10%
Other services (except public services)	4	4%
Public administration	4	4%
Total	101%	101%

Source: 2009-2013 American Community Survey 5-year Estimates

## 2.2 Land Use Plan

### 2.2 a. Existing Land Use

A land use survey was conducted in Little Creek on April 12, 2005 by the Delaware OSPC staff to determine the current land use within the Town limits and the land surrounding the Town. The results of the land use survey were updated in 2015. See Table 8, Chart 7, and **Map 3 - Existing Land Use**.

Existing land uses have been summarized into the following categories: Residential, Commercial, Institutional, Agricultural, Park / Open Space and Vacant. The land use is based on the primary use or activity at the time of this Plan Update preparation. Few changes in the existing land use have occurred since the 2006 Plan. The most prevalent use of land is residential, followed next by vacant land and agricultural land uses.

#### Residential

Three-fourths of the total number of parcels are residential, but still make up less than half of the total land area in the Town limits. Most of these uses are in the form of single-family detached homes. There are no large apartment or townhouse complexes within the Town.

#### Agriculture

There are seven agricultural parcels in Town, comprising 14.2 acres. The agricultural parcels make up 6% of the total parcels in Town, but 25% of the total land area. These lands are located on the west side of Town. It is noted that parcels adjoin larger, actively farmed land in the county. A portion of these lands along Main Street were subdivided for residential uses since the 2006 Comprehensive Plan

#### Commercial

Commercial land use refers to property that is used for conducting business involving retail sales and services. There are four commercial parcels totaling 3.3 acres, making up 6% of the land area. The uses include a specialty craft shop, a bait and tackle / seafood restaurant, and an auto towing

service. There are also two commercial parcels with vacant buildings along Main Street - the deli / food market, which was recently renovated, and the Cavaliers East Restaurant, which is on the same property as the bait and tackle shop. The specialty craft shop is a home-based business.

The Planning Commission evaluated the buildable footprint of the four commercial parcels (currently for sale) on the east side of Main Street, north of the Little River Bridge. Considering the site constraints, including State designated wetlands, it was determined that the parcels could likely not be developed. Under the Town's current regulations, the old Cavaliers East Restaurant and Crab Connection parcel and the deli / market parcels are the only properties with viable commercial development.

#### Institutional

Institutional uses that provide government or community services are another major land use. There are seven parcels totaling 3.6 acres, which is 6% of the total land area in Town. Community uses include the United Methodist Church, Little Creek Volunteer Fire Company, U.S. Postal Office, and Old Stone Tavern building. There is also a county-owned wastewater pumping station within the Town.

#### Park/Open Space

This land use category consists of the two parcels preserved as open space for the use of the Town park. The site is 1.3 acres, making up 2% of the land area in Town.

#### Vacant

There are 13 vacant parcels totaling 9.3 acres within the Town boundaries, which represents about 17% of the total land area. The vacant parcels in the south end of Town are in tidal wetlands, the FEMA 1% floodplain, and the Town's Riparian Buffer Area (RBA). These environmental features, combined with the fact that the parcels are considered nonconforming lots, present significant development challenges.

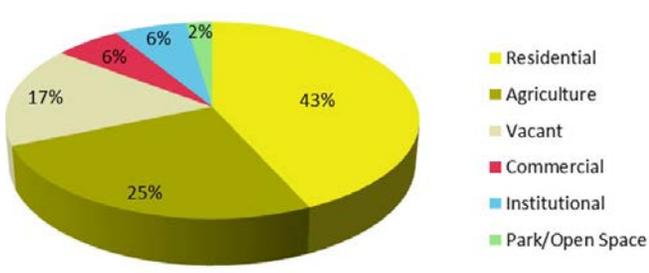
Table 8: Existing Land Use in Little Creek, 2015

Land Use	Parcels	% of Total Parcels	Acres	% of Total Land
Residential	90	73%	24.1	43%
Agriculture	7	6%	14.2	25%
Vacant	13	11%	9.3	17%
Commercial	4	3%	3.3	6%
Institutional	7	6%	3.6	6%
Park/Open Space	2	2%	1.3	2%
Total	123	100%	55.7*	100%

Source: Town of Little Creek Land Use Survey, 2005. Note the park site and post office site share a parcel, and is counted twice in the Parcels field.

\*The acreage of 55.7 is the total area within parcels, exclusive of rights-of way and waterways. The total area within Town boundaries is approximately 64.3 acres.

Chart 7: Existing Land Use in Little Creek, 2015



### 2.2 b. Future Land Use

The Town of Little Creek contains a variety of land uses, as described in the previous section. While the majority of land uses in the town are residential or agricultural, there are a number of properties devoted to commercial and institutional purposes. The designated future land uses are delineated on **Map 4 - Future Land Use**. Little Creek's land use plan is intended to provide improved use of land within the current town boundaries and accommodation of a few lands along the town's borders. These future land used promote redevelopment of vacant and underutilized parcels in the town that is compatible with current land uses.

The following is a description of each land use category and the policies that will guide the Town when implementing land use regulations and future development proposals in each area. The Future Land Use plan comprises both the written policies and the map, and neither should be used without consulting the other.

### Residential Land Uses

The majority of the Town is designated for future residential land uses. This generally includes all lands that currently contain single family homes or mobile homes and lands that are currently in agricultural production. It is the intent of the Town that these areas will either remain as single family homes or mobile homes or be developed from agricultural use into housing that is consistent with the character of the Town. Here are some general policies that will guide residential land uses in Little Creek:

- The preservation and rehabilitation of existing homes back to their historic integrity is preferred.
- Homeownership will be encouraged.
- Compliance with property upkeep and maintenance ordinance will be enforced.

Figure 2: Well-maintained Single-family Residential Homes in Little Creek



## Commercial Land Uses

The properties designated for commercial use are located along Main Street in the southern part of Town. The future land use plan proposes to concentrate the Town's commercial activity in the south. The sole commercial property in the north of Town will remain commercial until ownership changes, at which time it will conform to the surrounding area by reverting to residential use. There are only a few commercial properties currently in Town, and future commercial uses will be encouraged to occupy the southern end, from Lowe Street to the river, in order to form a contiguous commercial district.

The following provides general policies to guide commercial properties in Little Creek:

- Existing commercial uses will be allowed to continue to operate.
- Although no large-scale, regional retail uses are expected, it is desirable to promote restaurants, retail stores, and recreational and maritime businesses that provide needed goods, services, and jobs to the Town.
- Promote commercial development that enhances the connection to the Little River, augments Delaware's Bayshore Byway travel experience, and restores Little Creek's maritime heritage.
- Promote development that respects Little River and the area's environmental conditions. The standards should promote low impact design and compact development in suitable areas while minimizing impervious areas and protecting and enhancing environmentally sensitive areas. This approach will help mitigate the negative impacts associated with flood hazards and sea level rise while providing other positive environmental, social, and economic impacts.

It is noted that DNREC is currently evaluating potential sites in this area for a parking lot to serve a proposed boat launch. The Town believes that the old Cavaliers site would be better suited to be built in its entirety, and that a pervious parking lot would better suited on the east side of Main Street.

Figure 3: Little Creek's Commercial District



*The commercial district offers an opportunity to be redeveloped in a manner that restores the area's maritime heritage and re-connects people to the river.*

## Institutional Land Uses

There are a number of institutional uses in Town. It is the intent of the Town to encourage their continued operation and role in the community by designating them for future institutional purposes. The institutional properties include the United Methodist Church, Little Creek Fire Hall, Old Stone Tavern, Little Creek Post Office, and Kent County Wastewater Pump Station. The Old Stone Tavern is a historic building that is now used for government offices. The Little Creek Volunteer Fire Company owns two adjacent parcels. The large parcel due north of the current fire station offers an opportunity to expand. It is noted that the parcel is zoned R1- Residential, which permits public safety facilities as a conditional use. Public safety facilities are permitted by right in the I- Institutional. Below are some general policies that will guide institutional land uses in Little Creek:

- Existing institutional properties will be encouraged to continue their roles in the community and be allowed to grow and expand in a reasonable fashion that is consistent with the character of Little Creek.

## Park and Open Space

There are two parcels in Town that are designated for public parkland and open space, located at the intersection of Main Street and Port Mahon Road. These parcels are owned by the Town and are zoned I- Institutional and R1- Residential. Parks

and open space are a permitted use in all zoning districts. It is the Town’s long term plan to expand active recreational facilities on the open lawn area of the parcels and keep the remainder preserved as public open space. The Town’s open space land use policy is to preserve lands with significant environmental features, such as wetlands, and integrate them into an open space network.

**Cottage Industries**

The residents of Little Creek have a strong entrepreneurial spirit, which is seen in numerous home-based businesses throughout the Town. Often called “cottage industries,” these are small-scale businesses run out of residents’ homes. While not specified on the land use map, these businesses do have a presence in Town. Little Creek wants to encourage cottage industries, while ensuring they will not infringe on the rights of other residents. General polices that will guide cottage industries in Little Creek include:

- Cottage industries are encouraged to promote entrepreneurship and self-sufficiency among the residents of Little Creek.
- Cottage industries should be regulated by the LDO, perhaps as a “conditional use”.
- Define parameters that will guide the establishment and operation of cottage industries. Parameters should include, but not be limited to, noise and parking regulations and requirements for hours of operation. The goals of these parameters will be to ensure that cottage industries are compatible with their neighbors, but still have the flexibility to operate and flourish economically.

Figure 4: Cottage Industry



**2.2 c. Growth and Annexation**

Nearly all land uses adjacent to Little Creek are rural in nature. Land to the west and to the north of Town is largely used for agricultural purposes, while the land on the eastern and southern parts of Town are mostly open space due to much of the land being located within the floodplain and wetland areas. Directly south of Town are a handful of small commercial zoned properties and some vacant land parcels.

All of the land surrounding Little Creek is within the jurisdiction of Kent County. Both the Kent County Comprehensive Plan and the Strategies for State Policies and Spending designate the area surrounding Little Creek as a predominantly rural area. Much of the surrounding area is part of an Agricultural Preservation District where the purchase of development rights has occurred. This designation in both planning documents indicates that no new, large-scale infrastructure investments or development projects are anticipated in the vicinity of Little Creek.

**Current Town Boundaries**

Originally, the Town’s southern boundary was the center of the Little River. As is often the case with flowing bodies of water, the river has meandered; subsequently, the Town’s southern boundary is no longer in the center of the river. Another problem with the Town’s boundaries is that part of the southwest boundary is, according to the Town Charter, a post and wire fence; which no longer exists. This is an important item to address for existing landowners in Little Creek, since deeds may currently reference the “Town boundaries.” Surveyors may have difficulty in determining those boundaries without some clarification by the Town.

The Town boundary section in the Town Charter must be amended to address this issue.

**Annexation and Areas of Concern**

The Town has labeled three types of areas for lands surrounding Town - Annexation Area, Areas of Concern, and Area of Influence. These areas consist of lands that are currently located in Kent

County, and that the Town does not have authority to determine land use opportunities and policies. The Annexation Area are parcels that the Town is prepared to annex within the short term. Areas of Concern are parcels considered to be potential candidates for future annexation and lands of particular interest to the Town for a variety of reasons. The Area of Influence contains lands within a one mile radius where a change in land use would influence the Town. See **Map 4 - Future Land Use**.

### Annexation Area

The Town's Annexation Area provides the opportunity for specified parcels to be annexed into the Town boundaries should the owner decide to do so. This option will be open to parcels that are split by the Town boundaries and to the commercial properties directly to the south of Town. The following is a description of the two primary annexation areas:

- **Boundary-divided Properties:** The properties along the northeastern boundary of the Town, along with one property behind the residential properties that are located directly west of Port Mahon Road, are split by the Town boundary or were clearly one larger parcel that is now two parcels in common ownership and use. At the request of the property owner, this annexation plan proposes to bring these properties in Town and allow their use as residential properties.
- **Commercial Properties:** Directly south of the Little River and the Town limits are two properties that have potential as commercial uses and that will significantly add to the commercial district that is being formed at that end of Town. At the request of the property owner, it is proposed to annex these properties for commercial uses.

Table 9 demonstrates the total acreage (less road rights-of-way) that is contained within Little Creek's Annexation Plan and how it will affect the total Town acreage:

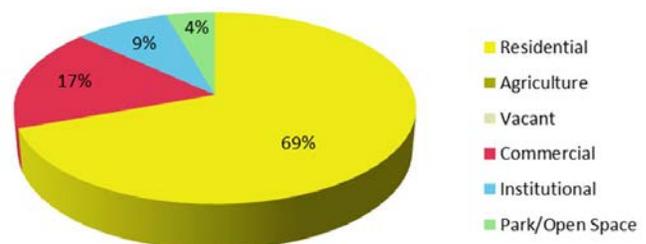
Table 9: Future Land Use of Proposed Annexation Area

Land Use	# of Parcels	Acres
Residential	3	7.0
Commercial	2	2.3
Open Space	1	1.7
<b>Total</b>	<b>6</b>	<b>11.0</b>

Table 10: Future Land Use in Town and Annexation Area

Land Use	Parcels	% of Total Parcels	Acres	% of Total Land
Residential	106	82%	46.4	69%
Agriculture	0	0%	0.0	0%
Vacant	0	0%	0.0	0%
Commercial	12	9%	11.6	17%
Institutional	8	6%	5.8	9%
Park/Open Space	3	2%	3.0	4%
<b>Total</b>	<b>129</b>	<b>100%</b>	<b>66.7</b>	<b>100%</b>

Chart 8: Future Land Use in Town and Annexation Area



### Annexation Policies

In order to proceed with annexation, the Town must follow the procedures outlined in the Town Charter and properly evaluate the impact of the annexation on Town revenues and operations before agreeing to the annexation. Little Creek should use the following policies to evaluate all proposed annexations, regardless of the property's location in the annexation area shown on Map 4.

Properties in the annexation area should be evaluated on a case-by-case basis. Through annexation, the Town may take control of areas that have not traditionally been served by Town services. The evaluation of these annexation proposals may include:

- The potential benefit to the Town in terms of tax revenue, jobs, services, or facilities to be provided.
- If development is imminent, the desirability of controlling the type of style of development using Town codes should be considered.
- The impact of the development on Town services and utilities must be evaluated. Potential impacts include the need for infrastructure and facility upgrades and additional services, including the resulting on-going administrative and maintenance costs.
- The property’s location within the 2015 State Investment Strategies Map should also be reviewed. Proposed annexations in these areas should be approached cautiously. The current proposed annexations are within the Level 4 or Out-of-Play classification, where growth is not supported. State resources may not be available in these areas, which may greatly increase the financial burden on the Town. See **Map 2 - State Strategies**.

*Areas of Concern*

Lands designated as “Areas of Concern” are considered as potential candidates for future

annexation should the need or opportunity present itself, but the Town does not have immediate plans to annex. The areas of concern are outlined in **Map 5 - Adjacent Land Use** and in Table 11 - Area of Concern Parcels.

Surrounding agricultural land uses represent a key element of the Town’s Vision and Position on Growth discussed in Section 1.7. Agriculture provides the context and setting for Little Creek and is, therefore, a key component of the Town’s identity. The Town desires to focus on developing and improving conditions in Town while adjacent lands be preserved as agriculture, open space, or wetland. These land use goals and objectives are consistent with Strategies for State Policies and Spending and Kent County Comprehensive Plan, which do not encourage growth in the area surrounding Little Creek and seek to preserve the rural setting. The Town promotes agricultural and environmental preservation of the surrounding area, and supports the State and county efforts to protect farmland through zoning and easement purchase programs in areas beyond the Town limits. The Town supports this area being located out of the County Growth Overlay Zone and being located in the high priority sending area as per the TDR Program.

Much of the land surrounding Town is in the County’s Agricultural Conservation (AC) zoning district, which would allow low-density residential uses and cluster residential developments. The Town would like to have a significant degree

Table 11: Area of Concern Parcels

Map # and Name	State Strategies	County Comprehensive Plan	County Zoning	Acres	Notes
1. Cartanza Farms	Out of Play	Low Density Residential, High Priority Sending Area	Agricultural Conservation (AC)	341	In Air Accidental Zone II and 70-80 DB mean Noise Zone Areas*
2. Cartanza Farms	Out of Play	Low Density Residential, High Priority Sending Area	Agricultural Conservation (AC)	279	
3. Lane	Level 4	Low Density Residential, High Priority Sending Area	Agricultural Conservation (AC)	53	
4. Jarman	Out of Play	Low Density Residential, High Priority Sending Area	Agricultural Conservation (AC)	67	Part of Comprehensive Flood Mitigation and Wetland Restoration Program. See Section #- SLR Vulnerability and Adaptation.
5. State of Delaware	Out of Play	Low Density Residential, High Priority Sending Area	Agricultural Conservation (AC)	3	Proposed boat ramp and fishing pier

\*Per Dover Air Force Base Air Installation Compatible Use Zone (AICUZ)

of input or control on any land use decisions, development activity, and preservation efforts for these lands because of the direct significant impact on the Town and its character. While not specifically designated for annexation, these lands play a critical role in the Town's visions and goals set forth in this plan. The Town wishes to ensure that the land uses in adjacent areas mesh with the Town's existing community character. Specifically, areas denoted as 1, 2 and 3 on **Map 5 - Adjacent Land Use** could be developed as low-density residential under the county zoning. If developed, the Town envisions the development to extend the small-town character with orderly growth that is clustered and preserves large areas as open space. Prior to any land use activity or change within these areas, Little Creek would appreciate the opportunity to further evaluate the feasibility of annexing these lands to implement the visions, goals and recommendations provided throughout this Plan relevant to design and environmental protection, among others.

It is understood that should the Town wish to annex lands that are currently in the Area of Concern, then the Town may need to amend this Comprehensive Plan, which would, among other things, evaluate the vision and position on growth, assess the land use and build-out of annexed lands, and address the potential positive and negative impacts associated with the annexation. Little Creek will also evaluate the need to develop zoning and development standards for new development consistent with this Comprehensive Plan and the following community objectives and design principles:

- Accommodate a mix of housing types;
- Be compact and clustered near current Town boundaries, while protecting large areas of agriculture or open space and creating a greenbelt around Little Creek;
- Extend the existing vertical grid street pattern;
- Provide a pedestrian friendly street design (buildings close to street; front porches; driveways / garages to the side or rear of lot; traffic calming)
- Preserve open space and wetlands, protecting the ecology, rural setting, and viewsheds;
- Make a positive contribution to the existing Town character.

### *Area of Influence*

The Town has outlined areas they are concerned about given their proximity to Town. The lands located within the area of influence are approximately within a one mile radius of Town.

The agricultural lands surrounding Little Creek define the rural context of the Town, and any change in land use or development proposals could seriously impact the Town character and its vision for the future. Currently, approximately a tenth of the lands within the Area of Influence are protected by conservation easement through the Delaware Agricultural Lands Preservation program. There are other programs through the county and private conservation organizations that have the same goals.

Little Creek desires that additional lands surrounding Town be included in the Preservation Program. The Town would like to have some degree of input on land use, development activity, and preservation efforts because of the potential impacts. 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.

### *Agricultural and Natural Resources Greenbelt*

The Town promotes agricultural and environmental preservation of the surrounding area, and supports the State and county efforts to protect farmland and marshlands through zoning and easement purchase programs. It may be possible to create a greenbelt on lands within the Area of Concern and Area of Influence, where agriculture, open space, and wetland protection are encouraged.

The greenbelt will help create a distinct rural edge for the Town characterized by farmland, open space, natural resources, and low density residential uses. Greenbelts are most effective when the lands within them have been placed into some type of a conservation program. A greenbelt strategy would link those lands already protected in the Agricultural Preservation Program and wetlands into a greater zone of limited development around Little Creek. In addition to

protecting the region's agricultural and maritime heritage, preservation of these lands will allow flood absorbing wetlands to migrate inland, supporting the region's flood and sea level rise mitigation efforts, which are further discussed in Section 2.4 Sea Level Rise Vulnerability and Adaptation.

This concept appears to be consistent with vision and goals to protect the rural setting and natural resources in the region, as set forth in the State Strategies for Policies and Spending, the Kent County Comprehensive Plan, as well as the Delaware Bayshore Byway Corridor Management Plan.

Figure 5: Town's Western Boundary



### Development Potential and Capacity

Currently, there are no known plans for future housing developments in and around Little Creek. Nevertheless, it is important to assess development potential and capacity in order to inform other sections in this Comprehensive Plan and guide adequate planning for future growth. This section provides an estimate of the total amount of development that may be built in town and the annexation area under certain assumptions, including population projections, zoning and environmental constraints.

### Household Projections

The mean population projection discussed in Section 2.1 b shows Little Creek's population increasing to 289 by the year 2040. Using the 84 households provided in the 2013 American Community Survey, it is estimated that Little Creek's average household size is 2.67 persons

per household. Assuming the number of households remains proportionate to population as population increases through the 30 year period, it can be estimated the population increase would create the need for approximately 25 new houses by 2040.

Table 12: Household Projections in Little Creek

Year	2010	2020	2030	2040
Population	224	267	279	289
Households	84	100	105	109

Source: 1940-2010, U.S. Census Bureau. 2010-2030, Delaware Population Consortium, Population Projection Series October 31, 2013. 2009 – 2013 American Community Survey 5-Year Estimates.

### Build-Out Analysis

Another way to project housing and population growth is to calculate how many houses can be developed at full build-out. There are currently about 36.5 acres of land that are vacant or in agricultural use inside the town boundaries and in the annexation area. While not all of this land is available for development due to environmental constraints, it does represent a substantial amount of land that can be developed for residential or commercial uses. The Town of Little Creek will consider the development of these lands consistent with the Future Land Use Plan described in this section and the environmental constraints discussed in Section 2.5.

After taking out wetlands and lands protected by the town's Riparian Buffer Area (RBA), there are 13 parcels totaling 15 acres within the town boundary and in the annexation area that are agricultural or vacant, and that have a designated future land use of residential. See Table 13 - Developable Land in Town and Annexation Area. Also See **Map 3 - Existing Land Use, Map 4 – Future Land Use, and Map 6 - Development Potential.**

If the larger vacant and agricultural parcels that are planned for residential use are subdivided into quarter acre lots to half acre lots, which is similar to the current lot sizes in town and averaging 3.5 houses per acre, then 52 new houses can be developed. (15 acres x 3.5 houses per acre =

52 houses). It is noted that this assessment suggests there is a sufficient amount of developable land for housing within Town limits to accommodate the mean population projection of 289 by 2040. Using the current household size of 2.67 persons, the total build-out of developable land in Town and the annexation areas would result in an increase of 139 persons, and a total population of 363.

It is important to note, that a single large development could drastically alter the Town’s population. It also is important to remember that the RBA code language offers some flexibility for “superior urban design”, which could increase the developable area. That being said, the Town acknowledges that enforcement of the RBA protection is extremely important, not just for the protection of the wetlands and natural habitats, but also towards becoming a sea level rise resilient community, which is further discussed in Section 2.4 - Sea Level Rise Vulnerability and Adaptation.

Table 13: Developable Land in Town and Annexation Area

Land Use	Vacant and Agricultural Acres in Town (acres)	Vacant and Agricultural Acres in Annexation Area (acres)	Developable Acres in Town (acres)	Developable Acres in Annexation Area (acres)	Developable Area (acres)
Residential	14.4	7.0	12.9	2.3	15.3
Non-Residential	11.1	4.0	3.3	2.4	5.7
Total	25.5	11.0	16.2	4.7	20.9

Note: Netting out wetlands, mean high tide, and the Town’s RBA. The RBA code language offers some flexibility, which could increase the developable area.

## 2.2 d. Recommendations: Land Use Plan

### General

The Town of Little Creek’s vision, position on growth, and community goals and objectives should be taken into account when land use planning decisions are made. The Town desires to focus on developing and improving conditions in Town while adjacent lands should be preserved as its current land use / cover as agriculture, open space, or wetland. The Town will seek to maintain its small-town atmosphere and maritime heritage in a rural, agricultural setting, while promoting its designation as a Discovery Zone along the Bayshore Byway.

### Town Boundary

Amend the Town Charter updating the Town boundary. In Section 2, delete the metes-and-bounds language in its entirety and replace it with the following: “The boundaries of the Town of

Little Creek are hereby established and declared as recorded on the official map of record in the Recorder of Deeds Office for Kent County of the State of Delaware as presently existing and as hereinafter amended.” The Town will need legislature to approve the amendment, develop and adopt an official map, and then record that map at the Kent County Recorder of Deeds.

### Maritime Zoning

Amend the Commercial District to include new “maritime zoning” standards for areas surrounding Little River and those that face environmental site constraints including periodic flooding and future sea level rise inundation. The standards will promote development that respects Little River and the area’s environmental conditions and maritime heritage. When amending the Land Development Objectives (LDO), it is recommended to use the appropriate sea level rise scenarios and FEMA flood hazard zone mapping layers to assess risks. The mapping

layers will assist to delineate high risk areas where development should be limited as well as lower risk areas where development is better suited with proper safeguards to mitigate and minimize hazards.

The intent of the maritime zoning standards should be to:

- Guide growth away from high risk areas that should be protected or converted to open space and wetlands.
- Ensure that the Town’s waterfront is reserved for a compatible mixture of “working waterfront” and maritime heritage uses.
- Encourage development that conserves and enhances the area’s maritime and recreational character and connection to the river.
- Recognize the vulnerabilities and sensitivities of the unique waterfront environment and reinforce appropriate safeguards to minimize risks to flood hazards and sea level rise.

To support these intent statements, the zoning standards should address the following:

- Guide compact development outside of high risk areas with uses that support “working waterfront” and maritime heritage uses. Lands that can be commercially developed through freeboarding or other flood protection measures offer an opportunity for light commercial and maritime related uses such as watercraft sales and supplies, services, restaurants and taverns, bait and tackle shop, and other related uses.
- High risk areas with environmental constraints that are not available for commercial development offer opportunities for low impact recreational and civic uses, such as a boat ramp and fishing pier, public park, a recreational trail, and a farmers market and other community events. Locate all development outside the Riparian Buffer Area (RBA) to greatest extent feasible.
- Protect high impact areas as open space and designate land for flood protection.
- For light commercial development, consider requiring or incentivizing developers / owners to designate land for flood protection, to enhance the RBA, and to provide public

access to the waterfront.

- Require stormwater best management practices (BMPs) and the use of pervious surfaces that will absorb and minimize stormwater run-off to flood water receiving areas.
- Reduce the number of off-street parking spaces required to limit the overall impervious area. On-street parking and shared parking lots could be used to meet the minimum requirements. Set a maximum amount of parking spaces permitted.
- Consider requiring and / or incentivizing additional flood protection measures to address sea level rise.
- See Objective 2, Recommendation 2.1 in “Preparing for Tomorrow’s High Tide: Recommendations for Adapting to Sea Level Rise in Delaware”.

These standards would promote low impact design and compact development in suitable areas while minimizing impervious areas and protecting and enhancing environmentally sensitive areas. This approach will help mitigate negative impacts associated with flood hazards and sea level rise while providing other positive environmental, social, and economic impacts.

### Land Use and Annexation

Follow the land use policies and **Map 4 - Future Land Use** when considering any land development, rezoning or annexation application.

The Town’s Zoning Map is consistent with the Land Use Plan and zoning regulations. However, the Town should evaluate the need to rezone two parcels for consistency with zoning of adjacent parcels under the same ownership:

- The Town’s parcel on Main Street (adjacent to the Town Park and Post Office) from R-Residential to I- Institutional. The existing and future land use is open space, which is a permitted use in the I-Institutional zone.
- The Fire Company parcel (between Carson Lane and Thompson Lane) from R1- Residential to I- Institutional. The existing land use is agricultural, and the future land use is institutional.

## Area of Concern and Area of Influence

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. It is important that Little Creek 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.

## Agricultural Preservation / Greenbelt

Continue dialogue with citizens, local farmers, and the Department of Agriculture to preserve agricultural uses and expand a greenbelt around Little Creek. In addition, the Town should:

- Coordinate with Delaware’s Department of Agriculture to publicize and promote the Preservation Program to area farmers.
- Coordinate with the Kent County and State agencies to explore preservation options, to further the farmland preservation efforts, and towards creating a greenbelt around Little Creek. Preservation options include environmental protection standards, mandatory clustering, and transfer / purchase of development rights programs.
- Work with adjacent landowners and the State to preserve land in perpetuity for agricultural uses.

## 2.3 Current Flood Hazards

### 2.3 a. Background / Issues

Floodplains encompass approximately 44 acres of the Town’s 65 acres, which is two-thirds of the Town that is at risk of coastal flooding, with additional area being vulnerable to flash flooding or drainage-related flooding. The region consists of tidal wetlands and marshes that are necessary for proper drainage and natural stormwater management. Root mats and other wetland vegetation are responsible for slowing floodwaters and distributing floodwaters more evenly, which helps prevent erosion and reduce flooding. Refer to **Map 7 – FEMA Floodplains**.

Figure 6: Flood Events



Examples of flood events on Main Street at the intersections of Port Mahon Road (top) and Lowe Street (bottom).

The hazard areas are consistent with the sea level rise areas discussed in the Section 2.4.

The Town understands that it is a small part of a larger watershed, and that human activities can have impacts on other parts of the watershed both upstream and downstream. For this reason, the Town is striving for low impact uses of sensitive areas, best management practices for stormwater, and well-planned sustainable development both in the Town and in surrounding areas. The 23 square mile Little Creek Watershed is comprised of 43% agricultural land, 32% forest land and wetland, 19% urban, and 6% open water<sup>4</sup>. See **Map 8 - Watersheds and Land Use Cover**. Portions of the DAFB and the City of Dover sit upstream from the Town within the Little Creek watershed. There is also a small man-made dam across the Little River approximately one mile upstream from the Route 9 / Little Creek Bridge. These features influence stormwater management and drainage in the downstream watershed, but the extent of impacts are unknown. Also, see Section 2.6 a. Stormwater Management.

<sup>4</sup> [www.delawarewatersheds.org/the-delaware-bay-estuary-basin/little-creek](http://www.delawarewatersheds.org/the-delaware-bay-estuary-basin/little-creek)

The Federal Emergency Management Agency (FEMA) is the government agency responsible for executing Flood Insurance Studies (FIS) and issuing Flood Insurance Rate Maps (FIRMs), and overseeing the National Flood Insurance Program (NFIP). In July 2014, FEMA published updated FIRMs for coastal Kent County, including Little Creek. The Special Flood Hazard Area shown on the most recent maps has decreased in size, and fewer residents are included in the floodplain when compared with the previous FIRMs. It is important to recognize that although the regulatory boundary delineating where flood insurance is required has been changed, this does not mean that flood risk is necessarily decreasing. Flood hazards associated with climate change and sea level rise will only increase in Town. The Base Flood Elevation (BFE) for the majority the Town has been increased from 9 feet elevation (above the North American Vertical Datum of 1988, known as NAVD88) on the previous FIRM to 10 feet NAVD88 on the current one. The BFE for areas immediately surrounding Little River is 11 feet NAVD88.

During significant rainfall events, which occur a few times a year, poor stormwater drainage due to sediment build-up in the Little River and channels surrounding Town create standing water flooding that persists for many days. The main issues occur on the south end of Town, from Lowe Street to the River, and on the north end of Town at the Post Office and the Port Mahon Road intersection. These stormwater drainage issues are discussed in more detail in Section 2.6 a. Stormwater Management.

The flood hazard areas in Town include Zone AE, Zone X (shaded), and the Limit of Moderate Wave Action (LiMWA) which shows the extent of potentially damaging 1.5 foot high waves. There are estimated to be 48 residential buildings, 4 commercial buildings, and 4 institutional / public structures in Zone AE within the Town. Zone AE areas have a 1% probability of flooding every year (also known as the "100-year floodplain"), and where base flood elevations above NAVD88 have been established. Homes within the 1%-annual-chance floodplain have a 26% chance of being flooded at least once during the 30-year period of a typical mortgage. Properties in Zone AE are

considered to be at high risk of flooding under the National Flood Insurance Program (NFIP). Flood insurance is required for all properties in Zone AE that have federally-backed mortgages. Construction in these areas must comply with the Town's Floodplain Requirements Ordinance (FRO), including freeboarding\* principal structures above the Base Flood Elevation (BFE) as shown on the effective FIRMs. Section 12-9 of the Town's Land Development Ordinance (LDO) also sets forth requirements for development in the floodplain. The Town is also included in the 2015 Kent County Multi-Jurisdictional All Hazard Mitigation Plan, which provides many recommendations and mitigation actions specific to the Town. The hazard mitigation action plan identifies priorities, potential funding sources, and responsible agencies.

**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.

Additionally, there are 34 residential buildings and 1 institutional / public structure in Zone X (shaded). These areas have a 0.2% probability of flooding every year (also known as the "500-year floodplain"). Homes within the 0.2%-annual-chance floodplain have a 6% chance of being flooded at least once during the 30-year period of a typical mortgage. Properties in Shaded Zone X are considered to be at moderate risk of flooding under the National Flood Insurance Program. Flood insurance is not required for properties in Zone X. The FRO does not currently have requirements for development in Zone X. The 2014 effective FIRM shows that the nearest Zone VE is approximately a half mile away from Town to the east, toward the Delaware Bay. Zone VE are flood hazard areas that are subject to

inundation by the 1% annual chance flood and high velocity wave action, with wave heights exceeding 3 feet (also referred to as coastal high hazard areas). Recent post-disaster research has determined that waves present significant hazards outside of areas designated as Zone VE on FIRMs, so FEMA has added the non-regulatory LiMWA line to the map to show the extent of potentially damaging 1.5 foot high waves. There are two buildings that are affected by the LiMWA boundary.

The FRO 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 FEMA-designated Special Flood Hazard Areas (SFHAs), 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.

Little Creek agreed to meet the requirements of the NFIP and began participation in the program on January 17, 1979. As of that date or the effective date of the Kent County Flood Insurance Rate Map, all development and new construction within the SFHA are required 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 FRO. 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 County to ensure all aspects of this ordinance are in enforced. The Town of Little Creek Mayor is the Floodplain Administrator as adopted.

Second, certain provisions of the Ordinance exceed the standards of 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 all new construction have **freeboard of at least 18 inches** above the base flood elevation. The requirement for the 18 inches of freeboard also applies to existing structures after they are significantly damaged in a flood or other natural causes, or if they are improved by 50% or more of their value, and manufactured homes. 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. The FRO and County Hazard Mitigation Plan 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.

Since flood insurance premiums are rated based on the elevation of the first floor of a structure relative to the local BFE, the current 18 inches freeboard could lead to flood insurance premium savings. However, if additional freeboard is provided (based on the level of assessed risk and sea level rise 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.

### 2.3 b. Recommendations: Floodplain Management

- 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. Example of model language: New construction and substantial improvement of any residential structure, including manufactured homes, shall have the lowest floor, including basement, elevated to or above the base flood elevation plus 2 feet of freeboard. 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 this meeting this standard.

- Evaluate and remove any zoning barriers that would prohibit additional freeboard. Two known examples are the height limit and the projections such as the outside stairs and ramps in setback areas. See Section 3.5 Recommended LDO Amendments.
- Consider adopting Coastal A Zone building requirements for properties affected by LiMWA.
- In the long term, consider extending the floodplain protection measures to include the additional area inundated by 0.2% annual chance floodplain (500 Year Floodplain).
- Amend the LDO to provide adequate cross referencing with the Floodplain Requirements Ordinance and ensure administrative review procedures are in place. See Section 3.5 Recommended LDO Amendments.
- All floodplain requirement regulations should be coordinated with Kent County, since the County helps enforce the Floodplain Requirements Ordinance and administers the building permit process.
- Work with the Kent County Conservation District and DNREC to resolve significant drainage and flooding issues within the area of the Town Park and Post Office.
- Develop an agreement with Kent County, DAFB, and the City of Dover to encourage no-adverse-impact development in all parts of the Little Creek Watershed to ensure future development does not increase flooding issues in the Town.
- Encourage a hydrologic and hydraulic investigation of the Little River, including dredging and man-made structures, such as dams or dikes, which may impact the natural function of the river and its surrounding lands.
- In the long-term, 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. It is noted that the Town may not currently have the administrative capacity to administer the CRS program.
- Work with residents in understanding flood

damage reduction measures, FEMA programs, and potential insurance premium savings.

- Town leadership should work towards understanding FEMA's Hazard Mitigation Assistance (HMA) grant programs, which are designed to provide funding to protect life and property from future natural disasters. See Section 3.4 Potential Funding Sources.
- Evaluate options to offer planning and assistance to property owners who have frequent flooding issues and who are interested in voluntary action. One potential option is to 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:
  - Voluntary buyout is permanent and land can never be re-developed
  - Severe Repetitive Loss (SRL) program<sup>5</sup>
  - Increased Cost of Compliance program<sup>6</sup>
- Federal and state funds may be available, as administered from DEMA and DNREC, to elevate and flood-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. The Town is currently included in the County All-Hazard Mitigation Plan.
- Refer to the recommendations in Section 2.4f Adaptation Strategies and Recommendations and 2.6b. Recommendations: Public Utilities and Services.

## 2.4 Sea Level Rise Vulnerability and Adaptation

### 2.4 a. Background / Vulnerabilities

Little Creek's land is relatively flat and close to sea level, with average elevations of approximately 5 to 15 feet above mean sea level. The Little River borders the south end of Town, surrounded by wetlands and floodplains related to tidal waters being pushed up the river from the bay. Given this geography and elevation, Little Creek is

<sup>5</sup> [www.fema.gov/severe-repetitive-loss-program](http://www.fema.gov/severe-repetitive-loss-program)

<sup>6</sup> [www.fema.gov/national-flood-insurance-program-2/increased-cost-compliance-coverage](http://www.fema.gov/national-flood-insurance-program-2/increased-cost-compliance-coverage)

particularly vulnerable to future flooding due to sea level rise inundation related to climate change, exacerbated by land subsidence. The Town currently experiences nuisance flooding events such as repeated flooding of streets and property; and the majority of the Town is also at risk for occasional extreme flooding events due to strong coastal storms. Approximately two-thirds of the Town is within a FEMA Special Flood Hazard Area. The current flood hazard areas in Town include Zone AE with Base Flood Elevations (BFEs) ranging from 10 to 11 feet relative to the North Atlantic Vertical Datum of 1988 (NAVD88), Zone X (shaded), and the Limit of Moderate Wave Action (LiMWA) which shows the extent of potentially damaging 1.5 foot high waves.

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 the Atlantic Ocean, the Delaware Bay, and tidal rivers, such as Little River, to rise between 1.6 feet 4.9 feet or higher above their present levels by the end of the century<sup>7</sup>. It is clear that there is an increasing risk to the Town's residents, property, infrastructure, agriculture, and environmental resources. **Map 9 - Sea Level Rise Vulnerability** and Table 14 depict the high tide (MHHW) of three planning scenarios targeting sea level rise in the year 2100: low (0.5 meter or 1.64 feet); middle (1.0 meter 3.28 feet); and high (1.5 meter or 4.92 feet), with all elevations relative to NAVD88.

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 tide rises, low tide also rises and more land will become permanently wetted. The map also depicts potential future flood scenarios based on the FEMA 1-percent annual chance of flooding event area (Zone AE) plus 3 feet of sea level rise (BFE+3ft), which is derived from a benchmark planning scenario used by state agencies. This BFE+3ft boundary portrays potential low frequency 'extreme flooding events' related to coastal storm surges being pushed up Little River from the bay.

Figure 7: Sea Level Rise Scenarios



Table 14: Inundation Scenario

Scenario	SLR Meters	SLR Feet
Current	MHHW	MHHW
Low	0.5	1.64
Middle	1.0	3.28
High	1.5	4.92

<sup>7</sup>Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware. Delaware Coastal Program, September 2013.

This Sea Level Rise Vulnerability and Adaptation component of the Comprehensive Plan is a significant 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 mitigate the negative impacts associated with sea level rise while restoring the Town's maritime cultural heritage. 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 Plan, Little Creek has received a Coastal Management Assistance Grant administered by the Delaware Coastal Program. Technical guidance was further provided by the Program.

#### 2.4 b. Review of Policies and Documents

The planning team has evaluated requirements and standards in the Land Development Ordinance (LDO) and the Floodplain Requirements Ordinance (FRO) as they relate to FEMA regulations and standards, sea level rise vulnerability, and potential adaptation strategies. The documents were evaluated to determine barriers that may hinder adaptation and that should be removed, revised, or added upon to improve adaptation. In addition, the codes were reviewed to consider ways to strengthen standards based on the levels of assessed risk.

The Town's current land use ordinances protect stream courses, wetlands, and riparian corridors, and further mitigate flooding impacts. In general, the Town's policies discourage development or redevelopment within environmental sensitive and natural hazard areas. **Map 10 - Environmental Features** 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. **Map 9 - Sea Level Rise Vulnerabilities** shows the three SLR inundation scenarios as well as the FEMA flood hazard areas. All of the sea level rise inundation scenarios boundaries fall within the 1% Floodplain (Zone AE), and development in this area will be governed by

the Town's FRO, which requires flood measures such as 18 inches of freeboard. The inundation areas also largely follow the wetlands and associated RBA boundaries, where development is prohibited according to the LDO. 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 overlap between the currently regulated areas and the SLR-vulnerable areas gives the Town an opportunity to consider future sea level rise in floodplain management for those structures facing enhanced future flood risk.

The team also evaluated county, state and federal policies and initiatives on hazard mitigation and 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 team also reviewed and integrated recommendations from the 2015 Kent County Multi-Jurisdictional All Hazard Mitigation Plan, which are cross referenced herein where applicable. The Town's adaptation strategies proposed herein are aligned with the policies and practices on the county, state and federal state levels. In addition, the land use and community development strategies set forth throughout this Plan aim to enhance the area as a natural attraction promoting maritime cultural heritage and ecotourism, and therefore support the State's efforts to mitigate impacts from sea-level rise and climate change.

#### 2.4 c. Public Participation Process

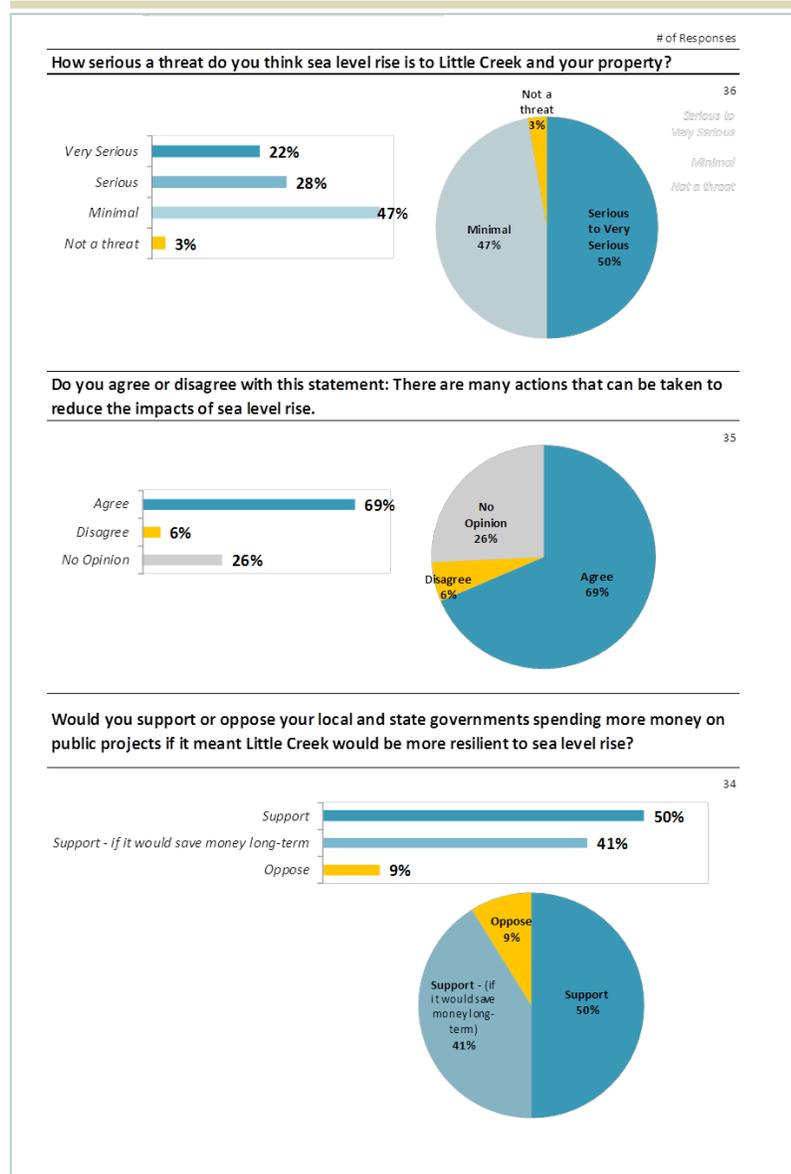
The comprehensive planning team administered a public outreach and agency coordination process that included a public-opinion questionnaire and four (4) public meetings. In addition, researchers for the Working Waterfront Initiative, which is a component of the University of Delaware's Sustainable Coastal Communities Initiative, conducted interviews with community leaders and residents with questions focusing on sea level rise.

## Community Questionnaire

The planning team has administered a community wide questionnaire that gauged residents' experience with flooding / ponding, solicited their awareness on sea level rise vulnerability in Town, and subsequently, asked if they would support adaptation measures to mitigate impacts. Thirty-nine questionnaires were returned.

Almost half of the respondents to the survey stated that their property is in the floodplain, while the majority is aware of flooding issues in Town. All but one of the respondents believes that sea level rise is happening and is a threat to Little Creek to some degree. About half believe the threat is serious to very serious. Further, respondents generally agree that there are actions that can be taken to reduce the impacts of sea level rise. Most compelling, a significant majority (91%) support local and state government spending on public projects towards becoming a more resilient community.

Chart 9: Community Questionnaire



#### 2.4 d. Sea Level Rise Vulnerabilities

Currently, the total area within the Town boundary that is inundated with water at high tide (the mean higher high water) is 1.4 acres, roughly 2% of the Town. **See Map 9 - Sea Level Rise Vulnerability.** Sea level rise is anticipated to increase this inundated area to between 17% and 40% by the year 2100. Within the future sea level rise inundation areas reside homes, commercial property, historic buildings, the wastewater pump station, domestic water wells, roads and bridge, and protected wetlands and riparian buffer. The potential inundation area also includes vacant and underutilized parcels on the south end of Town that were previously used for maritime commercial uses. These parcels are now a significant part of Little Creek's economic development zone with a vision to restore and reinvent their maritime cultural heritage.

The three sea level rise scenarios and BFE+3FT layer were used as the basis for identifying vulnerabilities and potential hazards that will impact property, public safety, infrastructure, and natural resources. Specific potential impacts to Little Creek include human injury and harm, damage to buildings and private property, impassable roads impeding evacuation and emergency response, and the loss of wetlands and the protected riparian buffer area. Potential impacts also include overstressed stormwater management systems and poor drainage, as well as saltwater intrusion affecting individual water wells and agricultural irrigation. It is important to the Town to consider long-term sea level rise impacts that correspond to the Town's long-term plan to sustainably revitalize its maritime history. Throughout this document, sea level rise inundation scenarios in the year 2100 are considered with the goal of positioning the Town favorably for long-term resilience in the face of uncertain risk.

Though the three sea level rise planning scenarios are not associated with a measure of probability or expectation that one or another will occur, the Town recognizes that low-lying areas adjacent to tidal waterways face the highest risk to future sea level rise. For new development, construction activities, the appropriate SLR planning scenario should be selected based on a number of

factors including the intrinsic adaptability of site or structure, the need for a structure to remain operational during future hazards, and the cost of repairing or replacing a structure. For example, evacuation routes and emergency services that need to remain operational during storms should plan for the highest sea level rise, while farmer's market stands could plan for the lowest sea level rise scenario because they can relocate.

Discussion of specific hazards and vulnerabilities are grouped into the following topics: Transportation, Buildings and Property, the Commercial District, Facilities, and Agriculture.

#### Transportation

Main Street, from Lowe Street to the Little River Bridge, is within the 0.5m "Low" scenario and has a high probability of being inundated and impassable on a daily basis by the end of the century if no mitigation measures are taken. The intersection of Main Street and Port Mahon Road is within the 1.5m "High" scenario; under this scenario, impact to transportation is significant since inundation here would potentially block both northern and southern evacuation routes.

For further discussion on transportation impacts, see Section 2.3 Current Flood Hazards and 2.8 Transportation.

#### Buildings and Lots

Currently, there are 15 of the Town's 122 parcels and zero buildings within the mean high tide level (MHHW). The 1.5m "High" scenario would increase the impact to 62 parcels and 32 principal buildings by 2100. The principal buildings within this inundation scenario area include approximately 26 homes, five non-residential use buildings, and a wastewater pumping station. See Table 15 - Property At-Risk for a breakdown of structures within each inundation scenario. The risk generally increases southward to the Little River and eastward to the tributary of Little River near the Town boundary. Many homes between Main Street and this tributary are within the low inundation scenario and are at the greatest risk due to their low elevation and proximity to a tidal flooding source.

Table 15: Property At-Risk

	Floodplain and SLR Scenario	# of lots	# of Buildings
Current	Zone AE Floodplain	86	56
	Zone X Floodplain	55	45
	MHHW	15	0
Future	Low (0.5 m)	39	1
	Middle (1.0m)	47	15
	High (1.5m)	62	32
	BFE + 3FT	108	89

There are 56 buildings in the FEMA Zone AE floodplain at risk of flooding due to an extreme storm event. Any development or redevelopment on these lots is required to comply with the National Flood Insurance Program (NFIP) and the Town's Floodplain Requirements Ordinance. For example, if 50% or more of homes in the flood zone are damaged or abandoned for two years, and the owner wishes to rebuild, or if entirely new construction is planned, it will be need to comply with the current regulations at the time of construction.

### Historic Buildings

There are four buildings on the National Register of Historic Places that are at risk to sea level rise and extreme coastal storms. The Jonathon Woodley House is inundated by the high sea level rise scenario. The properties of the Little Creek Methodist Church and the Old Stone Tavern are also in the high sea level rise inundation area, but the buildings themselves are located outside of the inundation area. See Table 16 - Non-Residential and Historic Properties At-Risk. All three historic buildings, as well as the Elizabeth Stubbs House, are within the FEMA 1% floodplain, and thus at risk to present day flooding hazards from extreme storms.

### Commercial District

A background on the commercial district is provided in Section 2.2 Land Use Plan. The district borders the Little River and numerous parcels

and Main Street currently experience inundation by flooding coming from the river and through adjacent wetlands due both to storm events and very high tides. The area is encumbered in each sea level rise inundation scenario to varying degrees, but a large portion of the district is inside the low inundation scenario. Due to the low ground elevation and proximity to the Little River, some of the commercial parcels are at high risk to present-day and future flooding. All parcels in the commercial district are in the FEMA 1% floodplain, specifically in Zone AE with BFEs ranging from 10 feet to 11 feet NAVD88. See Table 16. Non-Residential and Historic Properties At-Risk.

Future additions of impervious cover in this area, like paved parking or new building construction, may contribute to and exacerbate ponding and flooding hazards from stormwater runoff. In addition, most of the area is overlain by the Town's protected RBA. The Town recognizes that environmental sensitivities, rising sea levels, and enhanced stormwater flooding issues create significant development challenges for the district.

Figure 8: Flood Events in the Commercial District



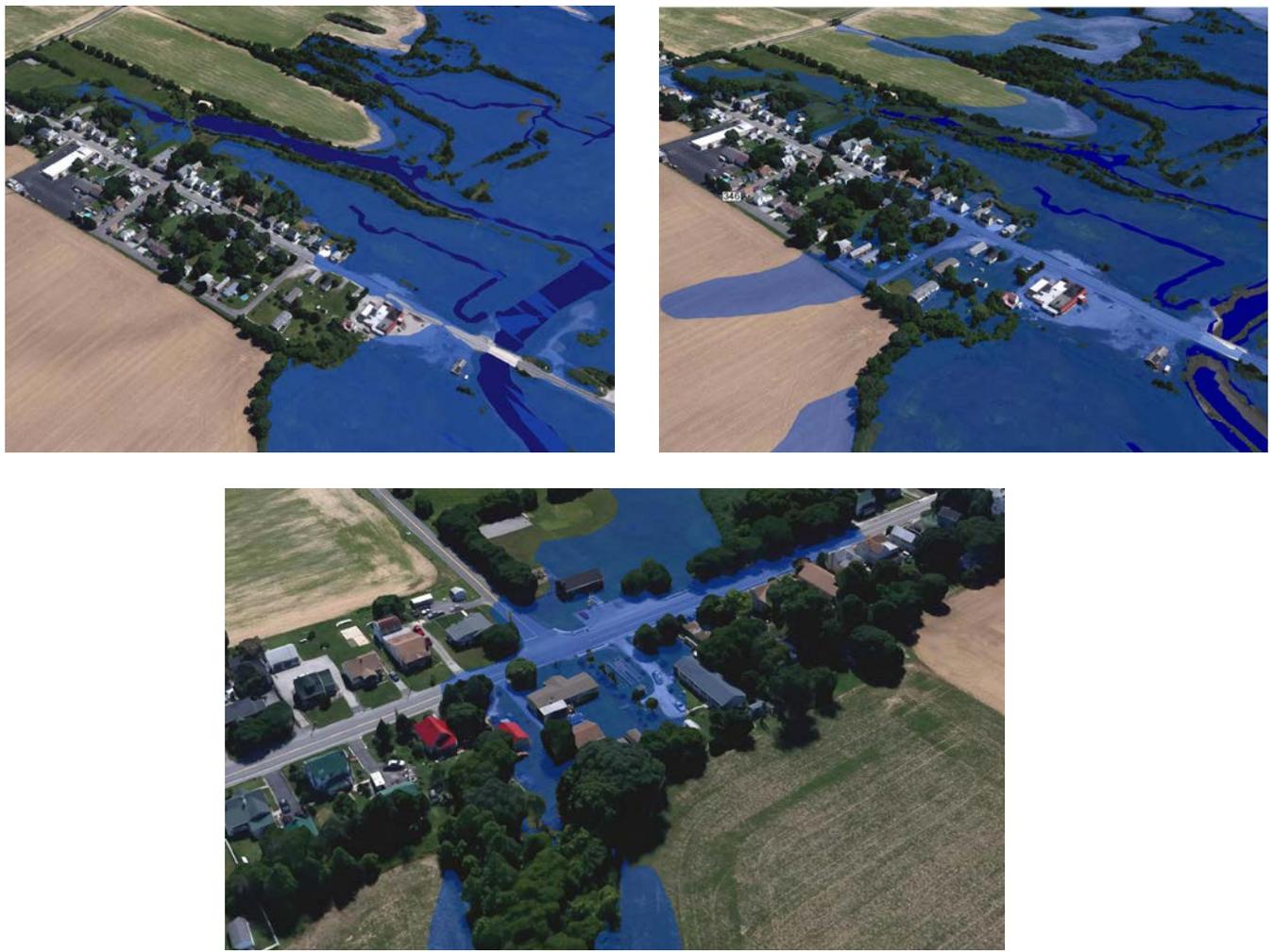
*Flooding in the commercial district during a March 2010 nor'easter. This level of inundation, currently only seen during storm events, may become the future water level during high tides as a result of sea level rise.*

Table 16: Non-residential and Historic Properties At-Risk

	Scenario	Non-Residential Buildings	Historic Buildings
Current	Zone AE Floodplain	Crab Connection*, Old Cavaliers* Duck Shop, Deli/Market* County Pump Station	Jonathan Woodley House, United Methodist Church, Elizabeth Stubbs House
	Zone X Floodplain	Fire Company	Elizabeth Stubbs House
	MHHW	None	None
Future	Low (0.5 m)	Crab Connection*, Old Cavaliers* Duck Shop	None
	Middle (1.0m)	Crab Connection*, Old Cavaliers* Duck Shop, Deli/Market* County Pump Station	None
	High (1.5m)	Crab Connection*, Old Cavaliers* Duck Shop, Deli/Market* County Pump Station	Jonathan Woodley House
	BFE + 3FT	1Crab Connection*, Old Cavaliers* Duck Shop, Deli/Market* County Pump Station, Fire Company, Post Office	Jonathan Woodley House, United Methodist Church, Elizabeth Stubbs House, Old Stone Tavern

\*Property is in the commercial district

Figure 9: Forecasted High Tide



Forecasted high tide in year 2100 due to sea level rise in the commercial district. 0.5m low rise scenario (top left) and 1.5m high rise scenario in the commercial district (top right). 1.5m scenario at Main Street and Port Mahon Road intersection.

## Facilities

### *Wastewater Pump Station*

The Kent County Pumping Station Number 29 is in the Zone AE floodplain and is expected to be inundated at high tide in the year 2100 under the medium and high sea level rise scenarios. The ground surrounding the pump station is at approximately 5.5 feet NAVD88 elevation, and the housing entrance is elevated approximately 3 feet above the ground – boosting this structure’s resilience under a wide range of future flood scenarios. Due to the critical nature of this facility, the Town encourages usage of the highest SLR scenario during any future modifications.

### *Individual Private Water Wells*

As sea level rises, saltwater can migrate farther upland through the Little Creek’s drinking water aquifer. This process is relatively slow and begins affecting the aquifer from the bottom since the dense salt water will sit under the less dense fresh water. If tidal nuisance flooding becomes more frequent, the entire depth of the aquifer can become saline because the saltwater will infiltrate the aquifer from the flooded land above. For a more detailed discussion on the impacts on the Town’s drinking water, see Section 2.6 a. Background / Issues.

## Agriculture

### *Land Preservation*

There is a significant amount of agricultural land surrounding Little Creek. Many of these lands are protected in the Delaware Agricultural Lands Preservation Program. Some have an easement restricting development in perpetuity; however, some are only temporarily preserved or not preserved at all. A detailed discussion for these lands is provided in Section 2.2 Land Use Plan. The Town’s vision and goals for agricultural preservation, as well as its position on growth and development, are provided Section 1.6 Planning Goals and Vision. The Town supports the State and County efforts to protect surrounding farmland towards creating a greenbelt around Little Creek. In addition to protecting the region’s agricultural heritage, preservation of these lands

will allow flood absorbing wetlands to migrate inland, supporting the region’s flood and sea level rise mitigation efforts.

### *Water Irrigation and Saltwater Intrusion*

A 2014 Delaware Geological Survey (DGS) study by He and McKenna<sup>8</sup> reports that significantly more area will be impacted by a rising water table than is expected to be impacted by surface water inundation, which we have been considering by looking at the future MHHW inundation maps. Under all three sea level rise scenarios, portions of Little Creek and the surrounding agricultural land are at risk of losing capacity to support vegetation as the water table rises close to the ground surface. Additionally, some low lying areas may become waterlogged or become permanent pools. The study reports that throughout the Delaware Bay coastline, the “High” sea level rise scenario will subject 18,500 hectares (71.4 square miles) to a water table within 1.64 feet of the ground surface, rendering it unable to support the most popular crops; over 60% of that land affected is currently cropland.

As previously mentioned, there is a risk of saltwater intrusion affecting private wells in the Town. That risk extends to irrigation wells located in close proximity to the tidal Little River and its tributaries. Large extractions of water from the aquifer, such as those made for agriculture uses, can exacerbate saltwater intrusion.

Runoff from agricultural land can contaminate both surface water and groundwater. The Town should monitor the results of the on-going DGS study investigating the local aquifer quality in light of agricultural runoff concerns. Because this issue may require consideration prior to the next comprehensive plan update, the Town should prepare to evaluate water supply alternatives in light of information as it becomes available.

### 2.4 e. Goals and Objectives

**Goal:** Reduce Little Creek’s 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.

<sup>8</sup>He, C. and McKenna, T.E., 2014, *Using Numerical Models to Evaluate Impacts of Sea Level Rise on Groundwater Resources in the Delaware Coastal Plain*, Delaware Geological Survey

Objective: Natural hazards will be considered in development plans and approvals.  
 Objective: Financial and technical assistance will be available to elevate buildings in flood prone areas or relocating them.

**Goal:** Little Creek will be a resilient community that is prepared for natural hazards and thrives after a hazard strikes.

Objective: Ensure necessary steps are taken to qualify for federal assistance.  
 Objective: Residents will understand how to get information about natural hazard events 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.

**2.4 f. Adaptation Strategies and 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 outreach process resulted in the following overall strategies towards enhancing the Town’s adaptive capacity to sea level rise:

1. Prepare a Waterfront Development Plan. See Section 2.10 b. Recommendations: Redevelopment.
2. Amend the Land Development Ordinance to include “maritime zoning” regulations. See Section 2.2 d. Recommendations: Land Use Plan.
3. Amend the Floodplain Requirements Ordinance and Land Development Ordinance to address sea level rise.
4. Carry out a comprehensive flood mitigation and wetland restoration program.

**Amend the Floodplain Requirements Ordinance and Land Development Ordinance to Address Sea Level Rise**

The Town should amend the Floodplain Requirements Ordinance (FRO) and Land Development Ordinance (LDO) to consider the impacts of sea level rise and set forth adaptation strategies.

- Create incentives to encourage the development out of high risk hazard areas (0.5m low rise scenario and the FEMA Flood Zone AE BFE 11 feet), or to build with additional flood hazard resistant construction methods, such as additional freeboard.
- Strengthen the standards of the required Riparian Buffer Area (RBA) through plantings with native vegetation, which would increase its capacity to absorb flood waters and pollutants.
- Amend Section 12-9 Flood Plain Ordinance by removing the current regulations and simply reference the FRO.
- Evaluate and remove any barriers that would prohibit flood protection or sea level rise adaptation, such as additional freeboard.
- Implement the recommendations from the Waterfront Development Plan and the Maritime Zoning standards.
- See Section 2.3 b. Floodplain Management Recommendations and Section 3.3 Implementation Summary.

**Comprehensive Flood Mitigation and Wetland Restoration Program**

It is recommended that the Town partner with DNREC, DEMA, and other suitable agencies to carry out a comprehensive flood mitigation and wetland restoration program. The goal of such a program would be to enhance the Town’s adaptive capacity by embracing the beneficial effects of restored natural environments. The long-term, incremental program should include the followings steps:

- The acquisition of marshlands adjacent to town (Jarman Property) to protect the marshes and allow them to migrate inland as sea level rises.

- The placement of dredge spoils from local dredging projects (such as the Little River) to preserve habitat of the wetland flora and fauna. This activity would have the auxiliary benefit of raising the marshland as a flood protection barrier.
- Wetland restoration including removal of invasive vegetation such as phragmites and planting of native species. Work with landowners and DNREC's Division of Fish and Wildlife in this effort. The Division has a "Delaware Phragmites Control Cost-Share Program" to assist landowners in improving wildlife habitat in wetlands that have been degraded by the invasive phragmites. See Section 3.4 Potential Funding Sources.
- The formal creation of the recreational and educational trail through the wetlands / restored natural wildlife area that would also connect other town attractions.

Minimizing flooding, restoring the wetlands and natural habitat, and the creation of the trail have numerous and substantial public benefits. A flood barrier would mitigate hazards that impact public safety, property, infrastructure, and natural resources. Enhanced wetlands would slow and distribute floodwaters more evenly, which helps prevent erosion and reduce flooding. Restored wetlands would also provide a natural wildlife habitat for migratory birds, linking the Town's land with the nearby Little Creek Wildlife Area, as well as enhancing the land's natural ability for flood hazard dissipation. A recreational and educational trail that connects Bayshore Byway intrinsic assets, such as the proposed fishing pier and boat ramp, the Stone Tavern, and a reinvented Town park would provide outdoor recreation and educational opportunities such as peaceful walks, birdwatching, wildlife observation, and photography.

The Town is already pursuing the acquisition of environmentally sensitive properties, and should continue to do so while collaborating with State agencies who may share a common interest. That common interest may also extend to the creation of a recreation trail, so coordination should continue to bring this beneficial recreational infrastructure to fruition. It is noted that the acquisition of the Jarman Property also ties into the ability to mitigate flooding from stormwater

drainage problems around the Post Office. The Town should take steps to understand the regulatory requirements associated with beneficial uses of dredge spoils in order to position themselves favorably at the next opportunity to utilize their wetlands as a disposal site. The recently completed Little River dredging project disposed of spoils in the Little Creek Wildlife Area; this could serve as a model case study for discovering the next steps to take in terms of environmental studies and permit applications. The Town should prepare in advance of expected local dredging projects and include future maintenance dredging of Little River in order to facilitate beneficial use of spoils in their wetland areas.

These improvements would help to solidify the Town's role as a Discovery Zone along the Bayshore Byway by providing eco-tourism, environmental education, and healthy activity opportunities that attract people to the region's natural and cultural heritage. All of which advance a healthy and sustainable coastal community.

### Facilities

- Work with the County to ensure the pump station is hazard resistant and ensure structural integrity (i.e. elevated electrical equipment, back-up generators). Since this is critical infrastructure, the Town encourages the County to consider the high sea level rise scenario during future modifications.
- Consider high hazards, both from sea level rise and extreme storm flooding, and safety while designing and siting of any new water and sewer systems to protect these facilities during hazard events and for their continued operation after a disaster event.
- Consider amending the Floodplain Requirements Ordinance to require the finished floor elevation of critical facilities whose operation should not be compromised during emergencies to be placed above the FEMA 0.2% Floodplain.
- Implement Mitigation Actions 12 and 13 set forth in the 2015 Kent County Hazard Mitigation Plan.
- Work with the County to limit extending sanitary sewer service to high risk areas.

## Agriculture

- Monitor ongoing study by DGS on aquifer quality, considering both saltwater intrusion and agricultural contamination. Develop contingency plan for obtaining safe drinking water. Water main construction coincident with Route 9 alterations would be most cost-effective.
- Substantial agricultural land area surrounding Town falls within the SLR inundation areas and the FEMA Flood hazard zones. The Town desires that this land remain protected as agricultural or open space.
- Considering that future water table rise (due to sea level rise) at agricultural lands surrounding the Town may render those lands unviable for agriculture, the Town encourages sustainable and eco-friendly future development. The best options in the eyes of the Town are conversion to wetland or natural open space that will help mitigate future flooding hazards associated with sea level rise, or the development of solar farms following the successful models of two nearby utility scale solar projects: Dover SUN Park (3 miles northwest of the town) and Milford Solar Farm (17 miles south of the town).

## Buildings

- It is recommended that a strategy be in place for the turnover of the properties that become inundated and no longer habitable or abandoned.
  - Anticipate that some buildings will be relocated, elevated on higher foundations, 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 grants for a municipality to purchase properties that are in the insurance program that are repeatedly damaged and have multiple flood insurance claims.
- Evaluate additional flood protection measures for properties in the sea level rise inundation areas, as discussed in the Current Flood Hazards section.

- Implement Mitigation Actions 2, and 4 through 10, set forth in the 2015 Kent County 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.
- Ensure that any 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.
- See Section 2.3 Current Flood Hazards.

## Other

- Monitor and update maps of current high tide line, wetlands, and the corresponding RBA.
- Monitor updated sea level rise scenarios adopted by the State, and maintain and update relevant plans and ordinances appropriately.
- Use the appropriate sea level rise scenario mapping and the FEMA flood hazard zones in all future planning and review of development applications.
- Extreme heatwaves pose an increasing threat to the Town of Little Creek's citizens. Maintaining communal well-being 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 identify effective intervention measures, such as establishing cooling shelters at the Fire Hall, and coordinate these measures with the County Hazard Mitigation Plan.

## Public Outreach

- Provide public awareness and outreach to current residents, developers, and prospective homebuyers on flood hazards and sea level rise and climate change risks, flood

reduction and adaption measures, as well as saltwater intrusion and water supply concerns. 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.

- Implement Mitigation Actions 14 set forth in the 2015 Kent County Hazard Mitigation Plan.

### Seek Funding for Sea Level Rise Adaptation

Seek funding sources such as federal and State grants and loans, development exactions, additional impact fees, and legislative funding. There are multiple sources available to Little Creek and property owners that are designed to aid assessing and mitigating flood hazards. In the long-term, seek funding and 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. See Section 3.4 Potential Funding Sources, and Section 2.4 Sea Level Rise Vulnerability and Adaption.

Also, identify funding sources that can be used to mitigate flood risk by piggybacking other projects. For example, USACE projects are rarely built to protect from the 1%-annual-chance base flood that FEMA uses to regulate the floodplain. Additional costs to increase the protection level would need to be paid by the Town, either through cash, loans, or complementary grants.

## 2.5 Environmental Features

### 2.5 a. Background / Issues

Little Creek is located a few miles west of the Delaware Bay and is surrounded by streams, wetlands and agricultural land. The south end of town consists largely of wetlands, with the Little River forming the southern boundary. The entire western boundary of Little Creek consists of farmland that runs along the west side of Route 9. Just east of Town are permanently protected farmlands that have sold their development rights. The waterways, tidal wetlands, riparian buffers, and farmland all create desirable greenbelt

that helps to maintain Little Creek's small-town character and rural, agricultural heritage. Little Creek's land is relatively flat and close to sea level, with the average elevations in the town approximately 5 to 15 feet above sea level.

Little Creek exists within a pristine, natural setting with environmental features that serve many important ecological, social, recreational, economic, and aesthetic benefits. The fluvial, nutrient rich soils provide some of the best agricultural lands in Delaware. The area is considered to be one of the richest and most biodiverse regions in the nation. The surrounding marshes provide habitat for a host of both common and rare and threatened species of terrestrial and aquatic plants and animals. Many of these ecologically important lands are protected through wildlife refuges, estuarine reserves, private conservation lands, and agricultural preservation.

In general, the Town's policies discourage development or redevelopment within environmentally sensitive and natural hazard areas. The Town has adopted environmental provisions as part of the Land Development Ordinance (LDO) to protect stream courses, wetlands, and riparian corridors, and mitigate flooding impacts.

**Map 10 - Environmental Features** 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.

### Soils

According to the USDA Natural Resources Conservation Service (NRCS) Soil Survey for Kent County (2014), the majority of soil in and around Little Creek was formed over older, sandy sediments and is part of the Mattapex Series. Most of the land composed of Mattapex silt loam in Little Creek town boundaries and within the Area of Concern has slopes from 0 to 2 percent (MtA). This soil type does not have many limitations and is suited for all county grown crops. Throughout the Town there are some pockets of Mattapex soil with 2 to 5 percent slopes (MtB) that need moderate care to minimize

land erosion, while there are other areas that have excess wetness and need to be drained to grow some crops.

The second most predominant soil type within Little Creek Town boundaries and the Area of Concern, and not within the tidal marsh, is the Unicorn loam (UIA and UIB). The Unicorn Series are silty eolian deposits over fluviomarine deposits. This soil is generally considered to be prime farmland, is well-drained, and does not experience frequent flooding and ponding.

The soil in the south part of Little Creek is primarily Tidal Marsh, a soil that is brackish and consists of stratified sand and clay. These soils belong to the Broadkill-Appoquinimink complex (Ba). These soils are loamy marine sediments exposed to salt water flooding. This land is unsuitable for farming and often serves as a home for wildlife. Furthermore, the marsh areas place severe constraints on development.

**Refer to Map 11 – Soil** 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.

**Wetlands**

As seen on **Map 10 - Environmental Features**, the southeastern Town boundary is located along a tidal wetland that comes from the bay and continues along the Little River basin. While there are no non-tidal wetlands located within the Town limits, there are such areas located in close proximity to the Town.

Wetlands are protected by Federal 404 provisions of the Clean Water Act. In Delaware, non-tidal and tidal wetlands are regulated under this act; however, tidal wetlands are accorded additional and stringent regulatory protection under Title 7 Chapter 66 provisions of the Delaware State Code. Tidal wetlands are subject to the jurisdiction of State and federal agencies, such as DNREC and the Army Corps of Engineers. The Town’s LDO 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. Wetland protection is also 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. These wetland areas are consistent with floodplain soils, and are best left undeveloped to the greatest extent feasible.

The south end of Little Creek is surrounded by wetlands, making it difficult to access the Little River without penetrating these protected areas. While it is not impossible to get a wetlands permit, it is still very difficult. The only two exceptions are for public projects and for “water dependent” activities. Public docks, walkways leading to docks, and small boat launch areas are the types of projects that would be eligible for permits.

It is also noted that much of the adjacent wetlands that have been degraded by invasive vegetation, such as phragmite.

Figure 10: Phragmite



Images of phragmite behind homes along the eastern Town boundary (top) and the Little River corridor (bottom).

## 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, DNREC's Watershed Assessment Section recommends 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 2.4 d. Sea Level Rise Vulnerabilities. However, inundation from sea level rise is anticipated to exceed these established riparian buffer areas in some locations, resulting in smaller or even non-existent buffer area over time. In general, smaller RBA results in less nutrient uptake and less reduced flood attenuation, which reduces overall water quality and increased vulnerability to flood hazards, respectively.

## Little River

The Little River is approximately 8 miles long, starting just northwest of Dover and flowing generally east through Little Creek, the Little Creek Wildlife Area, and to the Delaware Bay.

Figure 11: Little River

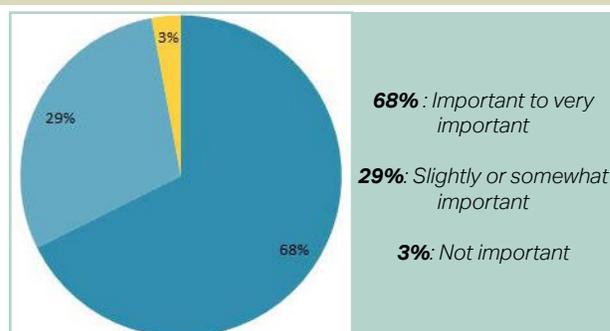


### Access

The Little River is a valuable asset to the Town. As evident through the community outreach process, improving the waterfront and providing access to the Little River is one the Town's most important goals. In the 2015 community questionnaire, when asked what additional facilities or institutions they want in Town, respondents rated water access as the most important. Sixty-eight percent stated it was important to very important, 29% said it

was slightly or somewhat important, and only 1 respondent stated it was not important. **See Chart 10 - Water Access.** Planned projects are providing access to the Little River. Most notably, DNREC is planning a new fishing pier and boat ramp / dock to be located on the southern banks of the river near the bridge. The ramp and pier will provide recreational benefits as well as a place for small commercial and recreational fishing boats to dock. The Little Creek Volunteer Fire Company's boat is also expected to dock, which would increase the company's response times to the Delaware Bay.

Chart 10: Community Questionnaire, Water Access



## Navigability

Over the past few decades, the Little River has been dredged on more than one occasion. Up until recently, the river was not dredged since 1981 and became silted and hindered navigability. It is believed that the sedimentation of the river and reduced navigability was one major cause to the decline in Little Creek's maritime activity. The most recent dredging in 2015 occurred between just west of the Little Creek Bridge to the bay.

Figure 12: Little Creek late 1800s vs. 2016



Little River Oyster Fleet (source: [littlecreek.delaware.gov](http://littlecreek.delaware.gov))



Little River in 2016

## Dam

As mentioned in Section 2.3 Current Flood Hazards, there is a small man-made dam on Little River approximately one mile upstream from the Route 9 / Little Creek Bridge whose impact on the downstream watershed is unknown. It is believed this dam was created in the 1980's without proper permitting by private individuals. Based on the interviews conducted as part of the Working Waterfronts Initiative project, it is believed this dam has altered / reduced the flow of the river resulting in increased sedimentation and increase localized flooding within Town, as well as adverse impacts to the wetlands both adjacent to the dam and downstream of the dam. The Town has an interest in maintaining the natural beauty and function of the Little River and its surrounding lands both for their abilities to attract Bayshore Byway visitors, and to manage stormwater runoff and tidal inundation. Any compromise in that natural ability that is caused by human activities is a detriment to the Town.

It is anticipated that the navigable river, the proposed boat ramp / dock and fishing pier, and the clean-up and beautification of the waterfront area will increase attracting maritime-related businesses and commercial and recreational boaters and fishermen. These improvements, coupled with other community development strategies set forth in this Comprehensive Plan,

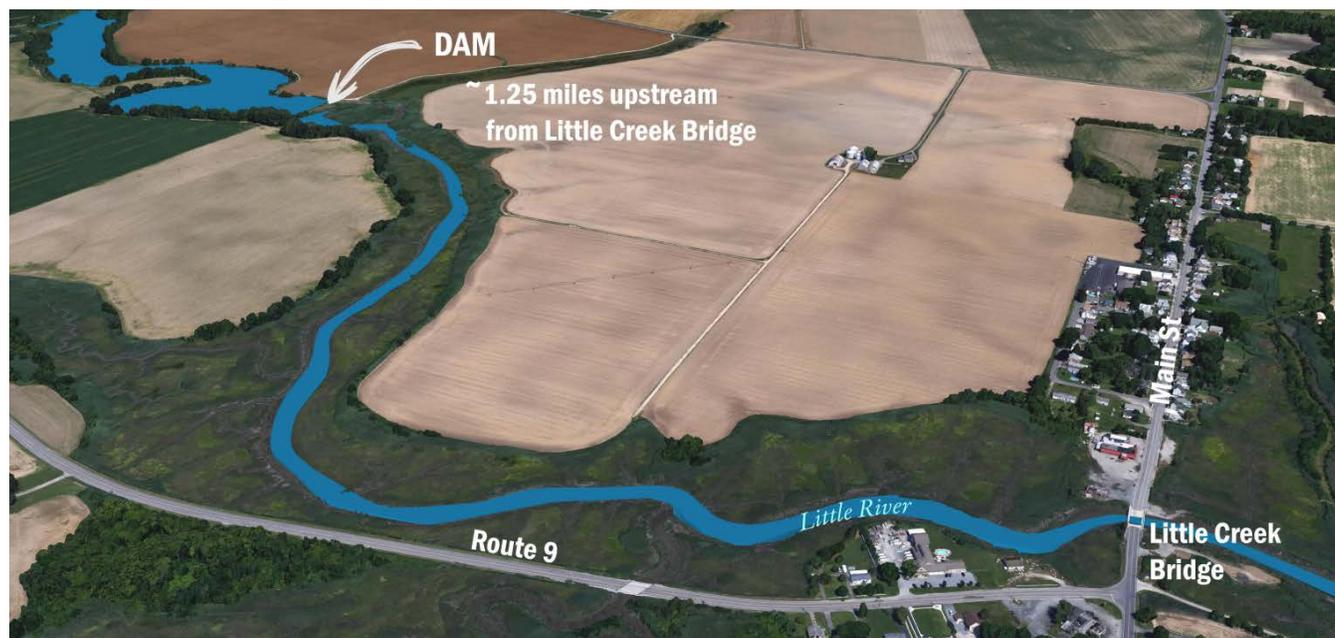
will help increase the economic viability of the Town's commercial district / waterfront and strengthen the Town's role as a Discovery Zone along the Delaware Bayshore Byway.

## Other

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)<sup>9</sup>. DNREC SRA's area is an environmental resource protection initiative to direct resources and programs to create open space networks. Two parcels currently mapped and listed in the SRA are the Jarman Parcels, which are adjacent to the western town border and Little River. See Site #4 on **Map 5 - Adjacent Land Use**. The Town believes this area should be targeted for preservation based on their value of existing natural features. The area exhibits most of the criteria to be priority preservation areas, which are:

- Includes or enhances important wildlife habitat or migration corridors, as well as potential wildlife habitat or migration corridors;
- Has wetlands and floodplains necessary for the protection of water resources;
- Is contiguous to or nearby lands already preserved by federal, State, local, or other conservation agencies;
- Will provide public outdoor recreation;

Figure 13: Man-made Dam on Little River



<sup>9</sup>DNREC's draft revision of State Resource Area Standards and Criteria, prepared in accordance with the Land Protection Act, 7 Del. C., Ch. 75. (8/17/15)

- Will allow natural systems or plants and animals to accommodate or adapt to climate change or other large-scale changes in ecosystem processes.

## State Wildlife Areas

### Little Creek Wildlife Area

East of the Town of Little Creek is the Little Creek Wildlife Area, as seen in **Map 5 - Adjacent Land Use**. This area is rich in wildlife recreational activities, and there is a refuge located in the southern portion of the wildlife area. Many people enjoy hunting here and are aided by duck blinds and deer stands. The Little Creek Wildlife Area is also one of the most popular places around for bird watchers. The path of the Little River from the Town of Little Creek to the Delaware Bay flows directly through protected wildlife areas. The State has land holdings throughout the area, including tidal marsh and impounded wildlife areas. These areas have recreational uses for hunting and fishing, as well as environmental uses to control mosquitoes and improve wildlife habitat. Delaware actively manages these areas in an effort to create the best habitat possible for local plant and animal species. These areas may be negatively affected by increased boat activity along the river.

Figure 14: Little Creek Wildlife Area



### Port Mahon

The Port Mahon area provides major waterfront activity as it is one of the few places in the region with direct access for large boats to the Delaware Bay. Port Mahon Road provides access to the waterfront and the wildlife area. Because of this accessibility, the road serves the Dover AFB fuel facilities. There is also a public boat ramp at the mouth of the Port Mahon River. The ramp is important to the commercial fishing industry, along with many recreational uses. For these reasons, Port Mahon provides significant natural, educational and research, and recreational value.

To protect Port Mahon Road, the area underwent a major beach replenishment project with dredged material coming from channel maintenance. The road experiences frequent erosion from flooding, and sea level rise is increasing the damages and hazards. As noted in the Bayshore Byway CMP, *“many people start driving down the wildlife area road and think they are entering into a construction yard or otherwise into an area that is not open for the public.”*

The Town supports the recommendation in the CMP to improve the Port Mahon waterfront, and develop the Port area as a recreation and eco-tourism site.

Figure 15: Port Mahon Road



## 2.5 b. Recommendations: Environmental Features

### Soils

Prohibit development in poorly or very poorly-drained (hydric) soil mapping units. 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.

### Wetlands / RBA

- Monitor and update maps of the current high tide line, wetlands, and the corresponding riparian buffer area (RBA).
- Since the width of the RBA cannot be increased due to land area limitations, the Town should amend Article 12 in the LDO to strengthen the standards of the RBA through plantings with native vegetation to increase its capacity to absorb flood waters and pollutants.
- As part of the Comprehensive Flood Mitigation and Wetland Restoration Program discussed in **Section 2.4 f.**, pursue wetland restoration efforts that include the removal of invasive vegetation such as phragmites and planting of native species. Work with landowners and DNREC's Division of Fish and Wildlife in this effort. The Division has a "Delaware Phragmites Control Cost-Share Program" to assist landowners in improving wildlife habitat in wetlands that have been degraded by the invasive phragmites. See Section 3.4 Potential Funding Sources.

### Little River

- The Town requests the opportunity to provide input on the design of the proposed fishing pier and boat ramp/dock. The Town recommends that an access walk be provided at the nearest possible point to the Town.
- Contact DNREC and secure their help to remove the deteriorating pilings from the Little River. This will improve the river's aesthetics and remove a potential hazard to navigation.
- Encourage investigation of the coincident construction of higher bulkheads or earthen embankments on both banks of the river while features like the boat ramp and fishing pier are constructed. Such barriers have the potential

to mitigate nuisance tidal flooding, preserve upland, and enhance accessibility to river-adjacent recreational features.

- Promote on-going dredging of Little River to maintain its navigability.
- Encourage a hydrologic and hydraulic investigation of the Little River, including dredging and man-made structures, such as dams or dikes, which may impact the natural function of the river and its surrounding lands.
- Based on the investigation results, coordinate with DNREC, U.S. Army Corps of Engineers, and State legislature as necessary towards restoring the Little River and associated wetlands to its natural flow and function.

### State Resource Areas

- The Town should work with DNREC to investigate the options to protect State Resource Areas, and make them known to the current landowners of these areas.

Refer to Section 2.4 d. Sea Level Rise Vulnerabilities, which identifies specific environmental features that are vulnerable to future flood hazards associated with climate change and sea level rise, as well adaptation strategies.

See Section 2.10 b. Recommendations: Redevelopment for additional recommendations on providing residents and visitors' access to the Little River.

## 2.6 Public Utilities and Services

### 2.6 a. Background / Issues

This section evaluates the public utilities and services in Town. These assets and services are evaluated for their adequacy and capacity to accommodate the Town.

The 2016 Community Questionnaire asked respondents to identify their level of satisfaction with various public utilities and services provided in Little Creek: 1 being Satisfied, 2 Satisfied, 3 No Opinion, 4 Not Satisfied, and 5 Very Unsatisfied. The majority of respondents were satisfied to very satisfied with sanitary sewer service and electricity, and generally had no opinion on the provision stormwater management.

Similar to 2006 Community Questionnaire results, the 2016 Questionnaire found a very polarized response regarding the need for a public water system. Of those who responded to the survey, 28% felt a public water system was important to very important, while 50% also felt it was not an important issue. Further inquiry into the issue would be needed before it could be determined whether there was or was not enough support for the town to pursue a public water system.

The Questionnaire and the results are provided in **Appendix B - Community Questionnaire.**

### Drinking Water

There is no public water system in Little Creek. Private freshwater wells supply Town residents with potable water for household use. Water is drawn from an unconfined aquifer that supplies approximately half of the State's ground water, whose base is approximately 50 feet below ground near Little Creek<sup>9</sup>. Well permits and water allocations are under the jurisdiction of The Delaware Department of Natural Resources and Environmental Control (DNREC). Because the Town relies on a surficial confined aquifer, it is important the Town work with DNREC to protect the integrity of this resource.

It is important to note that any new large development project in or around Little Creek would be required to install a public water system. In this event, the Town should consider the possibility of also incorporating town residents into the public water system.

Currently individual wells seem to be working adequately; however, there is a long-term risk of saltwater intrusion affecting private wells in the town. As sea level rises, saltwater can migrate farther upland through the aquifer; this process is relatively slow and begins affecting the aquifer from the bottom since the dense salt water will sit under the less dense fresh water. If tidal nuisance flooding becomes more frequent, the entire depth of the aquifer can become saline because the saltwater will infiltrate the aquifer from the flooded land above.

The Delaware Geological Survey (DGS) study on the effects of sea level rise on the aquifer in the

Delaware Bay marsh watersheds investigated saltwater intrusion. While the model did not explicitly consider Little River, the results reported in the study include the Little River watershed, which includes the Town of Little Creek. The study reports that saltwater intrusion is most severe in the immediate vicinity of tidal rivers and tributaries and quickly dissipates with increasing distance from these sources. Little Creek is bounded on the south by the Little River, and on the east by a tidal tributary. According to the study, portions of the Town are vulnerable to saltwater intrusion under the "Medium" and "High" sea level rise scenarios, while the "Low" scenario is expected to pose less risk. Little Creek sits atop a portion of the aquifer with relatively high transmissivity – meaning groundwater moves relatively quickly through the aquifer, which may accelerate the rate of saltwater intrusion.

The scale of the study was large relative to the Town of Little Creek. Though the results can be interpreted generally, there is some uncertainty associated in doing so. A DGS Report covering this study is currently under production. There is an additional study being performed currently by the DGS investigating aquifer usage and quality in the Dover and Little Creek areas. Monitoring wells will measure water table elevation, saltwater intrusion, and agricultural runoff contamination during the course of this study.

The Town should continue to monitor DGS reports for information related to saltwater intrusion and water quality in the aquifer. Because this issue may require consideration prior to the next comprehensive plan update, the Town should prepare to evaluate water supply alternatives in light of information in relevant reports shortly after their publication. Refer to Section 2.4 d. Sea Level Rise Vulnerabilities.

The Office of Drinking Water provides information for private well owners to test their water wells at <http://dhss.delaware.gov/dhss/dph/hsp/privdw.html>.

### Source Water Protection

Little Creek does not have local source water protection regulations to protect wellheads as there are no public water wells in Town.

<sup>9</sup> Johnston, R.H., 1973, *Hydrology of the Columbia (Pleistocene) deposits of Delaware: An appraisal of a regional water-table aquifer*, Delaware Geological Survey Bulletin 14

### *Excellent Recharge Area*

Little Creek is located in the Little River Watershed, and a large portion (approximately 40%) of the land within the Town boundaries is good or excellent groundwater recharge area, with nearly half of the Town's incorporated land being excellent for recharging groundwater. The Town relies on the unconfined aquifer for their water supply. The excellent aquifer-recharge areas as identified on **Map 10. Environmental Features.**

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. The Town's LDO does not provide limits to impervious cover in areas of excellent groundwater 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 excellent groundwater 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 groundwater recharge may contribute to flooding.

#### *Total Maximum Daily Loads (TMDLs)*

As stated in DE Code Title 7, Section 7422 TMDLs for the Little Creek Watershed, water quality monitoring performed by the DNREC has shown that the waters of Little Creek and several of its tributaries and ponds are impaired by high levels of bacteria and elevated levels of the nutrients nitrogen and phosphorous, and that the designated uses are not fully supported due to levels of these pollutants in these waterways.

Section 303(d) of the 1972 Federal Clean Water Act requires the determination of total maximum daily loads (TMDLs) to quality-limited waters. DNREC listed Little Creek on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Loads regulation for nitrogen, phosphorous, and enterococcus bacteria. 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 goal is to reduce loads of nutrient pollution that enters into watersheds throughout the State.

DE Code Title 7, Section 7422 sets forth regulations for the Little Creek Watershed. The nutrient (Nitrogen and Phosphorous) and bacteria TMDL baseline reduction requirements for the Little Creek watershed are: Nitrogen 40%, Phosphorous 40%, and Bacteria 75%. Further, the regulation requires these TMDLs reductions to be achieved through development and implementation of a Pollution Control Strategy. The Strategy is to be developed by DNREC in concert with Tributary Action Teams, other stakeholders, and the public. PCS strategies and actions include a combination of stormwater best management practices (BMPs). 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 reduce nutrient and bacterial pollutant loads in the Little River Watershed. Some BMPs include conservation design and the removal of septic systems.

### **Wastewater Treatment System**

The sanitary sewer service is provided by Kent County including collection and conveyance and treatment. A small pumping station is located near the old Village Inn just south of Town, and a large pumping station is located at the south end of Town, known as Pumping Station Number 29. These pumping stations are owned and operated by Kent County. The sewer discharge from Little Creek goes through a gravity main to Pumping Station 2 in Dover, where it then goes to be treated at the Kent County wastewater treatment plant. 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.

### **Solid-Waste Disposal**

Refuse collection services are the responsibility of each individual property owner. Residents and businesses in town arrange for collection through one of several private companies operating in the area. The Delaware Solid Waste Authority (DSWA)

previously operated a public recycling center behind the Fire Department, which ceased in 2016. DSWA operates a collection-and-transfer station in Cheswold.

## Stormwater Management

Stormwater management is an issue for many towns and is specifically a concern for Little Creek residents who are located near the marsh areas that are more prone to flooding. Some residents in Town complain about flooding on the eastern portion of Town near the wetlands and floodplain areas. The flooding occurs on the south end of Town, from Lowe Street to the River, and on the north end of Town at the Post Office. These issues are caused by tidal flooding that are exacerbated by stormwater drainage issues on specific properties and other potential influences that warrant additional study. It is a Town goal that stormwater runoff be managed in the most efficient and effective manner feasible while respecting natural features, source water protection areas, and watershed quality. There are multiple factors that influence stormwater run-off and management in Town.

Portions of DAFB and the City of Dover sit upstream from the Town within the Little Creek watershed. Conversion of open space to impervious surface within those areas may adversely impact the Town by increasing the amount of runoff entering the Little River. There is also a man-made dam upstream, as discussed previously, which is believed to have altered / reduced the flow of the river resulting in increased sedimentation and increase localized flooding downstream within Town. The Town has an interest in maintaining the natural beauty and function of the Little River and its surrounding lands for their abilities and to manage stormwater runoff and tidal inundation. Any compromise in that natural ability that is caused by human activities is a detriment to the Town.

There appears to be substantial sediment build-up with the drainage channels on the Jarman parcels that need to be further investigated, cleaned-out and maintained on an on-going basis. The drainage channel is not within the Town's jurisdiction, but currently contributes to flooding within the Town that creates standing

water and occasionally obstructs vehicular traffic along Route 9. Stormwater currently flows through cleared collection pipes and a cleared outflow into the drainage channel where conveyance is severely impaired, likely to a chronic lack of maintenance. It is noted that these drainage issues in standing water in areas, such as the Post Office area, likely exacerbates the Town's significant mosquito issue.

Figure 16: Drainage Ditch



*A silted drainage ditch is believed to exacerbate flooding issues upstream near the Post Office and Port Mahon Road.*

Currently, there are few stormwater management facilities within the Town, and the Town is not responsible for the inspection and maintenance of any of these facilities. The Town does not perform the functions of stormwater management plan review, project oversight, inspections and maintenance of facilities. Any new development would need to be approved by the Kent Conservation District (KCD) in accordance with Delaware's Sediment and Stormwater Regulations. KCD would further inspect the construction and compliance of approved plans and conduct annual inspections of stormwater facilities. Ownership and maintenance of new facilities would likely be the responsibility of property owners or homeowners associations under the State regulations with oversight provided by the KCD.

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 would be completed by KCD and the developer, and provided to the Town of Little Creek. 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.

### 2.6 b. Recommendations: Public Utilities, and Services

#### Drinking Water

- Adopt a source water protection ordinance. Coordinate with DNREC to adopt a source water protection ordinance to identify excellent recharge areas as Critical Areas that need protection to insure a sufficient supply of clean drinking water. The source water protection standards should:
  - Be aligned with Kent County and the State to preserve water quality for the residents and address TMDLs.
  - Limit impervious cover in areas of excellent groundwater recharge. Impervious cover should be limited in flood prone areas and sea level rise inundation areas since impervious surface significantly contributes to flooding. Increases in impervious cover should only be considered with utilization of best management practices or low-impact development. As stated in the Preliminary Land Use Service (PLUS) review, DNREC recommends requiring an impervious surface mitigation plan for all residential and commercial developments exceeding 20% imperviousness outside that area, or at least in excellent recharge areas outside that area. The impervious surface mitigation plan should demonstrate that the impervious cover in excess of 20% will not impact groundwater recharge, surface water hydrology, and / or water quality of the site and / or adjacent properties. If

impacts to groundwater recharge, surface water hydrology will occur, the plan should then demonstrate how these impacts will be mitigated. If the impacts cannot be mitigated, the site plan should be modified to reduce impacts from impervious cover.

- Refer to the most current source water protection datasets provided by DNREC.
- Monitor water quality. The Town should continue to monitor water wells and DGS reports for information related to saltwater intrusion and water quality in the aquifer.
- Evaluate need to modify well requirements or alternative water supply options. In light of information published by DGS, Little Creek should prepare for future impairments due to water table rising and saltwater intrusion. Town should evaluate need to modify well requirements or alternative water supply options.
- Refer to Section 2.4 Sea Level Rise Vulnerability and Adaption for a discussion on potential water system vulnerabilities.

#### Stormwater Management

While the Town is not directly responsible for maintaining stormwater management facilities, there are actions the Town can take to address issues related to stormwater drainage.

- Coordinate with DNREC as they develop and implement source water protection and non-point pollution control strategies for the Little Creek Watershed.
- The site plan submittal requirements should be revised to incorporate the three step plan review process and Stormwater Assessment Study / Report prescribed in the new State regulations. The ratings from the Report should be a review criteria for preliminary plan approval.
- As part of the site plan review process for new developments, the Town should coordinate with KCD to ensure new developments adequately address how stormwater quantity and quality treatment will be achieved. Among other things, this would make certain new developments meet 80% reduction requirement in suspended solids load after a site has been developed.
- Work with the KCD and DNREC to resolve significant drainage and flooding issues, such as in the Town Park and Post Office area.

- As part of the Comprehensive Flood Mitigation and Wetland Restoration program recommended in Section 2.4 d. Sea Level Rise Vulnerabilities, locate all problem areas in Town, such as flooding and infrastructure decay, and silted ditches. The information could be used to develop a plan for specific improvements, on-going maintenance and oversight, and identify coordinating agencies and sources of funding. The program should evaluate the stormwater issues as they relate to the adjacent wetlands.
- Encourage a hydrologic and hydraulic investigation of the Little River, including dredging and man-made structures, such as dams or dikes, which may impact the natural function of the river and its surrounding lands.
- The LDO should be reviewed and revised as necessary to allow best management practices (BMPs) that encourage infiltration or reuse of runoff, such as porous pavements, rain gardens, rain barrels and cisterns, green roofs, open vegetated swales, and infiltration systems.
- The LDO should be reviewed and revised as necessary to limit land disturbance from new development projects and limit impervious surfaces reducing parking requirements and allowing pervious sidewalk materials to help achieve the runoff reduction.
- Consider adopting an ordinance similar to Dover’s Surface Water Drainage Ordinance. The Town is cautious of not assuming the burden of maintenance of the drainage conveyances within the Town. However, using the City of Dover’s Surface Water Drainage Ordinance, (Sec. 19.3-1 Drainage courses on private property) as a guide, a drainage ordinance written to allow the Town, or its agent, access to the conveyances could expedite maintenance when the funding is available. A drainage ordinance similar to the City of Dover’s would allow the Town to remove blockages and impediments to the drainage conveyances if, after due notice to the property owner, the blockages were not removed, thus giving drainage for the residents of the Town.
- Stormwater management practices should be integrated with flood hazard mitigation, wetland protection, and sea level rise strategies. These include preservation of

connected open space, groundwater recharge areas, and critical ecological areas, such as wetlands, floodplains and riparian corridors. Resolving drainage issues in Town will decrease occurrences of standing water, which will in-turn, aid mosquito control efforts.

## Wastewater Treatment

- Develop a Memorandum of Understanding (MOU) with Kent County regarding sewer service. At a minimum, the MOU would describe the policy for providing sewer service, would set the specific allocation, and would ensure coordination on activities may impact each other.
- Refer to Section 2.4 d. Sea Level Rise Vulnerabilities for a discussion on potential wastewater system vulnerabilities.

## 2.7 Community Services and Facilities

### 2.7 a. Background / Issues

Community services include fire, police, and emergency management. Facilities include community assets, stormwater management systems, open space and recreation, and schools. This section discusses community services and facilities within and around Little Creek.

The 2016 Community Questionnaire asked respondents to identify their level of satisfaction with various services provided in Little Creek: 1 being Satisfied, 2 Satisfied, 3 No Opinion, 4 Not Satisfied, and 5 Very Unsatisfied. Respondents were most pleased with firefighting service. A majority of respondents were either satisfied or very satisfied with emergency medical services and snow removal. Respondents generally had no opinion on the provision of trash removal, street maintenance, and police service.

When asked to rank how important certain community features are, the majority stated that having parks and open spaces near their neighborhood is important to very important. Respondents were asked what recreational facilities they want in Town. Half stated active recreation was important to very important, and about a third stated it was somewhat or slightly

important. Regarding passive recreation, 40% stated passive recreation was important to very important, and almost half stated it was somewhat or slightly important. For both passive and active recreation, about 10% stated they are not important. See **Appendix B - Community Questionnaire**.

### Police

The Delaware State Police provide 24-hour police protection for residents of Little Creek when there is an emergency. Little Creek also has a contract with the Delaware State Police to provide 10-18 hours of speed enforcement per week. There is a need for assistance to cover the increased cost of law enforcement to protect the residents' quality of life, health and safety. Also see Sections 2.8 Transportation and 2.9 Community Character regarding through traffic issues and strategies.

### Fire Service

The Little Creek Volunteer Fire Company provides both fire protection and emergency medical service for residents of Little Creek. This is one of the 18 volunteer fire companies operating in Kent County, and although each has its own district, they all provide mutual assistance when needed. The Little Creek Volunteer Fire Company consists of 74 active volunteer firefighters. The Company operates 3 fire engines, one brush trucks, one ladder truck, three water rescue boats, and a decontamination truck and trailer.

Figure 17: Fire Station



### Emergency Medical Services

Little Creek residents receive basic life support from the Little Creek Fire Department and the Leipsic Fire Department. Emergencies needing advanced life support are handled by Kent County.

### Education and Library Facilities

The Town of Little Creek is located within the Capital School District. Of the many elementary schools located within the school district, most Little Creek residents attend East Dover Elementary School. After elementary school, students living in the Capital School District attending public schools go to William Henry Middle School for grades 5-6 and Central Middle School for grades 7-8. The only high school in the Capital School District is Dover High School.

Little Creek residents have access to both the Kent County Library, located at 497 South Red Haven Lane and the Dover Public Library, located at 35 East Loockerman Street. Memberships at both libraries are free. Residents also have access to the Kent County Bookmobile, which is a mobile unit offering free library service to Kent County residents since 1988.

### Senior Services

No senior services are available in Little Creek; however, there are resources for seniors outside of Town. Harvest Years Senior Center and Modern Maturity Center, nearby in Dover, can meet the needs of Little Creek residents.

### Health Care

There are no health care facilities located in Little Creek. The Bay Health Medical Center / Kent General Hospital in Dover provide health care for Little Creek residents.

### Postal Service

The U.S. Postal Service has an office located at 458 Main Street in Little Creek, which is open every day of the week but Sunday. The postal code for Little Creek is 19961.

## Parks and Recreation

The Little Creek Town Park is located adjacent to the post office. The park consists of a playground, swings, and a basketball court. Throughout the public participation process, the need for an improved Town park was mentioned by many residents. Improving and expanding the Town Park could work in conjunction with other public requests, such as providing recreational opportunities for youth and creating pedestrian paths. The specific recreational and programming needs for the community should be evaluated and built off Delaware's 2013 Statewide Comprehensive Outdoor Recreation Plan (SCORP). The Town might also want to consider using the vacant land adjacent to the park as part of a expansion process. The land also provides an opportunity for temporary uses, such as a farmer's market and community events.

There is currently an informal path on private land along the drainage ditch east of Town boundaries that connects Bayshore Byway intrinsic assets, such as the riverfront, proposed fishing pier and boat ramp, and Historic Old Stone Tavern. A public walking trail with wayfinding signage that formally connects these community features to an improved Town Park would provide outdoor recreation and educational opportunities such as peaceful walks, birdwatching, wildlife observation, and photography. Such a trail project would be concurrent with marshland protection, wetland restoration, flood mitigation, and sea level rise adaptation strategies discussed throughout this Plan. Refer to the recommended Comprehensive Flood Mitigation and Wetland Restoration Program discussed in Section 2.4 Sea Level Rise Vulnerability and Adaption. It is envisioned the trail would connect to the sidewalk on Main Street, at the bridge, Stone Tavern, and at the Town Park, creating a loop. Informational kiosks on the region's natural and cultural heritage, as well as wayfinding signage, could be placed at strategic locations along the trail, such as the Town Park.

Delaware's 2013 Statewide Comprehensive Outdoor Recreation Plan (SCORP), is a planning and policy document that summarizes outdoor recreation needs throughout the State. The needs guide the investment of State funding for

outdoor recreation facilities. The SCORP lays out a broad vision for outdoor recreation, including increasing access to recreation and open space, building interconnected trails and pathways, and reconnecting children with nature. Based on the SCORP, which included a public opinion survey, the most needed outdoor recreation facilities in Little Creek include<sup>11</sup> :

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

In addition, the SCORP guides DNREC Division of Parks and Recreation's decisions in awarding grants through the Delaware Land and Water Conservation Trust Fund. The Fund is a competitive matching grant intended to assist local governments for the planning, acquisition, and development of parks, greenways and trails<sup>12</sup>. See Section 3.4 Potential Funding Sources.

Figure 18: Town Park and Informal Path



Open land at Town Park offers numerous opportunities (top). Informal path offers an opportunity to designate a public trail connecting the Town's key features (bottom left). Barbed wire fence around the Town Park is not inviting (bottom right).

<sup>11</sup> <http://www.dnrec.delaware.gov/parks/Information/Pages/2013Scorp.aspx>

<sup>12</sup> [www.dnrec.delaware.gov/parks/Services/Documents/grants/trails.pdf](http://www.dnrec.delaware.gov/parks/Services/Documents/grants/trails.pdf)

## 2.7 b. Plan Recommendations: Community Services, and Facilities

### Police, Fire and EMS Service

- Continue to coordinate with State Police, firefighting and EMS services to ensure an adequate service level is maintained. The Town should also consider contacting the Delaware Criminal Justice Council to inquire about eligibility for various local law enforcement grant programs.

### Parks and Recreation

- Building off the SCORP, investigate types of park facilities and potential programming to best serve the community recreation needs.
- Develop public walking trail along existing drainage ditch east of Town boundaries between the Little River and the Town Park that connects the Town Park, Historic Stone Tavern, and proposed fishing pier and boat Ramp. Work with property owners and DNREC towards acquiring land or creating a public easement for trail access.
- Investigate and seek funding for park and trail improvements / amenities. Contact DNREC's Grants and Community Assistance Administrator to discuss opportunities through the Delaware Land and Water Conservation Trust Fund. See Section 3.4 Potential Funding Sources.
- Promote the walking trail, Town Park and other attractions as part of the Bayshore Byway Discovery Zone experience.
- Encourage use of Town-owned vacant land for seasonal or short-term uses such as a farmer's market or community events.

## 2.8 Transportation

### 2.8 a. Background

Route 8 is the primary road that connects the Town to Dover and the rest of Delaware via State Route 1. Main Street / State Route 9, which runs through the center of Town, connects Little Creek with Leipsic to the north and with DAFB to the south. Port Mahon Road intersects Main Street and provides access to Port Mahon and

the Delaware Bay. The local residential streets are Wilson Lane, Bell Street, and Lowe Street. Thompson Lane connects Main Street to Wilson Lane, primarily serving the Little Creek Volunteer Fire Department. See **Map 12 - Roads**.

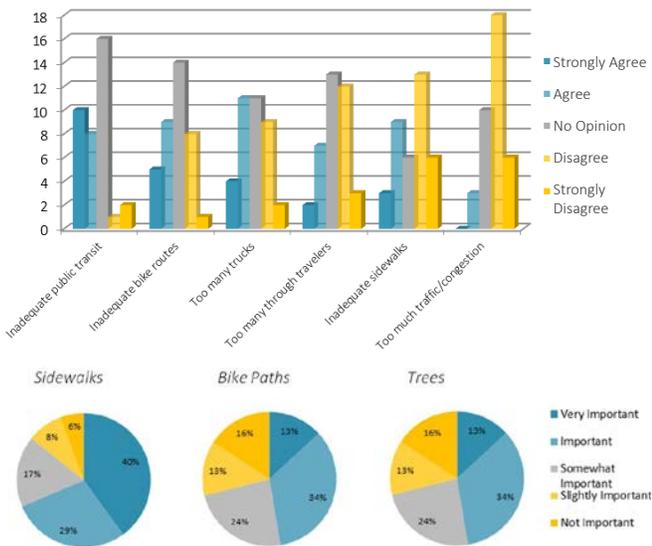
Little Creek's transportation goals are to assure timely maintenance of streets and sidewalks, improve pedestrian connectivity and safety throughout the Town, and improve overall aesthetic and community character. The Town also wishes to establish itself as a destination and attract travelers on the Bayshore Byway to stop and visit area attractions rather than just passing through.

The primary transportation issues include heavy truck traffic and speeding through Main Street, lack of public transit, and frequent flooding and poor drainage. Main Street and Port Mahon Road are also significantly vulnerable to impacts associated with sea level. There is also an opportunity to provide a walking path connecting major features in Town, and to meet future parking needs with on-street parking.

### 2.8 b. Transportation Issues and Opportunities

The transportation question in the 2015 community questionnaire aimed to evaluate existing transportation related conditions in Town. There was general agreement among respondents that there is not adequate public transportation linking Little Creek to larger towns in the area; however, many respondents expressed 'no opinion'. The majority stated that traffic congestion is not a problem in Town. Respondents were more split on the other statements, including the adequacy of sidewalks and biking, and too many through travelers, including trucks, using Main Street. Respondents also ranked sidewalks as a very important community feature and bike paths along main roads as a somewhat important feature. New tree plantings and landscaping also ranked as somewhat important. See **Chart 11: Questionnaire Results, Transportation**.

Chart 11: Questionnaire Results, Transportation



## Town Charter and Codes

Per the Town Charter, the Town Commissioners may pass ordinances *“for the improvement of the streets, paving of sidewalks, and the proper lighting of the streets, and the planning and protection of ornamental trees, and for all other matters relating to the Town of Little Creek”*.

Per the Town Ordinances, property owners are responsible for installation and repair of sidewalks in front of respective properties within Town. The Town may charge owners for improvements to sidewalks if residents do not comply with an order to improve sidewalks. The Land Development currently requires sidewalks and street trees to be provided with new development.

The street names listed in the Town Charter are different than those actively used by Little Creek residents and 911 Emergency Services. Updating the Town Charter will be the simplest course of action to bring into alignment what the current Town practices are regarding street names and what the Charter has listed for street names.

## Public Transit

There are no regular state-operated bus routes passing through the Town. Residents would like to have access to public transportation that connects them to Dover, whereby they would be able to make connections to the rest of the State.

While the U.S. Census 2014 American Community Survey reported that zero of Little Creek’s households did not have a vehicle available, the relatively high percentage of Town residents who either live below poverty level (10.7%), are elderly (20%), or live with a disability (9%), suggest access to public transportation may be beneficial to a significant portion of Little Creek’s population. Further supporting this potential demand for public transportation is the fact that almost 50% of respondents to the questionnaire either agreed or strongly agreed with the statement that there is not adequate public transportation.

There is Paratransit service in Little Creek, 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. Individuals must meet the Americans with Disabilities Act (ADA) requirements to be eligible for this service.

## Maintenance

### Streets

Main Street / State Route 9 is under the control of the State through the Delaware Department of Transportation. The Town maintained streets are Wilson Lane, Bell Street, and Lowe Street. These streets generally are used for residential uses as opposed to serving regional traffic needs. Snow removal for Little Creek is provided by the State. It is also noted almost 70% of respondents were satisfied with street maintenance, and almost 50% were satisfied with snow removal in Town.

There is no long-term budgeting for 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 Section 3.4 Potential Funding Sources.

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.

### Sidewalks

The compact nature of the Town and existence of sidewalks along most of Main Street make Little Creek easy to navigate on foot. The sidewalks extend from the south end of Town, where the commercial zoned properties and waterfront area are located, to Port Mahon Road, where the Town Park and Post Office are located. Ensuring future pedestrian-friendly infrastructure will entail maintaining these sidewalks. The survey results did not indicate any significant issues with current sidewalks but some segments could benefit from repair as they have cracked or shifted over time. As the commercial district and waterfront area develops, it will be important to improve and extend sidewalks where needed.

Figure 19: Sidewalks



The sidewalks are generally well-maintained (left). This gap in the sidewalk near the bridge and future boat ramp and fishing pier is one area that should be connected (right).

### Through Traffic

With Route 9 traveling through the center of Town, regional traffic often passes through. While much of the regional traffic is unavoidable, residents are concerned about the heavy truck traffic that frequently travels down Main Street. A significant amount of this truck traffic is related to DAFB activities. Heavy truck traffic can significantly stress roads causing an increased need for street maintenance. Heavy truck traffic can also impede the Town's goals and strategies to become a more pedestrian-oriented community. Regulations are in place to limit what vehicles can pass through Little Creek, but more needs to be done to enforce these regulations. It is also anticipated there will be increased travelers between Little Creek and the Air Mobility Command Museum at

the Base, since both are Discovery Zones on the Delaware Bayshore Byway.

It is noted that the DAFB has community outreach activities that involve the residents of Little Creek. For instance, the Base personnel held "Air Force Community Partnership Meetings" in the summer of 2015, and also conducted a 'Traffic Control in the vicinity of Little Creek' initiative.

Figure 20: Through Traffic



Tri axle and quad axle trucks are a common sight on Main Street.

Residents have also expressed a need to slow speeding vehicles through Town. A DeIDOT speed study may be needed to substantiate these concerns and create an engineering document of record. While there are negative impacts with Route 9 through traffic, there is also an opportunity to attract travelers on the Bayshore Byway to patron Little Creek establishments.

### Streetscape Improvements

An enhanced streetscape is a critical component to achieve the Town's vision and goals for redevelopment and improved community character. Town residents have expressed serious concerns with the highway scale utilities, lighting and signage dominating the streetscape and negatively impacting the Town's community character and quality of life. This visual noise is the result of cluttered utility poles and wires, and highway scale 'cobra head' style street lights and signage that are designed for cars passing through Town rather than those who live in Little Creek. The scale and intensity of these utilities and features are more appropriate for the highway, not an historic community. As evident by resident's concerns about speeding discussed

above, vehicles subsequently appear to treat Main Street as a highway. The Town leaders call upon DeIDOT to work with the Town for context sensitive change.

There is a clear need for streetscape improvement projects along Main Street that not only improve the appearance of Little Creek, but also calm vehicular traffic as they enter Town, promote safe pedestrian mobility, and assist to stimulate economic activity.

Figure 21: Main Street



*A visually wide and straight street does little to discourage speeding. Main Street would benefit from streetscape amenities and traffic calming measures.*

Figure 22: Traffic Calming Measures



*Street in Townsend, DE before traffic calming improvements.*



*Rendering of street after traffic calming improvements. (source: DeIDOT)*

## On-Street Parking

There is on-street parking available on Main Street that adds to the Town's overall parking supply, and is most used by residents. There are no markings that indicate that parking is permitted. The available on-street parking may be an important asset as the commercial district and waterfront area redevelops. With limited developable land due to environmental features and the Town's goals to limit impervious area, on-street parking provides an option to meet parking requirements. On-street parking also offers convenience to visitors to park near a venue and generates street movement and activity, which adds to overall vibrancy. It also acts as a traffic-calming and pedestrian safety measure as drivers must slow for other cars parking, and the parked cars visually narrow the street and provide a barrier between the street and sidewalk.

Figure 23: Street Parking



*The east side of Main Street provides a sufficient supply of on-street parking.*

## Bayshore Byway

Delaware's Bayshore Byway links multiple Delaware coastal towns and natural areas by means of a physical route as well as shared vision, mission, and goals to protect the region's rich maritime heritage and abundant natural resources. Along the Byway are designated "Discovery Zones", including Little Creek, which are "destinations that embody activity areas where travelers can learn about the Byway, engage in outdoor recreational activities and other byway pursuits and events, and are directed

toward visitor amenities. The Byway Corridor Management Plan (CMP) sets forth the State’s Bayshore Initiative and tells the story and the aspirations of each Discovery Zone. The CMP also sets forth tools to preserve and enhance the Byway, and how various agencies and stakeholders can work together to implement the recommendations. Little Creek embraces its role as a Discovery Zone and this Comprehensive Plan seeks to augment and build upon the strategies and recommendations provided in the CMP.

The transportation strategies herein, coupled with other community development strategies throughout this Comprehensive Plan, will help increase the economic viability of the Town’s commercial district / waterfront and strengthen the Town’s role as a Discovery Zone along the Delaware Bayshore Byway. The strategies herein aim to attract travelers on the Bayshore Byway to stop and visit attractions in Town, Port Mahon and Pickering Beach. The opportunities and recommended actions for the Little Creek Discovery Zone in the Bayshore CMP include:

- Improve access to Little River, specifically to construct a boat ramp and fishing area, and seek water-related commercial businesses.
- Improve the Port Mahon waterfront to maintain public safety while maintaining educational and scientific aspects.
- Establish Guided Tours for Pickering Beach.
- Convert the Old Stone Tavern into an Interpretative Center.
- Improve signage that helps visitors find their way to area attractions.
- Develop a walking trail behind the Old Stone Tavern to the Little River.
- Investigate traffic-calming measures and traffic law enforcement to address speeding, and make it more pedestrian-friendly.

Figure 24: Delaware Bayshore Byway

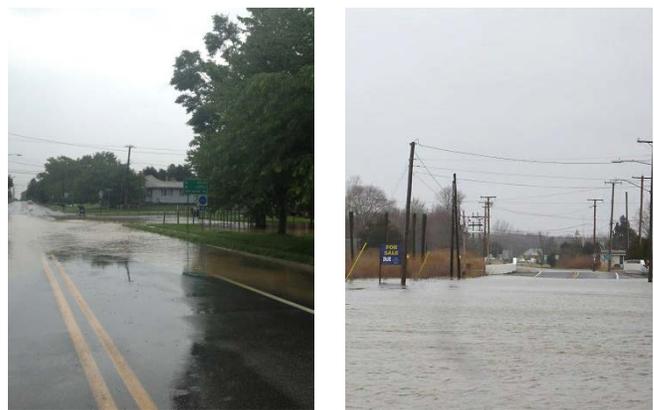


Being a Discovery Zone along the Delaware Bayshore Byway offers a significant opportunity for bringing more people into Little Creek.

## Drainage/ Flooding

Main Street has significant flooding issues that can potentially render the road impassable, especially during significant rain events at periods of high tides. The main issues occur on the south end of Town, from Lowe Street to the River, and on the north end of Town at the Post Office and the Port Mahon Road intersection. These issues are caused by tidal flooding that are exacerbated by stormwater drainage issues on specific properties. Port Mahon Road leads from the center of Town out to Port Mahon, which is located on the Delaware Bay. With the road being surrounded on all sides by wetlands, it is often subject to flooding and is subsequently inaccessible much of the time. In order to keep the Delaware Bay useable and accessible to residents, Port Mahon Road needs adequate drainage and flood management to ensure the road’s long-term use. Stormwater management and flooding issues are discussed in more detail in Section 2.6 b. Recommendations: Public Utilities, and Services and Section 2.3 Current Flood Hazards.

Figure 25: Flood Hazards on Main Street



Main Street experiences frequent flooding, and is impassable at times. Flooding near the Post Office is believed to be exacerbated by a silted ditch downstream (left). Flooding on Main Street during a March 2010 nor’easter. This level of inundation, currently only seen during storm events, may become the future water level during high tides as a result of sea level rise (right).

## Sea Level Rise

Main Street, from Lowe Street to the Little River Bridge, is within the 0.5m “Low” scenario and has a high probability of being inundated and impassable on a daily basis by the end of the century if no mitigation measures are taken. The intersection of Main Street and Port Mahon Road

is within the 1.5m “High” scenario; under this scenario, impact to transportation is significant since inundation here would potentially block both northern and southern evacuation routes.

Future sea level rise will likely lead to the need to raise the bridge over the Little River at the south end of Town. The current bridge deck sits at 6.4ft NAVD88, with substructure below. That substructure would be impacted by high tides under all of the sea level rise scenarios. For planning purposes, it is estimated the bridge would need to be raised 6 feet and require approaches of at least 100 feet. The Town should expect impacts to the commercial parcels adjacent to the Little River including vehicle access, parking, and lot encroachment from fill material. The 25 mph speed limit should act to minimize the new bridge footprint, and should be retained. It is unlikely the new bridge will be high enough to allow vehicular or pedestrian traffic to pass underneath it along the waterfront. Pedestrian crossings on Main Street will be hindered by the grade changes near the new bridge. The new bridge may provide a vantage point over the marshes to the east.

Figure 26: Sea Level Rise



Water level during a 2010 nor'easter nearly reaching the Little River Bridge deck.

The evacuation route for Little Creek is Route 9 North (Main Street). Evacuations could be compromised due to the blockage of Main Street by future flooding. Under all sea level rise scenarios, portions of Main Street are expected to flood with regularity, potentially preventing some residents from freely traversing the evacuation route. Northbound and southbound evacuation routes could simultaneously be cut off by the current drainage issues near Port Mahon Road (if unabated), in addition the expected high-

frequency nuisance flooding due to sea level rise. It is noted that traffic calming measures discussed in this section would not only routinely slow vehicular travel speeds, but could also enhance safe passage through Town during flooding events.

### 2.8 c. Recommendations: Transportation

#### Town Charter and Codes

- Update the Town Charter to list the Town’s street names as they are currently being used.

#### Public Transit

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

#### Streetscape Improvements

- Coordinate with Kent County MPO and DelDOT to select, design and install streetscape improvements and traffic calming measures along Main Street that would beautify the street and improve pedestrian safety and comfort. The following options were discussed during community outreach process:
  - Install medians, curb bump-outs and crosswalks at intersections of Port Mahon Road, Wilson Lane, and Lowe Street. Medians and / or curb bump-outs may also be appropriate at the north and south boundaries of Town to slow traffic as they enter Town.
  - At intersections, restripe the center lines to create wider medians and narrower travel lanes.
  - At intersections, install crosswalks and curb ramps that comply with the Americans with Disabilities Act (ADA).
  - Install pedestrian-scale and aesthetic street lighting between Port Mahon Road and Little River. Banners could be placed on the light post to help create a sense of place and instill civic pride. A priority area is the commercial district and waterfront

area. The Town may consider amending the LDO to require pedestrian-scale street lighting as part of new developments.

- At strategic locations and where feasible, plant low profile and low maintenance vegetation. If space permits, consider placing a planting strip between the sidewalk and the curb.
- Provide preliminary design guidelines and a theme for wayfinding signage that would direct travelers to the area's heritage and eco-tourism attractions, such as the Old Stone Tavern, Town Park, the proposed Bayshore Byway Interpretive center, Port Mahon, Pickering Beach, and Little Creek Wildlife Area.
- Investigate the feasibility for creating a designated bike lane on Main Street.

### Through Traffic

- Request DeIDOT speed study to substantiate residents' concerns about speeding and to better assess the needs for improvements.
- Evaluate both enforcement and design based solutions to slow traffic on Main Street.
- Work with DeIDOT and DAFB to restructure traffic flow of large trucks that pass through Town. Evaluate the need for additional weight and time restrictions, as well as increased enforcement of restrictions.
- Continue to strengthen partnership with DAFB by participating in community outreach activities, providing input on traffic control studies, and inviting Base personnel to Town meetings.
- Evaluate the need for an agreement or Memorandum of Understanding (MOU) with DAFB and its vendors for shared responsibility to mitigate impacts associated with Base related traffic through Town. Investigate possibility of a cost sharing measure to increase State Police service for enforcement of speed and other traffic related regulations.

### On-Street Parking

- Consider incorporating signage along Main Street to identify on-street parking.
- Consider striping existing parking areas along Main Street so it is easily identifiable.
- Consider amending Article 14 Parking of the LDO to allow on-street parking spaces to

be counted towards meeting the minimum number of parking space requirements

### Bayshore Byway

- Coordinate with DeIDOT to implement the recommendations in the Delaware Bayshore Byway Corridor Management Plan.

### Drainage/ Flooding/Sea Level Rise

- Work with DeIDOT to raise Route 9 / Main Street and Port Mahon Road, or accept access limitations.
- Identify road system improvements and maintenance in providing for emergency access and safe evacuation routes.
- Plan for a reconfiguration of parking and access to commercial parcels in light of an elevated Route 9 and / or a new elevated bridge over Little River. Work with DeIDOT to minimize impact of new bridge approaches to those commercial properties.
- Plan for alterations of pedestrian crossings and bicycle routes to ensure public safety in light of an elevated Route 9 and / or new elevated bridge over Little River.

### Maintenance

- Town leaders or staff should consider seeking training and assistance from the Delaware Center for Transportation at the University of Delaware to establish maintenance schedules, inspections, lifecycle costing, and budgeting for Town maintained streets. This will become more important as the Town begins to see more streetscape amenities, such as lighting and traffic calming measures.
- As the commercial district and waterfront area develops, it will be important to improve and extend the sidewalks, where needed. The sidewalk should be extended to the proposed fishing pier and boat ramp / dock.
- Improve pedestrian orientation by adequately maintaining existing sidewalks, installing / repairing sidewalks to fill in the gaps, and where possible and appropriate, expanding the sidewalk network to those not already served by sidewalks.
- Ensure sidewalks and crosswalks are ADA compliant.

Also refer to Section 2.9 Community Character and Design for further recommendations on coordination with DAFB and Section 2.8 d. Potential Funding Sources for Transportation.

## 2.9. Community Character and Design

### 2.9 a. Background / Context

The Town was originally established around the Little Creek Landing, which provided boat access to the Delaware Bay via the Little River. As one of the smallest communities in Delaware, Little Creek residents enjoy a tranquil, rural atmosphere. Though not located far to the east of Dover, Little Creek has had their small-town atmosphere protected and enhanced by the wetland areas to the east of Town, and the farmland areas to the north, south, and west of Town.

In planning for its future, the Town must consider its historical maritime heritage, desired future commercial growth, and implications of flooding and sea level rise. A community's character is defined by its built environment, in terms of its buildings, 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.

Little Creek's character can generally be described as a residential small-town with a strong maritime cultural and natural heritage. The majority of the homes in Town are single-family with front porches built up to the sidewalk. Key community features, such as the fire company, which hosts Town meetings and events, Post Office, Town Park, and the waterfront are all easily accessible for pedestrians. The proximity to DAFB also influences community character.

This section identifies issues surrounding these elements and strategies to preserve or enhance them.

### 2.9 b. Community Character Issues and Opportunities

#### Maritime Cultural and Natural Heritage

Little Creek is surrounded by rich biodiversity and

abundant natural resources, which contribute to the Town's maritime cultural heritage and community character. Little Creek offers visitors a glimpse, and locals a lifestyle, of a bygone and rejuvenating maritime era. "The business and fishing related activity on the waterfront in Little Creek has been in decline since the mid- to late-1960's. Now devoid of activity, the Town seeks to revitalize the existing waterfront."<sup>13</sup> While the area does not have the thriving maritime industries it once had, wildlife refuges, estuarine reserves, conservation lands, agricultural preserves and historical sites, and of course Little River, remain. Little Creek is a place where people are able to connect with history and nature as it provides a gathering place and access point to the pristine Little Creek Wildlife Area, Port Mahon and Pickering Beach.

It is for these aforementioned issues and opportunities that Little Creek is distinguished as a Discovery Zone along the Delaware Bayshore Byway. "Discovery Zones" direct enhancements and activity to areas capable and desirous of supporting eco-tourism activity while maintaining the Byway character. For the visitor, Route 9 serves two purposes. First, it is the Byway spine, providing access and directing activity into 10 Discovery Zones. Second, it offers a quiet journey back to a less developed time with many natural and historic scenic vistas from its pastoral roadside. Discovery Zones are small towns and natural areas of concentrated attractions and potential new enhancements."<sup>14</sup>

These issues and opportunities are also the reasons why the University of Delaware's Sustainable Coastal Communities prepared a Working Waterfronts Initiative that provides "sustainability strategies for preserving and maintaining the State's traditional maritime communities", including Little Creek. The report presents findings resulting from a community outreach process that are "used to inform the stakeholders in Little Creek and the State's resource managers about the potential for enhancing life in Little Creek community and surrounding associated areas."<sup>15</sup>

Updating and reinventing this maritime heritage, while building upon the strategies in the Corridor Management Plan and the Working

<sup>13</sup> *Town of Little Creek Working Waterfront Initiative, U. of Delaware's Sustainable Coastal Communities Initiative, Institute for Public Administration, 2016.*

<sup>14</sup> *Delaware Bayshore Byway Corridor Management Plan, Delaware Greenways, November 2013.*

<sup>15</sup> *Town of Little Creek Working Waterfront Initiative, U. of Delaware's Sustainable Coastal Communities Initiative, Institute for Public Administration, 2016.*

Waterfront Initiative, are key land use and community development goals for the future. Opportunities related to cultural heritage and economic development, along with strategies moving forward, are presented throughout this Comprehensive Plan, the Corridor Management Plan, and the Working Waterfront Initiative.

### Land Use and Design

As discussed in Section 2.2 Land Use Plan, the predominant land uses within Little Creek are residential and agricultural. The majority of houses in Town are detached single-family. Like most historic homes, they are typically on smaller lots than modern homes. Another characteristic of historic houses and buildings are small setbacks from the street with front porches built up to the sidewalk. The Town values the historic character of Little Creek, and has identified this as a desirable asset that should be maintained.

The Town is surrounded by largely agricultural, open spaces, and wetlands / marshes that define its rural character and create strong boundaries. The Town developed both economically and geographically around Little River and the proximity to the Delaware Bay. Wetland regions within Town surround the river and dominate almost the entire eastern portion of Town. A larger discussion on protecting natural resources (wetlands, marshes, riparian corridor) is provided in Section 2.2 Land Use Plan.

Little Creek has some land left within the Town that could be developed. A single development could greatly alter the character of the Town. It is imperative new development be compatible with the Town's neighborhood scale and rural context, and protect both its natural and historical heritage.

### Property Maintenance

Per the 2014 American Community Survey, 80% of Little Creek's housing units were built before 1960. Also per the 2014 ACS, Little Creek has a relatively high level of residents living below the poverty level (11%), a population older than 65 years (18%), and residents age 21 or older with a disability (9%). There is also significant renter-occupancy rate (21%) of occupied households. Generally, rental properties do not have as much

attention paid to maintenance.

These aforementioned housing and demographic trends have implications related to property maintenance. Older homes are generally associated with an increased need for and greater maintenance expense than newer homes. Those in the elderly population and those living with a disability are often less able to adequately maintain their properties. 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. There are some house exteriors in Town that are visibly in need of repairs, ranging from major construction to simple painting.

### Vacancies

Per the 2014 ACS, 13 of the Town's 87 households are vacant. Vacant houses within Town raise both aesthetic and public-safety issues.

As discussed throughout this Plan, the commercial district is mostly vacant. Traditionally, neighborhood-scale commercial retail uses in towns primarily serve the needs of 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 the expansion of these uses within the Town.

### Historic Resources

Little Creek's historical context, strong maritime heritage, and small-town atmosphere set it apart from other Delaware municipalities. The Town is adjacent to the Little Creek Hundred Rural Historic District, a historic district listed in the National Register of Historic Places. This district is recognized for its agricultural landscape. The Town of Little Creek has four properties individually listed in the National Register of Historic Places, which are part of the Multiple Resources of Leipsic and Little Creek (K03057). The four listed buildings are:

- Elizabeth Stubbs House
- Jonathon Woodley House
- Little Creek Methodist Church
- Old Stone Tavern

In addition, Delaware's State Historic Preservation Office (SHPO) has defined an eligible historic district within the Town, the Little Creek Historic District (K06969).

Figure 27: Historic Structures



Historic Structures in Town (clockwise): Old Stone Tavern, Elizabeth Stubbs House, Jonathan Woodley House, and the Methodist Church.

It is important that the Town protect its historic character by maintaining the current historic structures and encourage any new construction to be consistent with the historic style of the current homes. The Town may want to establish a historic zoning ordinance and incentives to protect the historic properties. A major benefit of listing properties in the National Register of Historic Places is that it makes properties eligible for financial incentives in the form of federal, state, and county historic preservation tax credits and occasional grants. Such financial incentives will help in maintenance of the aging housing stock.

Also, as discussed in Section 2.4 Sea Level Rise Vulnerability and Adaption, the Town's historic buildings are at risk to flooding associated with extreme coastal storms sea level rise.

## Dover Air Force Base

Town residents have expressed economic and health concerns associated with noise and air pollution and potential crash risks caused by the DAFB. Low flying aircraft during take-off and landing, test flights and training are believed to have a significant impact on property values in Town, the quality of life for residents, as well as wildlife in the Little Creek Wildlife Area.

The Air Installation Compatible Use Zone (AICUZ) is an important part of Little Creek's surrounding environment because of the close proximity to the DAFB. The mean noise decibel for the southern half of Town is 65dB, but the northern half of Town is 70dB, defined in the 2010 AICUZ study published by the DAFB. Noise levels in excess of 65dB are considered harmful to human health. Homes built in the northern half of Town need to be constructed in a manner that will minimize noise effect felt by the residents. Kent County and the City of Dover have adopted sound attenuation zoning overlays requiring homes to be insulated against the noise of air traffic from DAFB related to the AICUZ. In the City of Dover, provisions are outlined in the Zoning Ordinance, Article 3 Section 22, Airport Environs Overlay Zone (AEOZ).

The DAFB also has an Air Accident Zone Area which displays the risk of an aircraft crashing upon takeoff or landing. The zone with the highest probability of impact is located just to the west of Little Creek. While this does not affect the Town directly, it does place limitations on what can be done with any land west of Town.

As discussed in the Transportation section, a primary concern of residents was heavy truck traffic and speeding through Town. Main Street (DE Route 9) is a primary access route for the Base, which brings a significant amount of heavy trucks and service vehicles through Town. It is also anticipated there will be increased travelers between Little Creek and the Air Mobility Command Museum at the Base, since both are part of Discovery Zones on the Delaware Bayshore Byway. Refer to Section 2.8 Transportation for a more detailed discussion on through traffic.

It is noted that DAFB may have security concerns associated with any potential development around Town given the close proximity to the base. Any consideration of annexation or adding parcels to the Town's annexation area should be coordinated with the DAFB. Likewise, the Town requests that any plans for major improvements or expansions involve input by Town residents.

Figure 28: Low flying aircraft over Little Creek



**2.9 c. Recommendations: Community Character**

**Land Use and Design**

- Encourage new development to fit the Town scale and context by connecting any new streets to the existing Town street system and arranging lots and setbacks consistent with the existing built environment.
- Explore Agricultural Preservation and greenbelt options to protect Little Creek's distinct character within a rural setting.
- See the land use, agricultural preservation and greenbelt recommendations in Section 2.2 Land Use Plan.
- Update and reinvent maritime heritage by building upon the Town's role as a Discovery Zone, and carrying-out the strategies in the Working Waterfronts Initiative and this Comprehensive Plan.

**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, including state and federal funding sources.
  - 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.
- There are several programs available to Little Creek and property owners that are designed to aid the repair of housing and the preservation of historic resources. See Section 3.4 - Potential Funding Sources.

**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 the properties do not pose a public safety risk to the Town's residents.
- There are deteriorating pilings on a private vacant parcel adjacent to the river. The pilings were likely treated with chemicals that are harmful to the environment and are unsightly. The Town would like these pilings removed.
- See Section 2.10 Redevelopment for recommendations related to the infill and reuse of vacant and underutilized parcels.

**Historic Resources**

- Coordinate with the Division of Historical and Cultural Affairs to list the eligible historic core in the National Register of Historic Places.
- Consider adopting an historic zoning ordinance, and / or architectural standards. Historic zoning standards should have a review process that provides 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.
- Explore Historic District Funding Sources. The creation of a designated historic district would create funding opportunities for improving the condition of structures that contribute to the 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. See Section 3.4 Potential Funding Sources.
- Work with the State Historic Preservation

Office (SHPO) and Kent County’s Preservation Planner to publicize availability of these funds and to assess the capability for rehabilitation of structures within the historic district.

- For historic properties within the floodplain and sea level rise inundation areas, ensure integrity of historic structures while minimizing loss and damage from hazard events. Explore ways to integrate historic and cultural resources into hazard mitigation planning.<sup>16</sup>

### Dover Air Force Base

- Consider developing an ordinance, in consultation with the county, requiring new homes be equipped with sound insulation. The county and Dover use such ordinances to minimize noise disturbance.
- Continue to strengthen the partnership with DAFB by participating in outreach activities, providing input on traffic control studies, and inviting base personnel to Town meetings.
- Evaluate the need for an agreement with DAFB for shared responsibility to mitigate impacts associated with base related activities. The agreement may address items such as truck traffic, noise attenuation, new development, and stormwater runoff into the watershed.

## 2.10 Redevelopment

### 2.10 a. Issues and Opportunities

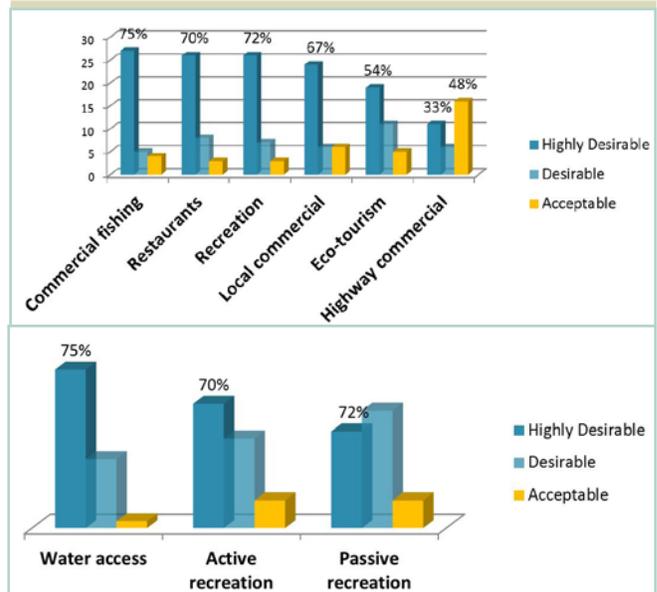
#### Commercial District / Waterfront

The Town’s designated commercial district is located from Lowe Street to the south side of the Little River Bridge. It consists of 12 parcels on about 13 acres. Today, the area is mostly vacant. The area is identified as an economic development zone. The Town’s vision is to revitalize the waterfront and commercial district restoring and reinventing their maritime cultural heritage with low impact, context and environmentally sensitive development in this area. With this vision in mind, the Town’s redevelopment strategies include directing compatible infill development on vacant and underutilized properties in Town, promoting place-making design principles, and promoting the Town’s natural, cultural and recreational assets.

Redevelopment will conserve and enhance the area’s maritime and recreational character, will recognize the vulnerabilities and sensitivities of the unique waterfront environment, and will reinforce appropriate safeguards to minimize risks to flood hazards and sea level rise inundation.

The Little River waterfront area presents unique advantages and exciting opportunities to reinvent Little Creek as a flourishing and eco-friendly bayshore Town. The need for commercial and recreational opportunities was expressed by residents in the 2015 community questionnaire. When asked what types uses they would like to see in Little Creek, respondents stated commercial fishing (75%), restaurants (70%), recreation (72%), and local commercial (67%) as the most desirable uses. When asked what additional facilities or institutions they want in Town, respondents rated water access (75%), active recreation (70%), and passive recreation (72%) as most important.

Chart 12: Questionnaire Results, Activities



There are multiple redevelopment, recreation, and community character opportunities that could be achieved with the development of these waterfront properties while planning for hazard mitigation and sea level rise adaptation. First, lands that can be commercially developed through freeboarding, flood proofing, or other flood protection measures offer an opportunity for maritime related uses such as a crab shack, seafood restaurant, bait and tackle shop, boater

services, and other similar uses. Second, riparian corridor and adjacent open space that are not available for commercial development due to environmental constraints offer astounding and unique recreational and civic use opportunities. The lands provide access to the recently dredged and now navigable river, which provides access to the Delaware Bay. The lands also offer an opportunity for low impact development such as a park, farmer's market, community events, and a pedestrian trail. Third, as it is the gateway into Town, redevelopment of this waterfront area would let people know they have arrived in a unique, historic and charming place, instilling a sense of place and civic pride. Lot, building and streetscape improvements would help improve overall appearance and property values of the Town as a whole.

### **Maintenance of Residential Houses**

Although the majority of houses in Little Creek are well maintained, there are some residential properties in Town that are in poor condition and in need of repair and maintenance. Their redevelopment will improve the aesthetic appeal of the Town and has the potential to improve property values throughout Little Creek. The Town needs to remain cognizant of property maintenance issues because older homes, which make up most of the housing stock in Little Creek, often have more maintenance issues than newer homes.

### **2.10 b. Recommendations: Redevelopment**

#### **Waterfront Development Plan**

Seek funding to prepare a conceptual waterfront development plan for the area surrounding Little River. The conceptual plan will maintain maritime heritage and eco-tourism as guiding themes. The plan will also balance community development efforts with mitigating the negative impacts associated with flood hazards and sea level rise. In addition, the plan will aim to transition the vacant parcels to recreational, civic, and light maritime commercial uses that will reconnect residents and visitors to the Little River. Towards achieving these goals, the plan should specifically address the following:

- Provide a site inventory and analysis to help better understand existing topographical and hydrological conditions, including natural features, flood hazards, projected SLR inundation areas, wetland permitting requirements and other constraints and opportunities.
- Highlight proposed boat ramp and fishing pier as the key priority project and a focal point of the waterfront area, which could be a catalyst towards achieving the Town's maritime redevelopment, recreational, and eco-tourism goals.
- Provide preliminary design guidelines for trails, pedestrian safety, and connections to the Town Park and historic attractions. The assessment and recommendations should augment the Town's status as Discovery Zone along the Bayshore Byway.
- Identify areas and provide preliminary design guidelines for green infrastructure, such as pervious parking, rain gardens, bio-swales, riparian buffer enhancements, wetland restoration, and a living shoreline.
- Encourage investigation of the coincident construction of higher bulkheads or earthen embankments on both banks of the river while features like the boat ramp and fishing pier are constructed. Such barriers have the potential to mitigate nuisance tidal flooding, preserve upland, and enhance accessibility to river-adjacent recreational features.
- Provide preliminary design guidelines for low-impact parking areas.
- Recommend public access to the river and recreation trail.
- Describe environmental educational opportunities for wetlands, sea level rise effects and adaptation, and bio-diversity.
- Provide preliminary design guidelines and a theme for wayfinding signage that would direct travelers to the area's heritage and eco-tourism attractions, such as the Old Stone Tavern, the Town Park, the proposed Bayshore Byway Interpretive Center, Port Mahon, Pickering Beach, and Little Creek Wildlife Area.
- Protect and promote scenic views and recreational opportunities like fishing and boating.
- Further evaluate specific recommendations to implement "maritime zoning" standards.

- Coordinate with DNREC, DeIDOT and the OSPC when preparing the Waterfront Development Plan.
- Incorporate traffic calming measures that would not only slow vehicular travel speeds, but could also enhance safe passage through Town during flooding events.
- Include public input on conceptual planning process.

By articulating and illustrating a shared vision for the area, this conceptual waterfront plan would be the Town's marketing and promotion tool to share with property owners, potential builders and stakeholders towards attracting context and environmental sensitive development. Doing so would strengthen the Town's role as a Discovery Zone along the Bayshore Byway, and would help achieve the Town's maritime heritage and eco-tourism goals.

Waterfront Redevelopment efforts, including the waterfront plan, should be implemented concurrently with the Comprehensive Flood Mitigation and Wetland Restoration Program discussed in Section 2.4 d. Sea Level Rise Vulnerabilities.

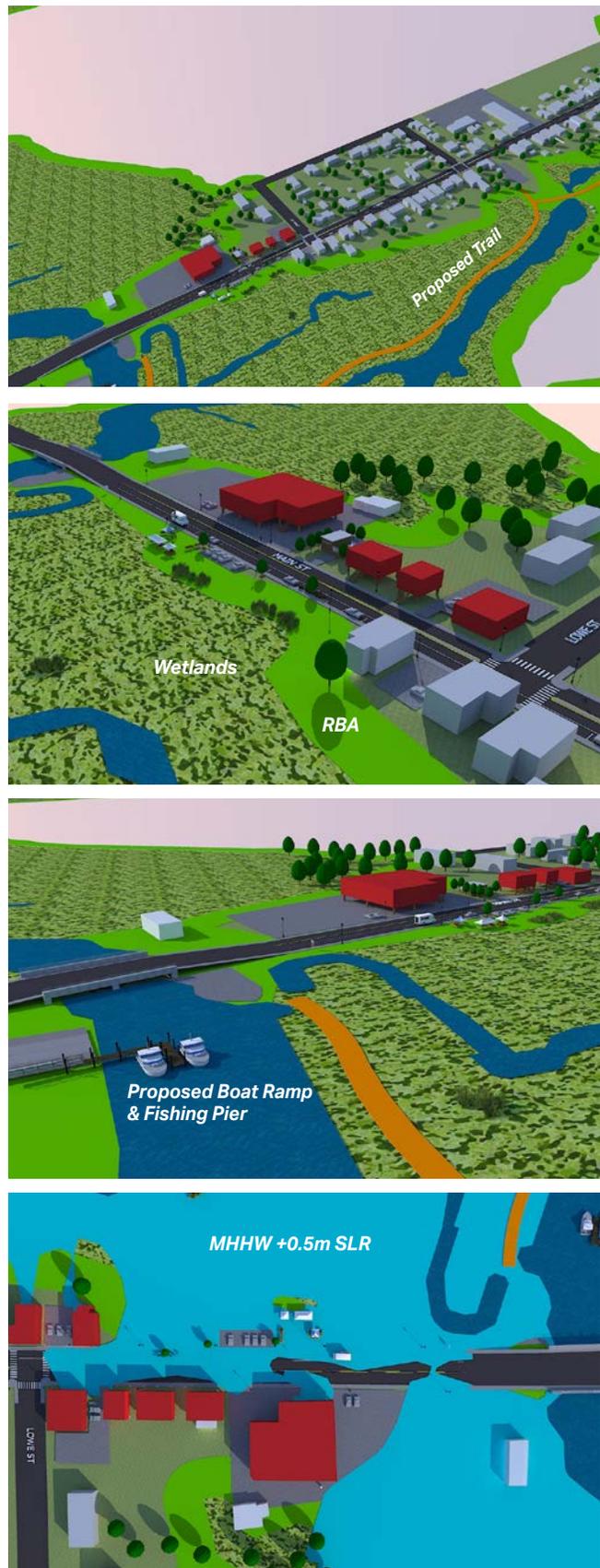
### Maritime Zoning

Amend the LDO to include new "maritime zoning" standards for areas surrounding Little River. See Section 2.2 d Recommendations: Land Use Plan and Section 2.4 f Adaptation Strategies and Recommendations.

### Code Enforcement

Little Creek should continue to work with the County to enhance inspections and enforce the property maintenance codes as well as other Town codes.

Figure 29: Illustrative Renderings of Commercial District



Renderings illustrate potential commercial and waterfront redevelopment strategies. Delineating the wetlands, riparian buffer area (RBA), and the sea level rise (SLR) inundation area will be imperative for long-term success of redevelopment. See Appendix D- Illustrative Plan.

# Chapter 3

## Implementation



The Old Cavaliers East

### 3.1 Background

The Implementation Plan is intended to function as the principle implementation tool for the Town of Little Creek Comprehensive Plan Update. It will assist Town officials in coordinating planning actions with other government agencies and making decisions in a timely, systematic manner.

### 3.2 Intergovernmental Coordination

The Town of Little Creek recognizes that interactions with county and state agencies are necessary to help the Town achieve its comprehensive planning goals. The Town also recognizes that land development activities occurring within Little Creek and on the county lands surrounding the Town will affect the quality of life of all of the people living and working in this region. Many of the recommended planning initiatives, studies, and land development ordinance amendments involve other agencies, particularly the State, region, and Kent County. Coordinated efforts may be 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 a necessity as plans are implemented. The Town will need to coordinate with Kent County as well as the applicable State agencies, identified in Table 17 - State Agencies.

Little Creek should maintain on-going dialogue with the OSPC and the Kent County Circuit Rider Planner. The Circuit Rider can help the Town with a variety of issues including assisting the Town in updating its zoning ordinance, providing assistance with identifying the appropriate contact people within State or county departments, identifying funding for programs developed to assist the municipalities in Delaware, and providing direction on alternatives to locating data and information the Town may need in its efforts to apply for loans and grants.

It would be of great benefit to both the Town and the county to enhance a cooperative and open relationship. Little Creek should contact Kent County and initiate discussions on matters for which the Town may be interested in receiving assistance from Kent County, such as planning or administrative matters. Likewise, the county may find this enhanced relationship can help keep the county informed of matters it may not be aware of occurring within the Town of Little Creek.

Finally, Little Creek should continue to maintain its relationship with the City of Dover. In the future, the municipalities may find there are services available from Dover or matters in which each municipality can provide mutual assistance (e.g., public safety).

Table 17: State Agencies

Element	State Agency
Transportation	Delaware Department of Transportation (DelDOT); Kent/Dover Metropolitan Planning Office (MPO)
Historic Preservation	State Historic Preservation Office (SHPO); Division of Historical and Cultural Affairs (DHCA)
Economic Development	Delaware Economic Development Office (DEDO)
Environmental	Department of Natural Resources and Environmental Control (DNREC)
Planning / Coordination	Office of State Planning Coordination (OSPC)
Housing	DE State Housing Authority (DSHA)

#### Delaware Code | State Planning

##### Zoning

The zoning map is a key implementation tool. Delaware law requires that the comprehensive plan be the basis for 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.)

The Town's Official Zoning Map is consistent with the Land Use Plan and zoning regulations.

*Annual Report*

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

**Coordination Recommendations**

- Attend meetings of State agencies, Kent County, and Dover/Kent MPO regarding planning issues that may affect Little Creek.
- Invite county and State agencies and other stakeholders to Town meetings 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 Little Creek.
- Coordinate with OSPC on any significant land development changes and applications.
- Submit annual progress reports on the implementation of the Plan to OSPC.
- Pursue formal Memorandums of Agreement with Kent County and Dover to mutually support one another.
- Periodically evaluate the need for agency coordination, additional staff and / or contractual services to implement the Town's plans, studies, and land development ordinance amendments and to continue to provide adequate levels of services for residents.

**3.3 Implementation Summary**

Table 18: Implementation Summary 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 the Town will have to address in the more distant future. The recommendations are grouped into three categories: Short term, Long term, and On-going.

In general, the Town should aim to initiate the short term implementation items immediately, as feasible, and the long term items should be in progress before the next 10 year update. On-going items are recommendations that will occur on an on-going basis. The general timeline is based on the Town's established priorities and key goals, the realistic expectation to achieve in a certain timeframe, and the feasibility considering resources, such as available funding and staff. The majority of the action items will require significant intergovernmental coordination.

The key planning strategies and high priority implementation items are identified in the table. These **"Key Strategy"** items focus on restoring the Town's maritime cultural heritage, redeveloping the commercial district, and becoming a flood hazard and sea level rise resilient community.

This table will further serve as a checklist for the Town in implementing the Plan. All of these items will need to be reevaluated during the next required five year review.

Table 18: Implementation Summary

Strategy / Action Item	Coordinating Agency	Priority	Notes
<b>Land Use and Annexation (Section 2.2)</b>			
Amend the Town Charter updating the Town boundary to reference official map and record map at Kent County Recorder of Deeds	State legislature	Short-term	
Amend the Commercial District to include new "maritime zoning" standards		Short-term	
Enter into a Memorandum of Understanding (MOU) with Kent County	County	Short-term	
Continue dialogue with citizens, local farmers, and the Department of Agriculture to preserve agricultural uses and expand a greenbelt	DDA; County		Agricultural Preservation Program
<b>Current Flood Hazards (Section 2.3)</b>			
Consider additional design requirements of building foundations	County	Short-term	
Remove any zoning barriers that would prohibit additional freeboard	County	Short-term	See Section 3.5 Recommended LDO Amendments; Article 8
Consider adopting Coastal A Zone building requirements for the properties affected by LiMWA		Short-term	
Consider extending the floodplain protection measures to include the 0.2% annual chance floodplain	County; DNREC	Long-term	
Amend the LDO to provide adequate cross referencing with Floodplain Requirements Ordinance (FRO) and ensure administrative review procedures are in place		Short-term	See Section 3.5 Recommended LDO Amendments; Article 3 and Article 12
Resolve significant drainage and flooding issues within the area of the Town Park and Post Office	County Conservation District (KCD); DNREC	Short-term	
Develop an agreement with stakeholders in the Little Creek Watershed to encourage no-adverse-impact development downstream	County; Dover Air Force Base; City of Dover	Short-term	
<b>Encourage a hydrologic and hydraulic investigation of the Little River</b>	KCD; DNREC	<b>Short-term; Key Strategy</b>	
Consider participating in FEMA's Community Rating System (CRS) program	DNREC; FEMA	Long-term	
Work with residents in understanding flood damage reduction measures, FEMA programs, and potential flood insurance premium savings	DNREC; FEMA	Short-term	
Work towards understanding FEMA's Hazard Mitigation Assistance (HMA) grant programs	DNREC; FEMA	Short-term	
Offer planning and assistance to property owners who have frequent flooding issues and who are interested in voluntary action	DNREC; FEMA	Short-term	

Strategy / Action Item	Coordinating Agency	Priority	Notes
<b>Sea Level Rise Vulnerability and Adaptation (Section 2.4)</b>			
<b>Prepare a Waterfront Development Plan</b>	DNREC	<b>Short-term; Key Strategy</b>	See Section 2.10d. Recommendations: Redevelopment
<b>Amend the LDO to include "maritime zoning" regulations</b>		<b>Short-term; Key Strategy</b>	See Section 2.2d. Recommendations: Land Use
<b>Amend the FRO and LDO to consider the impacts of sea level rise and set forth adaptation strategies</b>	DNREC	<b>Short-term; Key Strategy</b>	See 2.3b. Recommendations: Floodplain Management and Section 3.5 Recommended LDO Amendments
Create incentives to encourage development out of high risk areas or build with additional hazard resistant construction methods		Long-term	
Strengthen the standards of the required Riparian Buffer Area (RBA) through requiring plantings with native vegetation		Short-term	
Remove any barriers that would prohibit flood protection or sea level rise adaptation		Short-term	See Section 3.5 Recommended LDO Amendments; Article 8
<b>Partner with suitable agencies to carry out a comprehensive flood mitigation and wetland restoration program</b>	DNREC, DEMA	<b>Short-term; Ongoing; Key Strategy</b>	
Acquire/protect marshlands adjacent to Town		Short-term	
Raise lands with dredged spoils to create a flood protection barrier and preserve habitat of the wetland flora and fauna		Short-term; Ongoing	
Remove invasive vegetation and plant native species	DNREC's Division of Fish and Wildlife	Short-term Ongoing	See Section 3.4 Potential Funding Sources, Phragmites Control Cost-Share Program
<b>Create a recreational and educational trail through the restored wetlands</b>		<b>Short-term; Key Strategy</b>	
Ensure the pump station is hazard resistant and ensure structural integrity	County Public Works	Short-term	
Consider high hazards while designing and siting of any new water and sewer systems	County Public Works	Ongoing	
Consider amending the FRO to require the finished floor elevation of critical facilities to be placed above the FEMA 0.2% Floodplain	County Public Works	Short-term	
Limit extending sanitary sewer service to high risk areas	County Public Works	Ongoing	
Monitor on-going study by DGS on aquifer quality. Develop contingency plan for obtaining safe drinking water			
Encourage conversion of inundated land to wetland or natural open space, or the development of solar farms	County; DNREC; DDA	Long-term	
Have strategy for the turnover of the properties that become inundated	County; DNREC	Ongoing	
Evaluate additional flood protection measures for properties in the SLR inundation areas	County; DNREC	Long-term	See 2.3b. Recommendations: Floodplain Management
Encourage and support Kent County's adoption of energy, residential building, and property maintenance codes	County; DNREC	Ongoing	
Ensure that any new developments minimize contributing stormwater run-off to flood water receiving areas	DNREC	Ongoing	See Section 2-# Stormwater Management
Monitor and update maps of the current high tide line, wetlands, and the RBA	DNREC	Ongoing	

Strategy / Action Item	Coordinating Agency	Priority	Notes
Monitor updated sea level rise scenarios adopted by the State, and maintain and update relevant plans and ordinances appropriately	DNREC	Ongoing	
Use the sea level rise scenario mapping and the FEMA flood hazard zones in all future planning and review of development applications	DNREC	Ongoing	
Identify effective (heatwave) intervention measures, such as establishing cooling shelters at the Fire Hall	DNREC	Ongoing	Coordinate with the County Hazard Mitigation Plan
Provide public awareness and outreach to current residents, developers, and prospective homebuyers on flood hazards and sea level rise and climate change risks, flood reduction and adaption measures, as well as saltwater intrusion and water supply concerns	DNREC	Ongoing	
Implement Mitigation Actions (#2, 4 through 10, 12 through 14) set forth in the 2015 Kent County Hazard Mitigation Plan. Implement Mitigation Actions, set forth in the 2015 Kent County Hazard Mitigation Plan	County; DE Emergency Management Agency	Ongoing	
Seek funding for sea level rise adaptation	DNREC	Ongoing	See Section 3.4 Potential Funding Sources, Sea Level Rise Adaptation.
<b>Environmental Features (Section 2.5)</b>			
Prohibit development in poorly or very poorly-drained (hydric) soil mapping units	DNREC, DDA	Short-term	See Section 3.5 Recommended LDO Amendments; Article 12
Monitor and update maps of the current high tide line, wetlands, and the corresponding riparian buffer area (RBA)	DNREC	Ongoing	
Strengthen the standards of the RBA through plantings with native vegetation	DNREC	Short-term	See 3.5 Recommended LDO Amendments; Article 12
<b>Pursue wetland restoration efforts that include the removal of invasive vegetation such as phragmites and planting of native species</b>	DNREC's Division of Fish and Wildlife	<b>Short-term; Ongoing; Key Strategy</b>	Part of the Comprehensive Flood Mitigation and Wetland Restoration Program discussed in Section 2.4 f; See Section 3.4 Potential Funding Sources
Provide input on the design of the proposed fishing pier and boat ramp / dock	DNREC	Short-term	
Secure DNREC's help to remove the deteriorating pilings from the Little River	DNREC	Short-term	
Encourage need for higher bulkheads or earthen embankments on both banks of river	DNREC	Short-term	
Promote on-going dredging of Little River to maintain its navigability	DNREC	Ongoing	
<b>Encourage a hydrologic and hydraulic investigation of the Little River</b>	DNREC; U.S. Army Corps of Engineers; State legislature	<b>Short-term; Key Strategy</b>	
Investigate options to protect State Resource Areas	DNREC	Ongoing	

Strategy / Action Item	Coordinating Agency	Priority	Notes
<b>Public Utilities and Services (Section 2.6)</b>			
Adopt a Source water protection ordinance		Short-term	
Monitor water quality	DNREC	Ongoing	See Section 2.4 – Sea Level Rise Vulnerability and Adaptation
Evaluate the need to modify well requirements or alternative water supply options	DNREC	Long-term	See Section 2.4 – Sea Level Rise Vulnerability and Adaptation
Coordinate with DNREC as they develop and implement source water protection and non-point pollution control strategies for the watershed	DNREC	Short-term	
Revise the site plan submittal requirements for stormwater management	KCD; DNREC	Short-term	
Work with the KCD and DNREC to resolve significant drainage and flooding issues, such as in the Town Park and Post Office area	KCD; DNREC	Short-term	
Develop a plan for specific drainage improvement needs, ongoing maintenance and oversight, and identify sources of funding	KCD; DNREC	Short-term	Part of the Comprehensive Flood Mitigation and Wetland Restoration Program discussed in Section 2.4f.
<b>Encourage a hydrologic and hydraulic investigation of the Little River</b>	KCD; DNREC	<b>Short-term; Key Strategy</b>	
Allow best management practices (BMPs) as part of stormwater management plan	KCD; DNREC	Short-term	See Section 3.5 Recommended LDO Amendments; Article 12
Limit land disturbance from new development projects and limit impervious surfaces	KCD; DNREC	Short-term	See Section 3.5 Recommended LDO Amendments; Article 8
Consider adopting an ordinance similar to Dover's Surface Water Drainage Ordinance	Dover; KCD; DNREC	Short-term	See Section 3.5 Recommended LDO Amendments; Article 11
Integrate stormwater management practices with flood hazard mitigation, wetland protection, and sea level rise strategies	KCD; DNREC	Short-term	See Sections 2.3 Current Flood Hazards, 2.4 Sea Level Rise Vulnerability and Adaptation, and 2.5 Environmental Features
Develop a Memorandum of Understanding (MOU) with Kent County regarding sewer service	County Public Works	Short-term	
<b>Community Services and Facilities (Section 2.7)</b>			
Coordinate with State Police, firefighting and EMS services to ensure that an adequate service level is maintained	State Police, Little Creek Volunteer Fire Company	Ongoing	
Investigate the types of park facilities and potential programming to best serve the community recreation needs	DNREC	Long-term	See 2013 Statewide Comprehensive Outdoor Recreation Plan (SCORP)
<b>Develop the public walking trail along the existing drainage ditch east of town boundaries</b>	DNREC	<b>Short-term; Key Strategy</b>	
Investigate and seek funding for park and trail improvements/amenities	DNREC	Short-term	See Section 3.4 Potential Funding Sources
Encourage use of town-owned vacant land for seasonal or short-term uses such as a farmers market or community events	DDA	Short-term	

Strategy / Action Item	Coordinating Agency	Priority	Notes
<b>Transportation (Section 2.8)</b>			
Update the Town Charter to list the Town's street names as they are currently being used		Short-term	
Discuss DART First State bus service connecting Town to Dover	Delaware Transit Corporation (DTC)	Long-term	
<b>Select, design and install streetscape improvements and traffic calming measures along Main Street</b>	MPO; DeIDOT	<b>Short-term; Key Strategy</b>	
Provide preliminary design guidelines and a theme for wayfinding signage	DeIDOT	Long-term	
Investigate the feasibility for creating a designated bike lane on Main Street	MPO; DeIDOT	Long-term	
Request a DeIDOT speed study	DeIDOT	Short-term	
Evaluate both enforcement and design based solutions to slow traffic on Main Street	DeIDOT, State Police	Short-term	
Evaluate restructuring traffic flow of large trucks	DeIDOT, Dover Air Force Base (DAFB)	Short-term	
Strengthen the partnership with DAFB and evaluate the need for an agreement	DAFB	Short-term	
Consider signage and striping for on-street parking along Main Street	MPO; DeIDOT	Short-term	
Allow on-street parking spaces to be counted towards meeting the minimum number of space parking requirements		Short-term	See Section 3.5 Recommended LDO Amendments; Article 14
<b>Help implement the recommendations in the DE Bayshore Byway Corridor Management Plan</b>	DeIDOT	<b>Short-term; Key Strategy</b>	
Work with DeIDOT to raise Route 9 / Main Street and Port Mahon Road	DeIDOT, DNREC	Long-term	
Identify road improvements and maintenance for emergency access and evacuation routes		Ongoing	
Minimize the impact of an elevated Route 9 and / or new elevated bridge approaches to commercial properties	DeIDOT	Long-term	
Plan for alterations of pedestrian crossings and bicycle routes to ensure public safety in light of an elevated road / bridge		Long-term	
Seek training and assistance from the Delaware Center for Transportation at the University of Delaware		Ongoing	
Improve and extend the sidewalks where needed	MPO; DeIDOT	Short-term, Ongoing	

Strategy / Action Item	Coordinating Agency	Priority	Notes
<b>Community Character and Design (Section 2.9)</b>			
Encourage new development to fit the Town scale and context		Ongoing	See Section 2.2d. Recommendations- Land Use
Explore Agricultural Preservation and greenbelt options		Short-term, Ongoing	See Section 2.2d. Recommendations- Land Use
<b>Update and reinvent maritime heritage by building upon the Town's role as a Discovery Zone, and carrying-out the strategies in the Working Waterfronts Initiative</b>		<b>Ongoing; Key Strategy</b>	See Bayshore Byway CMP and Working Waterfronts Initiative
Consider low cost methods to support the maintenance and rehabilitation of housing	DSHA	Ongoing	See Section 3.4 Potential Funding Sources
Inspect vacant buildings	Kent County's Building Inspector	Ongoing	
List the historic core in the National Register of Historic Places	DHCA; SHPO	Short-term	
Consider the adoption of historic zoning ordinance, and / or architectural guidelines and standards	DHCA; SHPO; Kent County's Preservation Planner	Long-term	
Explore and publicize Historic District Funding Sources	DHCA; SHPO, County's Preservation Planner	Short-term, Ongoing	Section 3.4 Potential Funding Sources, Housing and Historic Resources
Explore ways to integrate historic and cultural resources into hazard mitigation planning	FEMA; DHCA	Ongoing	
Consider developing an ordinance, in consultation with the county, requiring new homes to be equipped with sound insulation	County	Long-term	See Kent County and Dover ordinances
Strengthen the partnership with DAFB and evaluate the need for an agreement	DAFB	Short-term	
<b>Redevelopment (Section 2.10)</b>			
<b>Amend the LDO to include new "maritime zoning" standards</b>		<b>Short-term; Key Strategy</b>	
Develop a code enforcement plan to ensure the housing stock is properly maintained	County	Ongoing	
<b>Seek funding to prepare a conceptual waterfront development plan</b>		<b>Short-term; Key Strategy</b>	Integrate with the Comprehensive Flood Mitigation and Wetland Restoration Program discussed in Section 2.4 Sea Level Rise Vulnerability and Adaptation; See Section 3.4 Potential Funding Sources

## 3.4 Potential Funding Sources

### Housing

- Community Development Block Grant (CDBG) Program.** 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.
- 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 or improve 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.
- Affordable Housing Resource Center.** DSHA provides tools and strategies to help create affordable housing, as well as resources on other housing programs.  
<http://www.destatehousing.com>

### Historic Resources

- Historic-Homes Funding Sources.** Structures that contribute to Little Creek's National Historic District are eligible for funding to aid in the rehabilitation of 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 the State Historic Preservation Office (SHPO).

- 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.

### Flood Hazards, Sea Level Rise, Natural Resource Management

- Delaware Coastal Management Assistance Grants.** The Coastal Programs offer 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 1:1 matching funds or in-kind services.

[www.dnrec.delaware.gov/coastal/Pages/CoastalProgramRFP.aspx](http://www.dnrec.delaware.gov/coastal/Pages/CoastalProgramRFP.aspx)

- FEMA's Hazard Mitigation Assistance (HMA) grant programs**
  - 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).  
[www.fema.gov/hazard-mitigation-assistance](http://www.fema.gov/hazard-mitigation-assistance)

- Delaware Phragmites Control Cost-Share Program.** The Phragmites Control Cost-share Program is offered by the Delaware Division of Fish and Wildlife, in partnership with the USDA's Natural Resources Conservation Service (NRCS), to improve wildlife habitat in wetlands that have been degraded by invasive phragmites. The program provides technical and financial assistance to Delaware landowners interested in marsh restoration programs. State and federal funding covers 87.5% of the cost, with the landowner contributing the remaining 12.5% (about \$5 per acre treated). To qualify, landowners must have a minimum of 5 acres of phragmites and a maximum of 200 acres to be spray treated with herbicide, and must agree to have the property treated for three years.

*<http://www.dnrec.delaware.gov/fw/dplap/services/Pages/DelawarePhragmitesControl.aspx>*

### Public Facilities, Utilities and Services

- Delaware Land and Water Conservation Trust Fund.** DNREC's Division of Parks and Recreation awards funds on a competitive basis through the Delaware Land and Water Conservation Trust Fund to assist local governments by providing matching grants for planning, acquisition, and development of parks, greenways and trails. A project sponsored by Little Creek may receive up to 50% in funding assistance of an approved project's total costs.

*[www.dnrec.delaware.gov/parks/Services/Documents/grants/trails.pdf](http://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](http://www.rurdev.usda.gov/RD_grants.html)*

- DNREC Surface Water Matching Planning Grants.** Grants support planning /preliminary engineering / feasibility analysis of surface water related projects. Funding requires a 1:1 cash match, and preference is given to engineering projects that will be eligible for funding under the Clean Water State Revolving Fund.

- Clean Water State Revolving Fund.** DNREC's Environmental Finance (DNREC-EF) administers Delaware's Clean Water State Revolving Fund, making funding available to municipalities. DNREC-EF provides planning, engineering and financial assistance in the form of low-interest loans, as well as grants to eligible applicants that request assistance to promote water quality projects, including all types of nonpoint source, watershed protection, restoration, and estuary management projects.

### Transportation

- Municipal Street Aid (MSA).** MSA is a DelDOT-managed program that provides funding for 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) and street mileage (60% weight).

Between FY 2010 and FY 2015, the Municipal Street Aid program has been funded at annual levels between \$4 to \$6 million. The Town of Little Creek has annually received between \$1,595 (in 2011) and \$2,292 (in 2016) in MSA.

### Community Character / Redevelopment

- Neighborhood Building Blocks Fund (NBBF).** The NBBF within the Delaware Economic Development Office (DEDO) is intended to support economic and community development, public protection, urban beautification, or any other purposes that have the effect of reducing crime, strengthen neighborhoods, and improving the quality of life of residents in Delaware communities.

## 3.5 Recommended Land Development Ordinance (LDO) Amendments

The following provides a list of potential LDO amendments recommended throughout this Plan. This list is not intended to be all inclusive as there are additional amendments that may be discovered when the Town review and evaluates these amendments.

### Article 2. Definitions

- Update Definitions in the LDO to be consistent with recently adopted Floodplain Requirements Ordinance (FRO) (Ordinance No. 2014-77). The Definitions section should address terms such as base flood elevations, flood-proofing and structural terms, and flood hazard areas.

### Article 3. Administrative structure

- Add information regarding the Floodplain Administrator from the FRO, Section 3.0.
- 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 FRO.
- Ensure all site and subdivision plans are reviewed for compliance with the FRO.

#### 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 the provisions of the Floodplain Requirements 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. Flood impacts and Sea Level Rise vulnerabilities."

#### Table 4-1. Information required for site plans

- Add the following: "DNREC Sea level rise inundation areas".

### Article 5. Non-conforming situations

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

### Article 7. Use regulations

- Amend the permitted uses per the new Maritime Zoning standards.

### Article 8. Dimensional and density standards

- Amend dimensional and density standards

- per the new Maritime Zoning standards.
- Consider density or floor area bonus incentives for protecting hazard areas as open space and / or enhancing the RBA.
- Amend Section 8-2.D (Height Limit Exemptions) to include building height limit to be base flood elevation (BFE) plus freeboard.
- Amend Table 8-3 Permitted Projections into Required Yards to permit stairways and ramps in yard areas for buildings with freeboard.
- Limit land disturbance from new development projects and limit impervious surfaces.

### Article 10. Streets, sidewalks, curbs and gutters

- Amend Article as necessary following coordination with DeIDOT.

### Article 11. Utilities

- Ensure public infrastructure and facilities are included in a hazard mitigation plan.
- Consider adopting an ordinance similar to Dover's Surface Water Drainage Ordinance.

### Article 12. Environmental protection standards

- Consider increasing the capacity of the RBA through plantings with native vegetation.
- Review Section 12-9 Flood Plain Ordinance. Consider omitting this section in its entirety and referencing the FRO.
- Prohibit development in poorly or very poorly-drained (hydric) soil mapping units.
- Allow best management practices (BMPs) as part of stormwater management plan.

### Article 14. Parking standards

- Amend Article to allow a reduction in the number of off-street parking spaces required in the commercial district to limit the amount of impervious surface. A reduction could be approved if on-street parking or shared parking opportunities are available.

## 3.6 Illustrative Plan

The illustrative renderings in **Appendix D - Illustrative Plan** summarizes the recommendations in this Comprehensive Plan. The Illustrative Plan is how the Town generally envisions Little Creek when the implementation items are completed. The renderings are for illustrative purposes only and intended to visually portray some implementation options.

# Appendices



The Old Stone Tavern

## Appendix A: Maps

- Map 1: Aerial
- Map 2: State Strategies
- Map 3: Existing Land Use
- Map 4: Future Land Use
- Map 5: Adjacent Land Use
- Map 6: Development Potential
- Map 7: FEMA Flood Plains
- Map 8: Watersheds and Land Use Cover
- Map 9: Sea Level Rise Vulnerability
- Map 10: Environmental Features
- Map 11: Soil Classification
- Map 12: Roads



Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 2. State Strategies



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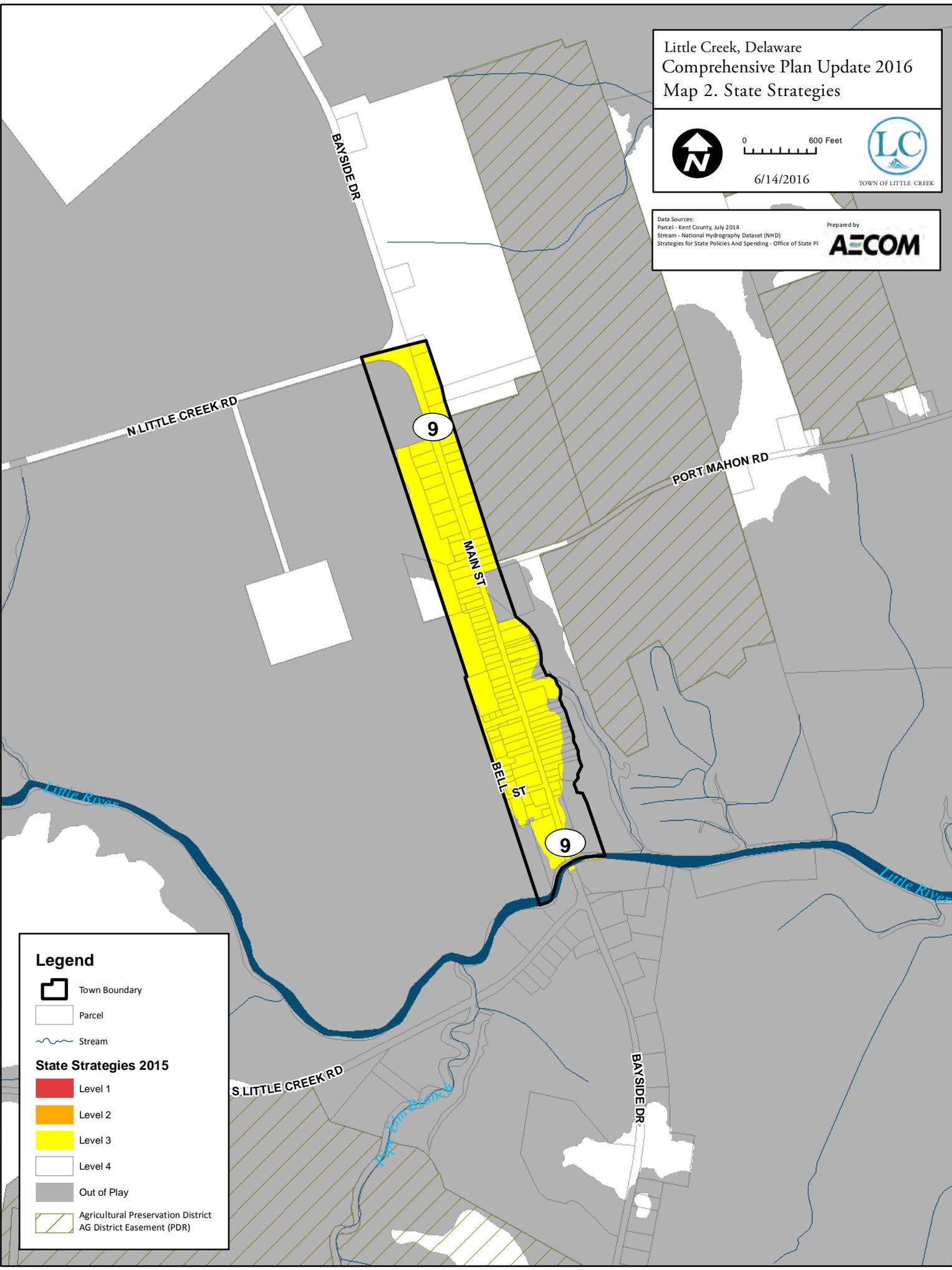


6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Stream - National Hydrography Dataset (NHD)  
 Strategies for State Policies And Spending - Office of State PI

Prepared by



**Legend**

- Town Boundary
- Parcel
- Stream

**State Strategies 2015**

- Level 1
- Level 2
- Level 3
- Level 4
- Out of Play
- Agricultural Preservation District  
AG District Easement (PDR)

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Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 3 - Existing Land Use



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6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Stream - National Hydrography Dataset (NHD)  
 Existing Land Use - Town of Little Creek  
 Wetlands - "Statewide Wetland Mapping Project (SWMP)",  
 DNREC, Division of Watershed Stewardship, 2007

Prepared by  
**AECOM**

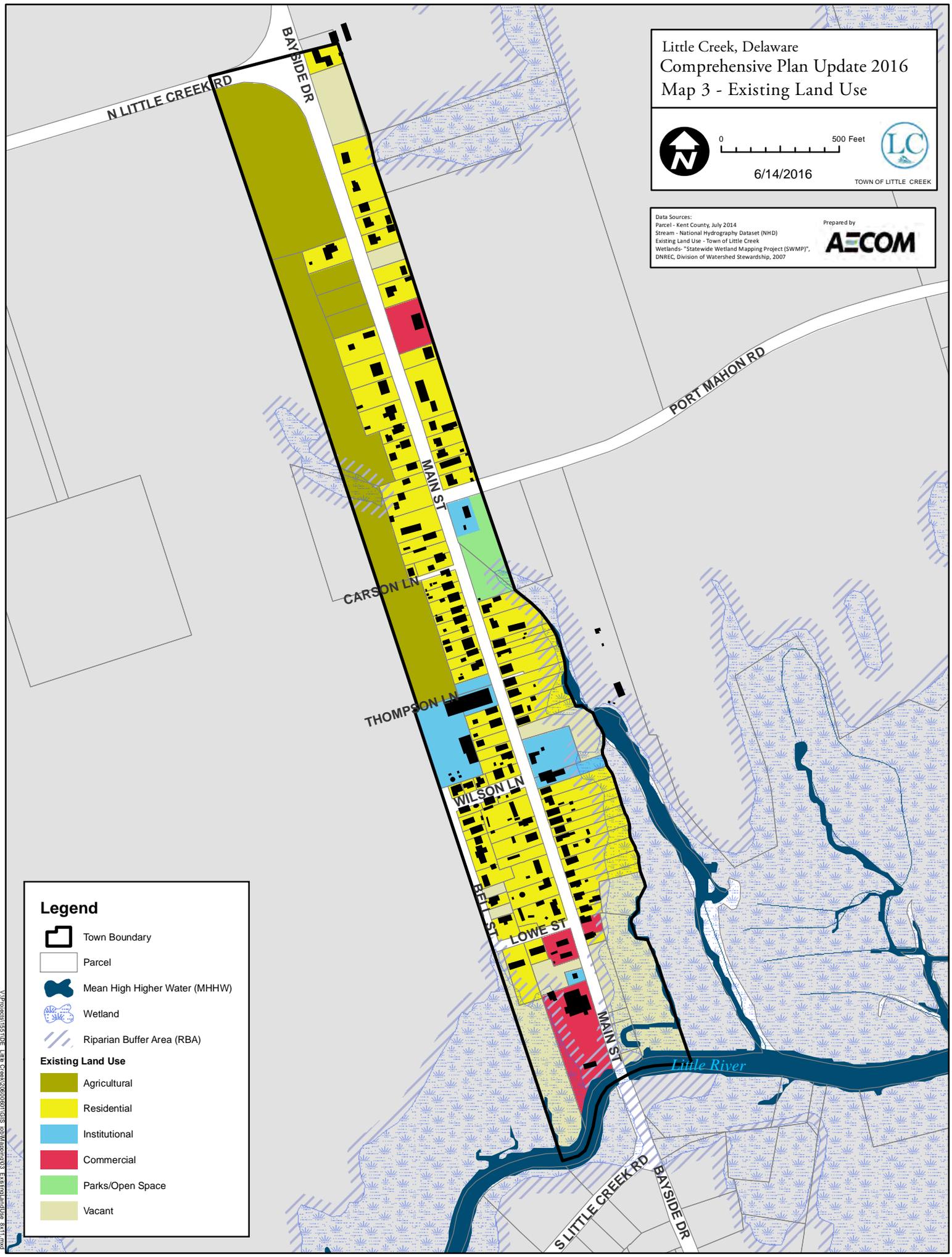
**Legend**

- Town Boundary
- Parcel
- Mean High Higher Water (MHHW)
- Wetland
- Riparian Buffer Area (RBA)

**Existing Land Use**

- Agricultural
- Residential
- Institutional
- Commercial
- Parks/Open Space
- Vacant

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Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 4 - Future Land Use



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6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Inundation from Sea Level Rise -  
 DNREC Delaware Coastal Program, 2/3/2010  
 MHHW - Mean Higher High Water

Prepared by  
**AECOM**

**Legend**

- Town Boundary
- Parcel
- Stream
- Future Land Use**
- Residential
- Institutional
- Commercial
- Parks/Open Space
- Annexation Area  
If requested by property owner
- Proposed Trail

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Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 5 - Adjacent Land Use



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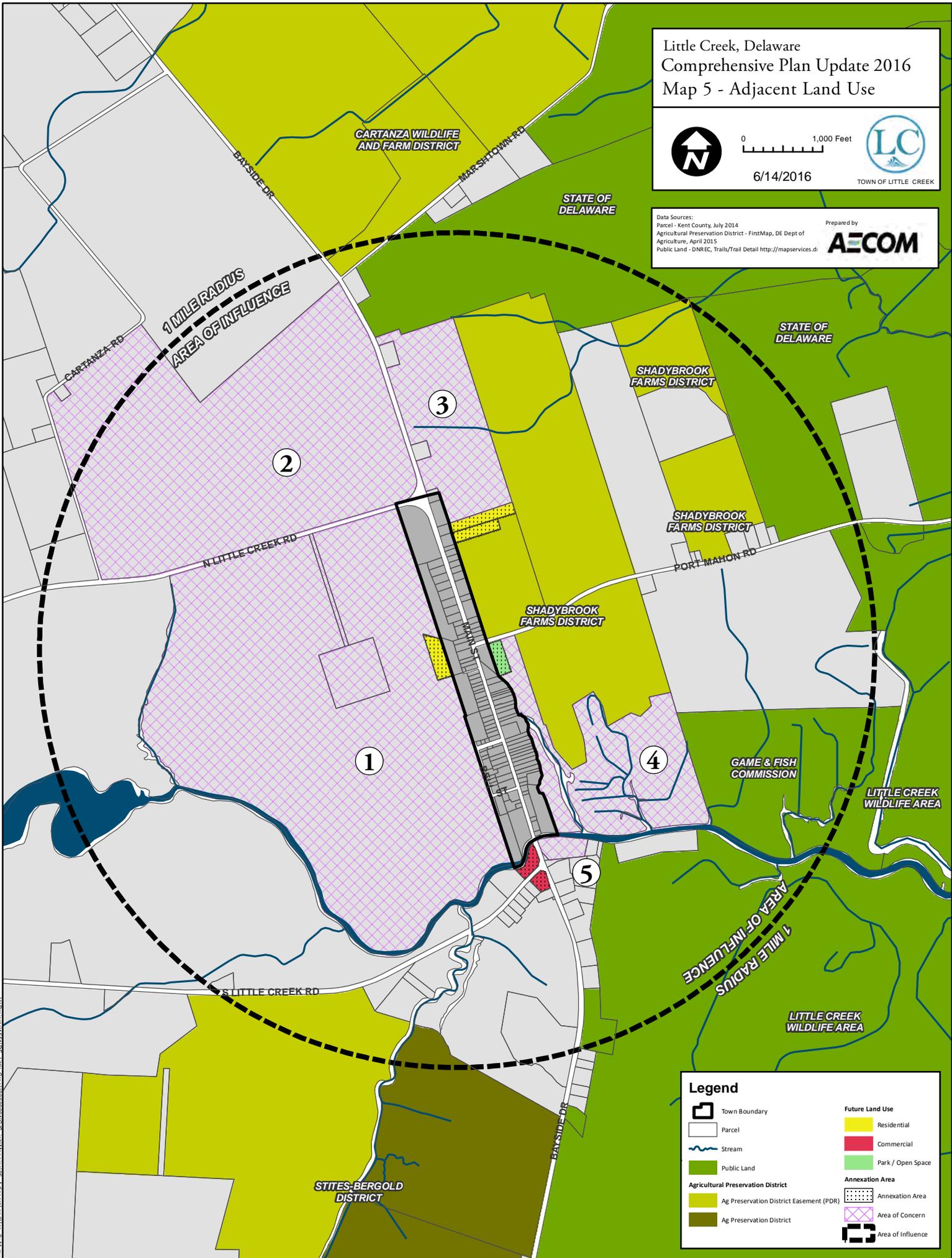


6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Agricultural Preservation District - FirstMap, DE Dept of  
 Agriculture, April 2015  
 Public Land - DNR/EC, Trails/Trail Detail <http://mapservices.de>

Prepared by



Legend

- |   |                        |
|---|------------------------|
| Town Boundary                           | Residential            |
| Parcel                                  | Commercial             |
| Stream                                  | Park / Open Space      |
| Public Land                             | <b>Annexation Area</b> |
| Agricultural Preservation District      | Annexation Area        |
| Ag Preservation District Easement (PDR) | Area of Concern        |
| Ag Preservation District                | Area of Influence      |

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Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 6 - Development Potential



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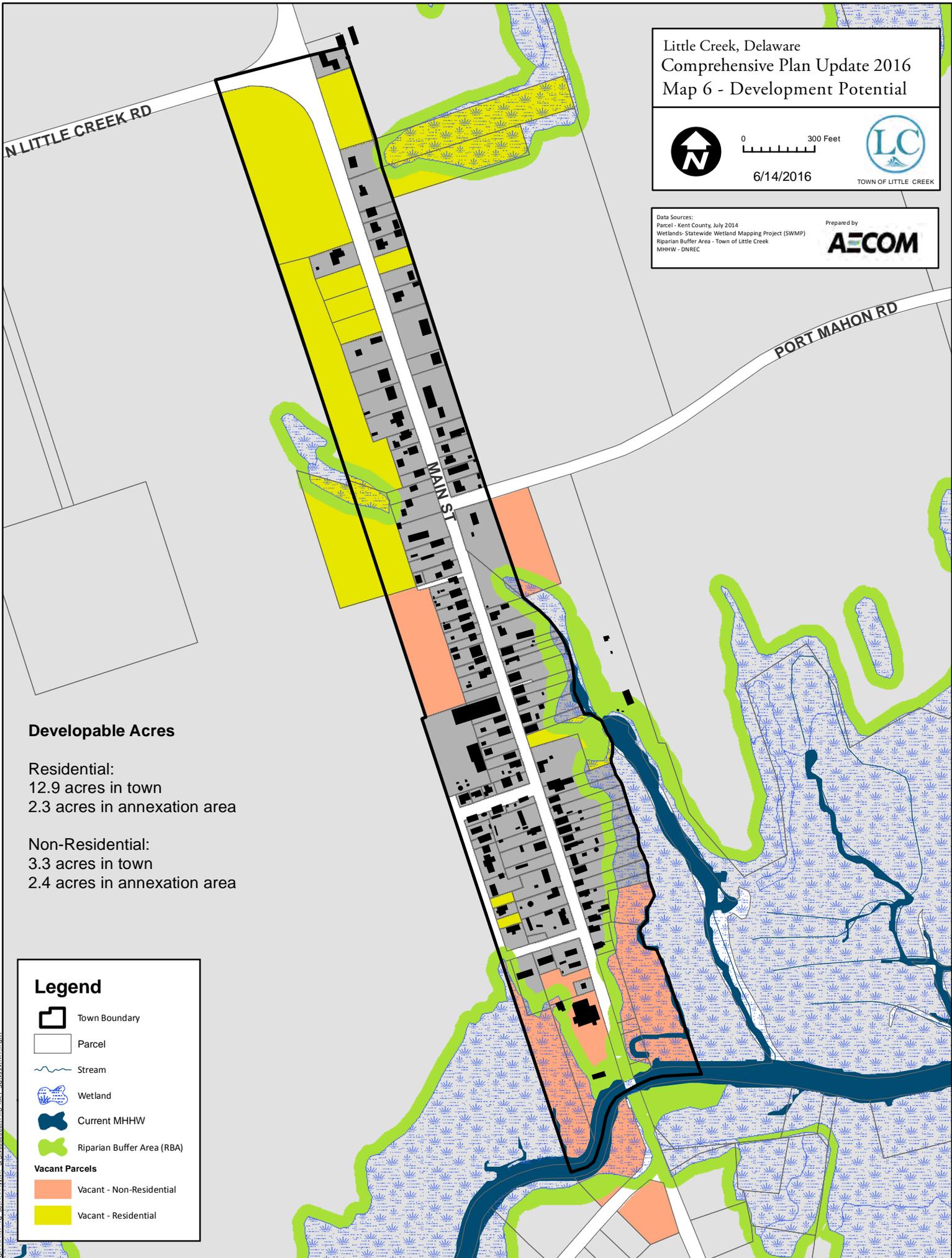


6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Wetlands - Statewide Wetland Mapping Project (SWMP)  
 Riparian Buffer Area - Town of Little Creek  
 MHHW - DNREC

Prepared by



**Developable Acres**

Residential:  
 12.9 acres in town  
 2.3 acres in annexation area

Non-Residential:  
 3.3 acres in town  
 2.4 acres in annexation area

**Legend**

- Town Boundary
- Parcel
- Stream
- Wetland
- Current MHHW
- Riparian Buffer Area (RBA)
- Vacant Parcels**
- Vacant - Non-Residential
- Vacant - Residential

Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 7 - FEMA Flood Plains



0 380 Feet



6/14/2016

Data Sources:  
 Parcel - Kent County, July 2014  
 Floodplain - FEMA - National Flood Hazard Layer  
 MHHW - Mean Higher High Water  
 BFE - Base Flood Elevation

Prepared by

**AECOM**

**ZONE X  
 (UNSHADED)**

**ZONE AE  
 (EL 10 FEET)**

**ZONE X  
 (SHADED)**

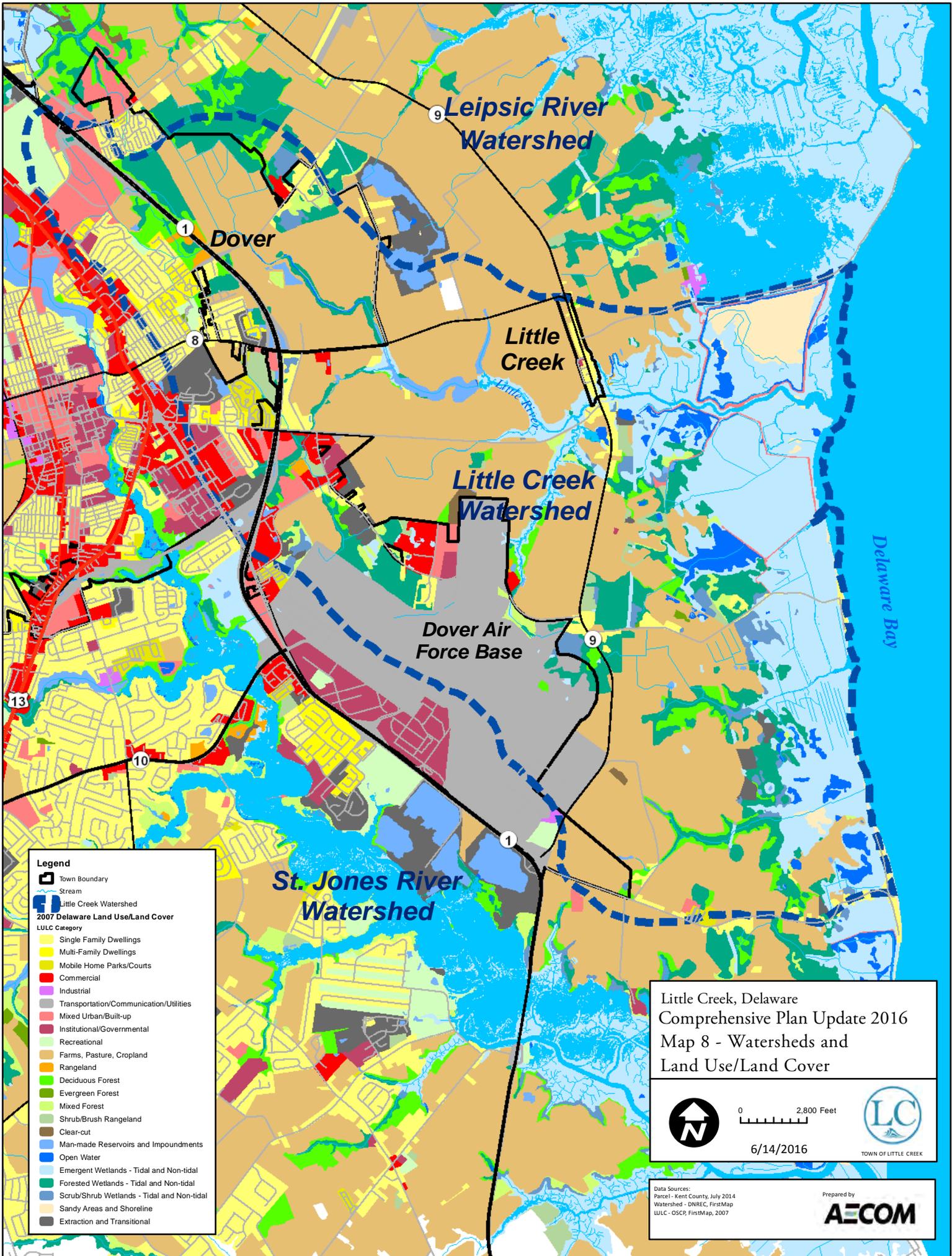
**ZONE AE  
 (EL 11 FEET)**

**MHHW**

**Legend**

- Town Boundary
- Parcel
- Stream
- Mean High Higher Water (MHHW)
- FEMA Flood Hazard Zone**
- AE - 100 Year Flood Plain
- X - 500 Year Flood Plain
- VE
- Limit of Moderate Wave Action

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**Legend**

- Town Boundary
- Stream
- Little Creek Watershed
- 2007 Delaware Land Use/Land Cover**
- LULC Category**
- Single Family Dwellings
- Multi-Family Dwellings
- Mobile Home Parks/Courts
- Commercial
- Industrial
- Transportation/Communication/Utilities
- Mixed Urban/Built-up
- Institutional/Governmental
- Recreational
- Farms, Pasture, Cropland
- Rangeland
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Brush Rangeland
- Clear-cut
- Man-made Reservoirs and Impoundments
- Open Water
- Emergent Wetlands - Tidal and Non-tidal
- Forested Wetlands - Tidal and Non-tidal
- Scrub/Shrub Wetlands - Tidal and Non-tidal
- Sandy Areas and Shoreline
- Extraction and Transitional

Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 8 - Watersheds and  
 Land Use/Land Cover

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6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Watershed - DNREC, FirstMap  
 LULC - OSCF, FirstMap, 2007

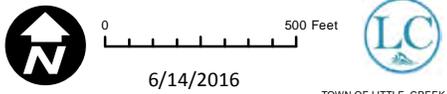
Prepared by

V:\Projects\1531\01E\_Line\_Cover\2007\0105\_2016\Map8 - Watersheds - LULC\_Sort\_1.mxd

Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 9 - Sea Level Rise Vulnerabilities

0 500 Feet

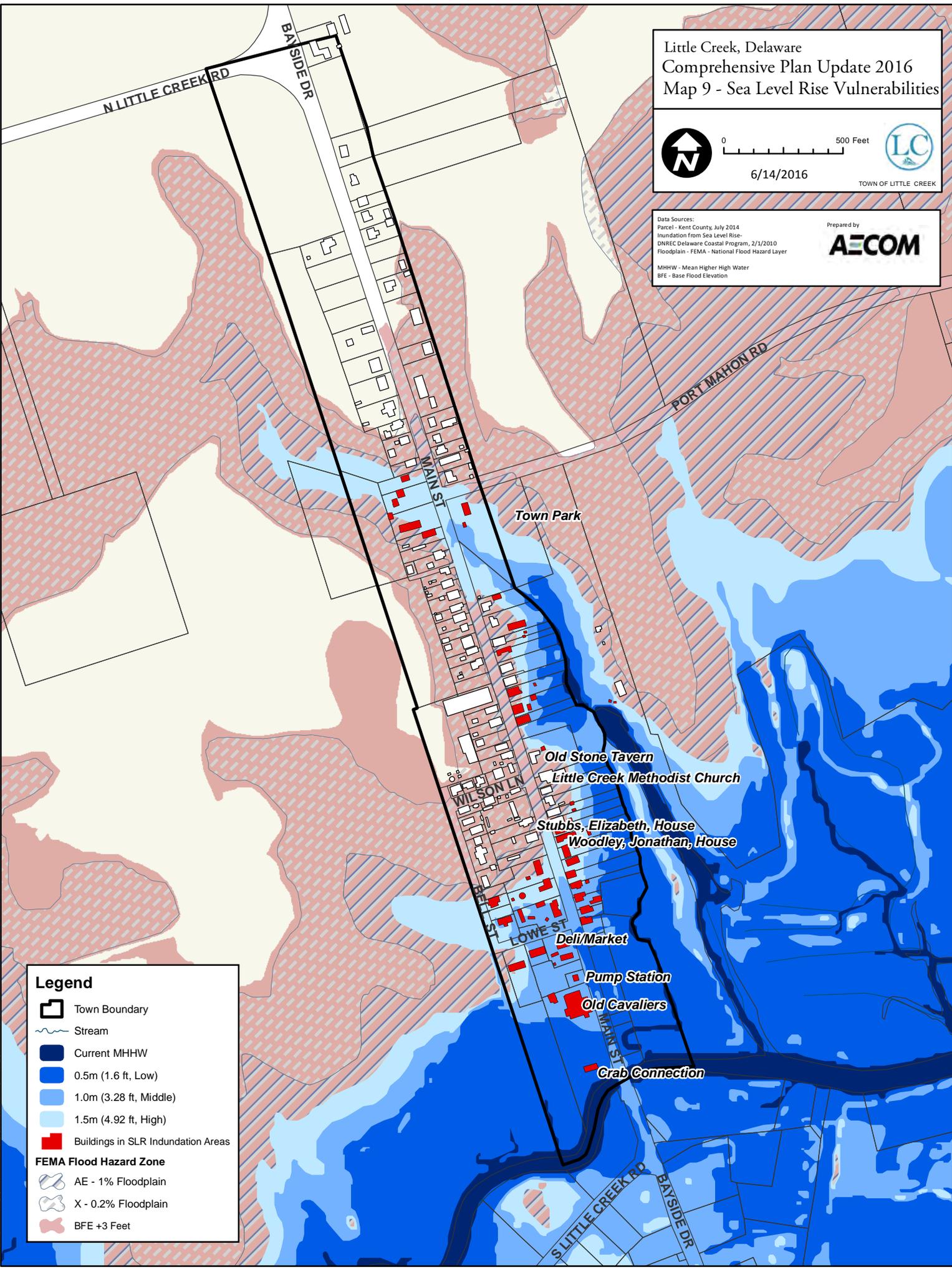
6/14/2016



Data Sources:  
 Parcel - Kent County, July 2014  
 Inundation from Sea Level Rise -  
 DNREC Delaware Coastal Program, 2/3/2010  
 Floodplain - FEMA - National Flood Hazard Layer

Prepared by  
**AECOM**

MHHW - Mean Higher High Water  
 BFE - Base Flood Elevation



**Legend**

-  Town Boundary
-  Stream
-  Current MHHW
-  0.5m (1.6 ft, Low)
-  1.0m (3.28 ft, Middle)
-  1.5m (4.92 ft, High)
-  Buildings in SLR Indundation Areas
- FEMA Flood Hazard Zone**
-  AE - 1% Floodplain
-  X - 0.2% Floodplain
-  BFE +3 Feet

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Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 10 - Environmental Areas



0 500 Feet



6/14/2016

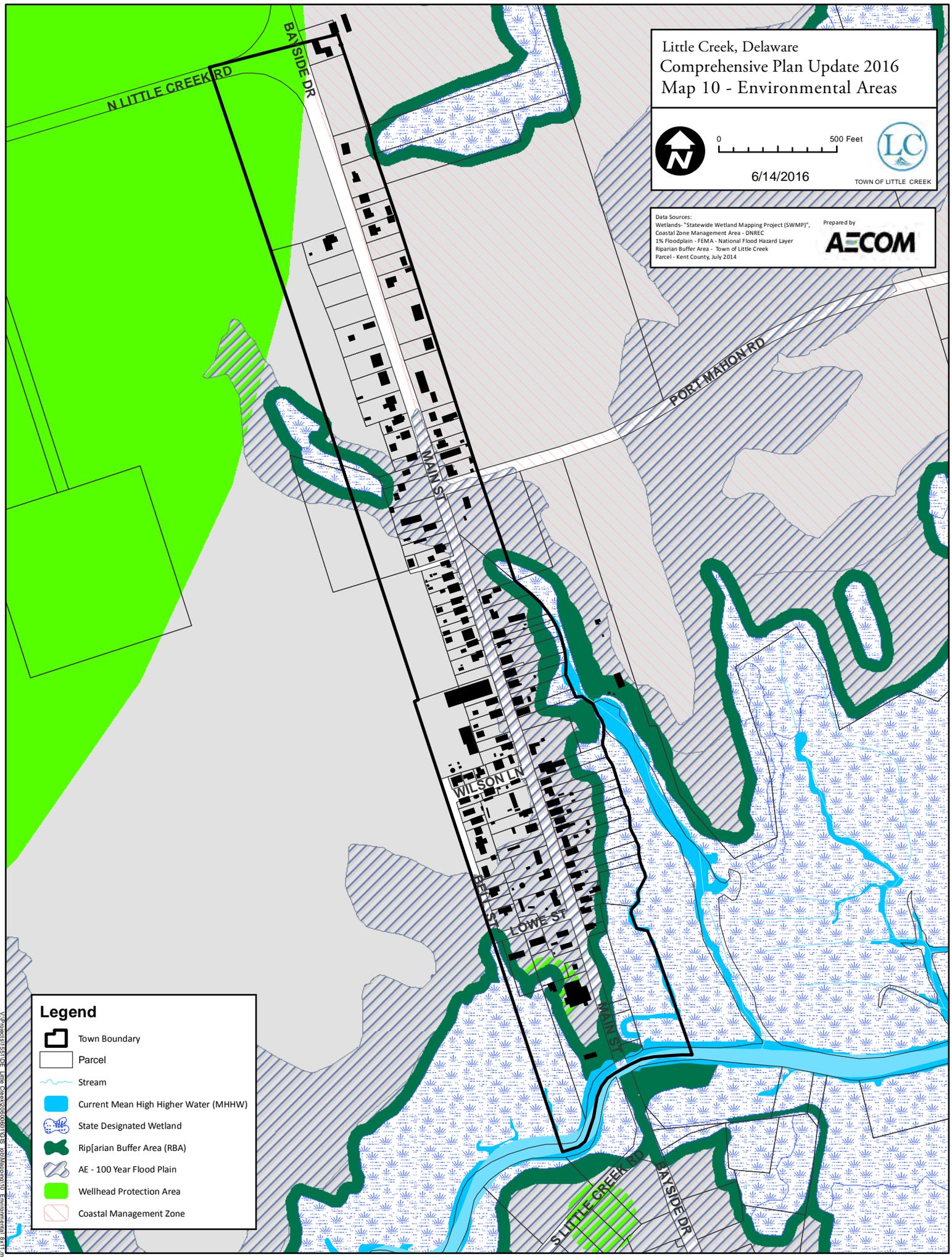
TOWN OF LITTLE CREEK

Data Sources:  
 Wetlands - "Statewide Wetland Mapping Project (SWMP)",  
 Coastal Zone Management Area - DNREC  
 1% Floodplain - FEMA - National Flood Hazard Layer  
 Riparian Buffer Area - Town of Little Creek  
 Parcel - Kent County, July 2014

Prepared by  
**AECOM**

**Legend**

- Town Boundary
- Parcel
- Stream
- Current Mean High Higher Water (MHHW)
- State Designated Wetland
- Riparian Buffer Area (RBA)
- AE - 100 Year Flood Plain
- Wellhead Protection Area
- Coastal Management Zone



P:\GIS\Projects\Map10\Map10\_061416.mxd, 6/14/2016 10:51:15 AM, User: j...

Little Creek, Delaware  
 Comprehensive Plan Update 2016  
 Map 11. Soil Classification



0 600 Feet



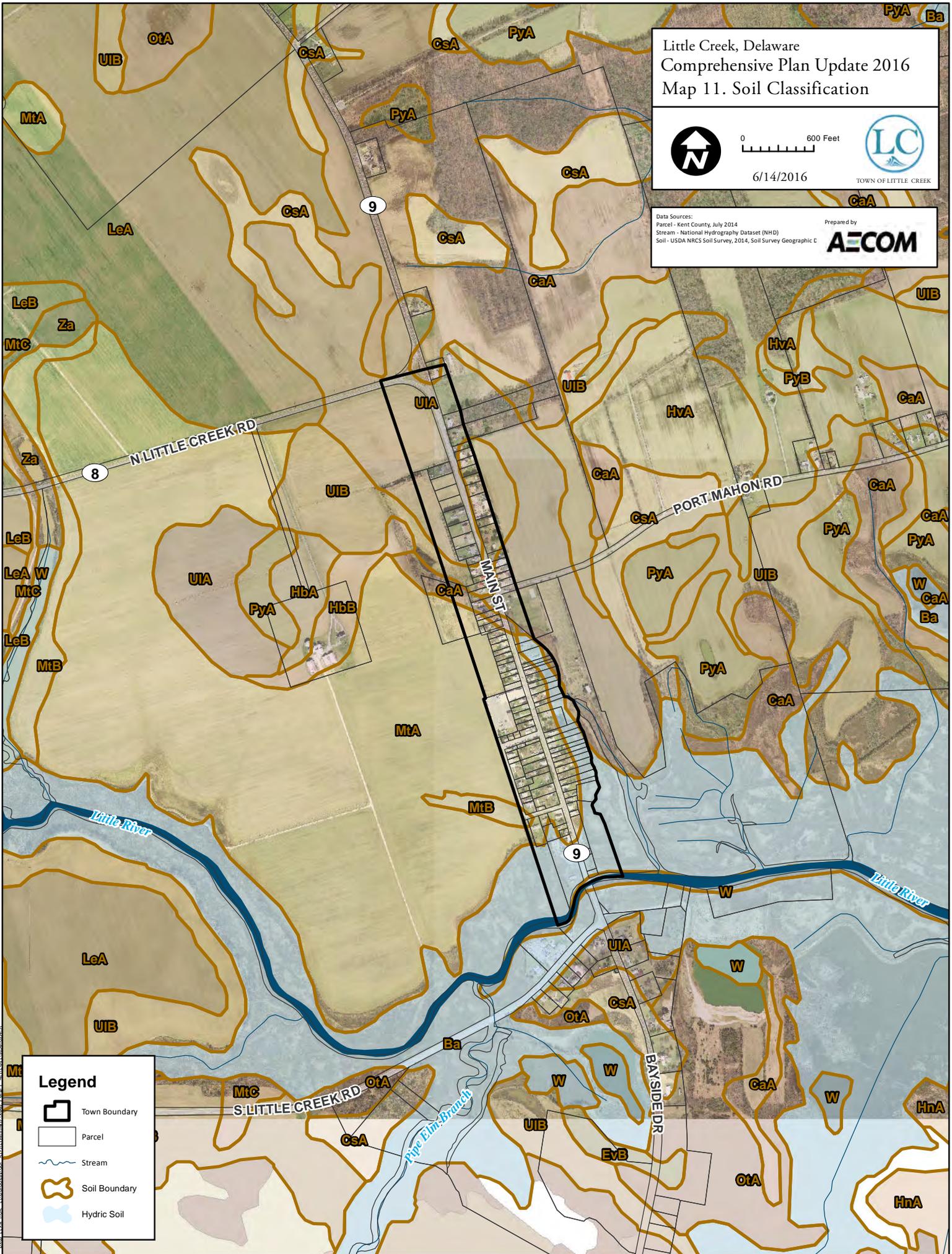
6/14/2016

TOWN OF LITTLE CREEK

Data Sources:  
 Parcel - Kent County, July 2014  
 Stream - National Hydrography Dataset (NHD)  
 Soil - USDA NRCS Soil Survey, 2014, Soil Survey Geographic D

Prepared by

**AECOM**



**Legend**

- Town Boundary
- Parcel
- Stream
- Soil Boundary
- Hydric Soil

C:\Users\jgiles\Documents\GIS\Map11\_SoilClassification.aprx



## Appendix B: Community Questionnaire

Community Planning Questionnaire, July 2015  
Community Planning Questionnaire Results - Presentation slides from Public Workshop,  
October 20, 2015

# Little Creek Comprehensive Plan

## Community Planning Questionnaire

July 2015

### Instructions:

The Town of Little Creek is in the process of developing a Comprehensive Land Use Plan that will guide growth and development in the town for the next five to ten years. Please share your thoughts and opinions with us by completing this survey and returning it to “Town of Little Creek P.O. Box 298 Little Creek DE 19961.” Please return no later than **August 15, 2015**.

*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.*

### Please Tell Us About Yourself:

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.**

I live in the Town of Little Creek.  YES

I rent my home

I own my home

I live outside of town limits in the immediate area.  YES

I rent my home

I own my home

I work in town, or within 5 miles.  YES

I work outside of town between 5 – 10 miles  YES

10 –20 miles  YES

More than 20 miles  YES

I own property in town other than my home.  YES

I own property in town but do not live there.  YES

## Community Services Satisfaction

The following are some services provided in Little Creek. 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
Electricity	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

Please indicate how important the following community features are to you.

Very Important	Important	Somewhat Important	Slightly Important	Not Important
1	2	3	4	5

Parks and open spaces near your neighborhood	1	2	3	4	5
Sidewalks along residential streets	1	2	3	4	5
Bike paths along main roads	1	2	3	4	5
Mature trees and new tree plantings and landscaping	1	2	3	4	5
Neighborhood shopping (convenience stores, etc.) nearby, within walking distance	1	2	3	4	5
Other (please specify): _____	1	2	3	4	5

## Transportation

Please rate how much you agree with the following statements about transportation issues in Little Creek using the following scale:

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

There are too many through travelers using Main Street (S.R.9)	1	2	3	4	5
There is too much traffic congestion in town.	1	2	3	4	5
There are too many trucks using Main Street.	1	2	3	4	5
There is not adequate public transportation linking Little Creek to larger towns like Dover and Wilmington.	1	2	3	4	5
There are not adequate sidewalks along Main Street and around town.	1	2	3	4	5
There are not adequate bike routes along the roads in town.	1	2	3	4	5

What improvements (if any) would you like to see made to the roadways and intersections in and around Little Creek?

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## Land Use

There is some vacant land within Little Creek's town boundaries. How should these areas be managed?

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

Little Creek'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
New residential uses in town should be encouraged.	1	2	3	4	5
Development should be balanced with protection of farmland and open space in the Little Creek area.	1	2	3	4	5
Commercial development (i.e. restaurants, convenience stores, grocery stores, etc.) should be encouraged.	1	2	3	4	5
Other (please specify): _____ _____	1	2	3	4	5

## Annexation

**There is a great deal of vacant and agricultural land just outside of Little Creek's boundaries. How should these areas be managed?**

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
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
The town should seek to preserved adjacent land strictly as farmland and open space.	1	2	3	4	5
Development should be balanced with protection of farmland and open space in the Little Creek area.	1	2	3	4	5
Other (please specify): _____ _____	1	2	3	4	5

**There might be the opportunity for additional commercial or recreational land uses in and around the town. What types of these land uses are desirable for the future of Little Creek?**

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
Ecological based tourism	1	2	3	4	5
Fishing, kayaking, bicycling	1	2	3	4	5
Restaurants	1	2	3	4	5
Commercial fishing/working waterfronts	1	2	3	4	5

## Future Needs

The following items are additional facilities or institutions that the residents of Little Creek may want for the town. Please rate their importance to you.

Very Important	Important	Somewhat Important	Slightly Important	Not Important
1	2	3	4	5

Public Water System.	1	2	3	4	5
Housing suitable for the elderly	1	2	3	4	5
Active recreation	1	2	3	4	5
Passive recreation	1	2	3	4	5
Housing suitable for young families.	1	2	3	4	5
More businesses and jobs for town residents.	1	2	3	4	5
Childcare facilities.	1	2	3	4	5
Civic Uses	1	2	3	4	5
Water access for boating/fishing	1	2	3	4	5
Other (please specify): _____	1	2	3	4	5
_____					

Because of Delaware's coastal location and low average elevation the prospect of a rising sea level and more frequent and intense coastal storms due to climate change is of significant importance. Without a thoughtful approach to potential sea level rise impacts, Little Creek 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 check the best response for each.

Is your property is in a floodplain?

Yes  No  I Don't Know

Is your property adjacent to a floodplain?

Yes  No  I Don't 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

**Do you know of any areas in Little Creek 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:**

---

**How serious a threat do you think sea level rise is to Little Creek?**

- Very serious
- Serious
- Minimal
- Not a threat

**Do you agree or disagree with this statement: There are many actions that can be taken to reduce the impacts of sea level rise.**

- Agree
- Disagree
- No Opinion

**Would you support or oppose your local and state governments spending more money on public projects if it meant Little Creek would be more resilient to sea level rise?**

- I would oppose it.
- I would support it.
- I would support it only if it would save money and be less costly long-term.

**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 Little Creek Comprehensive Plan. If you need additional space, please use a separate sheet of paper. Thank you.**

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# COMMUNITY PLANNING QUESTIONNAIRE

Comprehensive Plan Update  
Public Workshop | October 20<sup>th</sup> 2015

## Questionnaire Overview

**Purpose**

- Gauge satisfaction with community services and facilities
- Seek to understand the key issues and priorities in town
- Identify future needs

**Summary of Results**

### COMMUNITY SERVICES

Note your satisfaction with the current provision of community services:

■ Satisfied to very satisfied  
■ No opinion  
■ Not satisfied to very unsatisfied

Service	Satisfied to very satisfied	No opinion	Not satisfied to very unsatisfied
Sanitary Sewer, Electricity, Street Maintenance, Emergency Management, Trash and Snow Removal	~75%		
Firefighting	90%		0%
Police	47%	36%	17%
Stormwater Management	27%	37%	36%

### COMMUNITY FEATURES

Indicate how important the following community features are to you:

■ Important to very important  
■ Somewhat important  
■ Not important

Feature	Important to very important	Somewhat important	Not important
Sidewalks	68%	26%	6%
Bike Paths	47%	37%	16%
Parks	58%	25%	17%
Trees and Landscaping	52%	39%	13%
Neighborhood Shopping	41%	32%	27%

### TRANSPORTATION

Rate how much you agree with the following statements about transportation issues:

■ Agree to Strongly Agree  
■ Disagree to Strongly Disagree

Statement	Agree to Strongly Agree	Disagree to Strongly Disagree
Inadequate public transit	49%	8%
Too many trucks	40%	24%
Inadequate bike routes	38%	30%
Inadequate sidewalks	51%	32%
Too many through travelers	41%	24%
Too much traffic/congestion	8%	65%

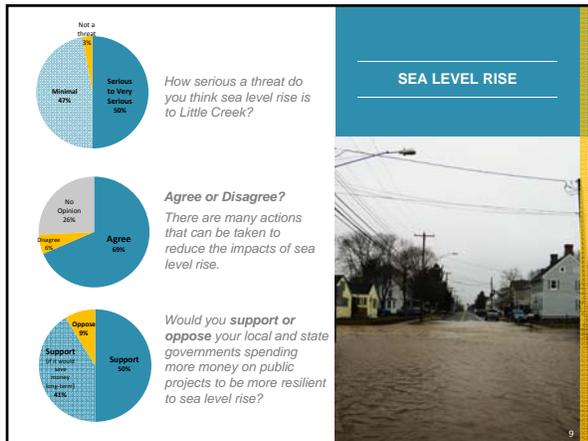
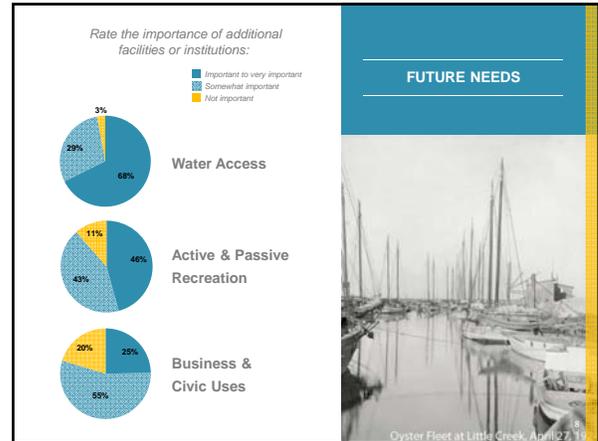
### LAND USE & ANNEXATION

How should vacant land in town boundaries be managed?

Management Option	Agree to Strongly Agree	Disagree to Strongly Disagree
Development should be balanced	92%	5%
Preserve small town	77%	5%
Encourage new commercial uses	70%	17%
Encourage new residential uses	50%	17%

How should vacant and agricultural land outside of town boundaries be managed?

Management Option	Agree to Strongly Agree	Disagree to Strongly Disagree
Balanced development	84%	5%
Preserve adjacent lands	52%	26%
Annex adjacent lands	26%	46%



### Key Themes

- Preserve small town, agricultural character
- Re-establish water access and working waterfront
- Recognize sea level rise is happening and support action to respond

## Appendix C: Working Waterfronts Initiative

Town of Little Creek Working Waterfront Initiative, University of Delaware's Sustainable Coastal Communities Initiative, Institute for Public Administration, 2016

Town of  
**Little Creek**

WORKING WATERFRONTS INITIATIVE



## Acknowledgements

The UD/Sustainable Coastal Communities Initiative appreciates and acknowledges our project partners, the municipal officials in Little Creek, and community stakeholders for their assistance and contributions to this public service project. We believe that the information collected and analyzed in this report will provide stakeholders with a more complete understanding of their collective challenges to sustain and enhance the working waterfront.

We hope our suggested development and community engagement strategies will help Little Creek revitalize commercial and water-dependent businesses while preserving the many characteristics that make it a unique, maritime community rich with history.

### University of Delaware

#### Principal Investigators/Authors

Ed Lewandowski, Coastal Communities Development Specialist, Delaware Sea Grant, UD  
Clark Evans, Contractor, M.A. Marine Affairs, University of Rhode Island 1996

### Project partners

Mayor Glenn Gauvry and Little Creek Town Council  
David Edgell, AICP, Office of State Planning Coordination  
Karen Bennett, Delaware Bayshore Coordinator, Department of Natural Resources and Environmental Control

#### Design, layout and photography (unless otherwise credited)

Lee Ann Walling, principal, Cedar Creek Sustainable Planning Services



## Executive summary

In 2012, the University of Delaware's Sustainable Coastal Communities Initiative launched its Working Waterfronts Initiative to develop sustainability strategies for preserving and maintaining the state's traditional maritime communities.

After a successful pilot study was conducted in Bowers Beach in early 2013, the Town of Leipsic requested to be engaged as part of this ongoing study in the Delaware Bayshore communities. Work in Leipsic was conducted during the fall of 2013 and winter/spring of 2014.

It was not until the summer of 2015 that this final summary report was approved by the town council. The Town of Little Creek requested engagement in the Working Waterfronts Initiative in early 2015 and work subsequently started in the early spring. Numerous community members and regulatory officials were interviewed to obtain their feedback concerning the current status and trends in Little Creek and nearby Port Mahon and Pickering Beach.

Their responses were used to create a qualitative characterization concerning the current economic conditions in the community, the potential for economic development and growth, the needs for quality of life improvements, and actions that could be taken to address these issues.

This summary report represents the findings of these interviews and will be used to inform the stakeholders in Little Creek and the state's resource managers about the potential for enhancing life in the Little Creek community and surrounding associated areas.

### Community profile

Located in Kent County, Delaware, Little Creek was incorpo-

rated in 1899. The town is situated approximately four miles east of Dover and three miles west of the Delaware Bay. State Route 9 runs through the center of town and is referred to as Main Street within town limits.

The town is bordered by rural and agricultural lands to the west and north, wetlands and agricultural lands to the east, with the Little River and associated wetlands comprising the southern border. There are 80 homes within town limits along with four commercial structures and two municipal structures.

Census data (*see page 14*) collected in 2010 revealed the total population of Little Creek to be 224. According to Census data, the town's population peaked in 1960 at 306 persons. Other historical records indicate the town/area had approximately 350 inhabitants in 1888, the year prior to incorporation.

Port Mahon Road bisects the eastern border of the town travelling eastward to the Delaware Bay waterfront area known as Port Mahon. Just a few miles south of town, Pickering Beach Road provides access to another Delaware Bayshore waterfront community known as Pickering Beach. Both locations are important to Little Creek. Port Mahon provides direct deep water access to the Delaware Bay. While there are homes on Port Mahon Road, there are no businesses or homes located in Port Mahon.

Pickering Beach is a closely situated, albeit small, unincorporated residential area. There are 40 tax parcels with more than 30 dwellings in Pickering Beach, all with direct waterfront access to the Delaware Bay.

Both Port Mahon and Pickering Beach have been included in

*“We locals call it Little Crick.”*

**- Little Creek resident**



*Little Creek Mayor Glenn Gauvry discusses the town in his home on Main Street. Underlying photo, the remains of Port Mahon.*



*“It is hard to believe that this waterfront area is now vacant.”*

- Life-long Little Creek resident

the research as having impact under the Little Creek community’s “sphere of influence.” Activities in Little Creek can and may impact Port Mahon and Pickering. Conversely, activities in those two areas may also impact Little Creek.

### Cultural heritage

The area that became the town of Little Creek was first settled in the early-1800’s. Nearby Cowgill Corner is considered to be one of the earliest settlements in the region. Henry Cowgill acquired the land in 1794 and a town known as Little Landing began to grow soon thereafter. (Scharf 1888)

Little Landing came to prominence in the late-1800s when a thriving oyster industry emerged. By the time of its incorporation in 1899, and subsequent name change to Little Creek, the town was considered to be one of the most prosperous in the state.

The heyday of the oyster industry lasted into the early-1930s. Little Creek was home to many of the participants in the oyster fishery and also supported associated businesses, such as a general store, a blacksmith and a shucking house. The Little Creek waterfront was also a home port to as many as 12 oyster schooners over the years.

Nearby Port Mahon was a popular anchorage for many of the 50 oyster schooners in Delaware during the glory years of the fishery and associated industry. Port Mahon was considered to be one of the best shipping points on the bay with the capacity to load ten ships at a time. Marsh hay and grain were also shipped from the port.

The decline in Little Creek and Port Mahon’s maritime economy started in the 1930s and continued into the 1960s. The 1930s saw a decline in demand for oysters following a typhoid outbreak in the 1920s. Then came increased harvest efficiency allowed by a switch from sailing to power dredging. This advancement coupled with the new style spoon bow schooner developed a few years prior resulted in overharvesting and a subsequent depletion of the oyster beds.

In 1958, the MSX parasite resulted in an 85 to 90 percent mortality rate on the oyster beds. This put all but a few boats out of business. Many watermen switched to clamming, crabbing and finfish as a source of income. (302 Stories 2012)

Interestingly, Little Creek has been able to grow in population after an initial down trend associated with the decline and near collapse of the oyster industry. Census data shows a growth of 13 percent, or 29 individuals,

from 2000-2010. This shows Little Creek to have been somewhat insulated from the real estate collapse in 2008. Curiously, the 2010 Census data indicates there are no watermen presently living within the town of Little Creek.

Pickering Beach saw its beginnings as a fishing village in the late-1800s and early-1900s. The beach is said to have been populated by numerous fishing shanties. Eventually, a tackle shop/general store and restaurant were established during the 1930s to service local needs. Originally only accessible by boat, it was not until a road was established in the 1930s that the area was accessible by automobile or carriage.

Horseshoe crab harvesting occurred in Pickering into the 1950s. The crabs were used for fertilizer on local farms. Today, Pickering Beach is a horseshoe crab sanctuary for the state’s designated marine animal. Visitors from around the globe visit Pickering annually to watch the migratory shorebirds that arrive to feed on horseshoe crab eggs in May and June. National Geographic and Animal Planet have filmed episodes in Pickering about horseshoe crabs and migratory birds.

In the 1970s, Pickering became a popular summer home and recreational fishing destination. Two families owned all of the land in Pickering and leased lots to people seeking summer respite from urban areas to the north. The families that owned the lots began selling them off in the 1980’s, leading to Pickering becoming a

retirement destination as well. Several Pickering Beach residents are active members of the Alliance of Bayshore Communities.

### Working waterfront

Little Creek’s working waterfront has a history and tradition dating back to the late-1800’s. The waterfront area is situated on a small section of the Little River east of State Route 9. The present day waterfront is devoid of maritime activity. Until recently, only pilings remained where oyster schooners and crab boats once called Little Creek home. Dredging of the river occurred in the fall of 2015. The old pilings were removed as part of this project. The only fishing activity that occurs is the occasional recreational angler casting a line from the bridge.

In the 1960s, the Little Creek waterfront was home to as many as five oyster schooners, several crab boats, a head boat, an oyster shucking house and a restaurant/liquor store. By the early 1990s, only one to two boats remained. As recently as five years ago, two restaurants, a deli and a seafood market operated on or adjacent to the waterfront.

Sedimentation of the river reducing navigability is cited as one reason for the lack of maritime activity on the Little River. Routine dredging was stopped in the 1990s because of state budget issues. This factor, coupled with the damming of the Little River on private property west



Left, general store and post office in July 1938. Above, Port Mahon lighthouse and residents, circa 1910 (photos from the town’s website)



Little Creek’s harbor in its oystering heyday (photo from the town’s website)



of Route 9 in the 1980s, are believed to have resulted in the present day poor navigability of the river in the waterfront area.

The Port Mahon waterfront can be considered to be an extension of the Little Creek working waterfront. The present-day waterfront in Port Mahon is home to a state boat ramp and dock. The Little Creek Volunteer Fire Department fireboat is docked here. One oyster schooner is also docked nearby. A recreational fishing pier was established in Port Mahon by the State of Delaware in the 1970s. The Dover Air Force Base also operates a pier in Port Mahon that is used to offload jet fuel from ships. The jet fuel is stored in tanks located just west on Port Mahon Road.

The majority of the land in Port Mahon is controlled by The Nature Conservancy in the Port Mahon Preserve. Port Mahon is a popular destination for migratory bird watchers in May and June during horseshoe crab spawning. Then in the winter months, Snowy Owl can often be found.

At the height of the oyster industry, Port Mahon was home to a lighthouse, a blacksmith shop, a ships chandler's store and a general store. Historical accounts indicate that as many as 100 schooners/vessels used Port Mahon as an anchorage and offloading point. More recently there was a fishing tackle shop in Port Mahon that serviced recreational anglers.

The lighthouse was established in the 1830s and was originally called the Mahon's Ditch Lighthouse. Over the years, the lighthouse was replaced four times because of erosion from encroaching bay waters. The last lighthouse was built in 1903 and stayed in service until the 1930s. The Port Mahon Lighthouse was placed on the National Register of Historic Places in 1976, but was destroyed by fire in December of 1984. (Gowdy 1999)

Currently, as many as 12 watermen use the Port Mahon boat launch. Use is transient in nature as there is no

dock space to leave a boat for a prolonged period of time. These watermen identify themselves as crabbers but are involved in other fisheries as well. Commercial crabbing is characterized by its participants as a "full time – part time" job. Commercial crabbing activities occur primarily from May through October. In addition to crabbing, these watermen also participate in the oyster fishery (May and June), gill net (February through May and then again in November through December), and in the winter months, the crab dredge and conch dredge fisheries.

Regulatory restrictions such as quotas and seasons have necessitated diversification into other fisheries for these watermen to maintain the economic viability of their chosen livelihood. Interestingly, diversification into other non-water related vocations does not appear to be occurring.

As in other working waterfront communities, watermen in Little Creek and Port Mahon see themselves as a dying breed. Recruitment of young people into the business is rare. This is attributed to safer more lucrative opportunities and also to the younger generation's reluctance to be engaged in work that does not offer the stability of other more mainstream employment.

### Project scope of work

The purpose of this study is to survey community and business leaders and solicit responses regarding different forms of development activity (tourism, residential housing, condos, etc.) that have been discussed and/or proposed in and near the waterfront area and identify possible resource management issues.

This feedback will help the project investigators to assess socioeconomic impacts and identify main areas of concern in order to develop a conceptual framework for sustainable development, including identifying future business infrastructure needs that might enhance profit-

ability within the community.

The desire of the research is to focus and synthesize the discussion. The resulting report is then intended to be a launching point for a more detailed community-wide examination of the issues. It is the intent to surface pertinent issues and shape the conversation for others to participate.

### Methodology

The method undertaken was to synthesize and focus the discussion of community needs among respondents. This allows for the development of a conceptual framework for use in strategic planning purposes. The intent is to take input that has been previously only conversational and anecdotal and transform it into more qualitative data.

Twenty-two individuals were contacted and interviewed utilizing a semi-structured interview technique. The respondent pool was comprised of a diverse group of community members representing municipal leaders, community activists, safety officials, business owners,

commercial and recreational fishermen, residents and non-residents. Appropriate state and federal agency personnel with direct regulatory responsibility/jurisdiction in and around Little Creek were interviewed as part of this process as well.

Respondents were initially selected based on the researcher's knowledge of the town and its issues. Additional respondents were identified during the interviews, which allowed the researcher an opportunity to solicit other key people and seek a diverse group of opinions. Every attempt was made to obtain an array of opinions on each issue as it arose.

The interview questionnaire was based on a framework of themes identified in meetings with municipal and business leaders and through a review of planning documents and other related background materials. The interview process was first initiated with community leaders and then expanded to include others as they were identified. This is commonly referred to as a "snowball" approach.

The interview process and questionnaire are meant to be adaptable so as to allow for subsequent questions to be appropriately modified as a result of individual responses. This allows the researcher to tailor the interview to the specific knowledge and interests of the respondent and more thoroughly explore the theme and associated sub-components as they are discovered.

The semi-structured interview technique is common in the social sciences and particularly within cultural anthropological research (Salant and Dillman, 1994). This method was chosen because it allows for the open flow of ideas and exchange of opinion. Specifically, it allows the researcher to identify common issues and themes among respondents as well as areas of conflict (Bernard 1994).

All respondent identities and responses have been kept anonymous in accordance with University of Delaware human subject research policy.

### The problem:

*The business and fishing related activity on the waterfront in Little Creek has been in decline since the mid- to late-1960s . Now devoid of activity, the town seeks to revitalize the existing waterfront.*



*Left, volunteer firefighters relax in front of their ladder truck. Station 54 also serves Port Mahon, Pickering Beach, Kitts Hummock and the Delaware Bay.*



# Project findings

## Community attitudes toward the working waterfront

According to respondents, a primary identifying characteristic of the town is the waterfront area and the maritime heritage it represents. There is also a strong association with the rural nature and small town feel of the area. This research found that revitalizing the working waterfront would reconnect the town with its maritime heritage. This is consistent with the “Community Vision” expressed in the town’s comprehensive plan adopted in 2006: “Little Creek is a historic, small town with a rich maritime heritage that will maintain its small town character while allowing for modest growth and redevelopment that is consistent with its rural surroundings”. A primary goal of this plan is “to restore and maintain the river so that it becomes usable to town residents.”

### Needs assessment

This section summarizes the business infrastructure projects identified that would positively benefit the economic viability and sustainability of the working waterfront. These projects are not prioritized in any particular order and are presented for Little Creek, as well as Port Mahon and Pickering Beach.

### Business infrastructure needs

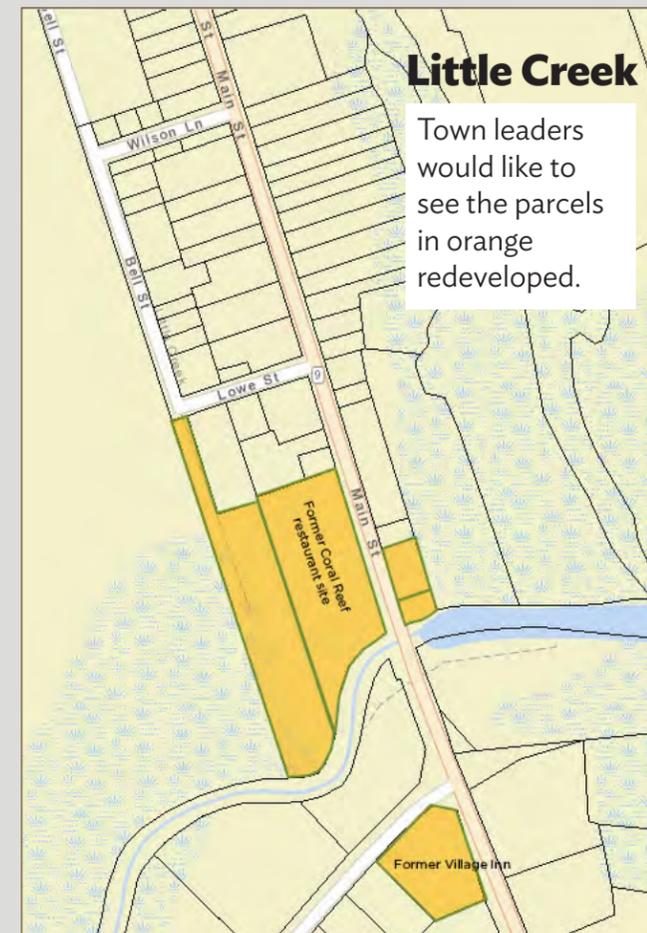
The Little Creek waterfront has been identified by the community as an Economic Development Zone. It is

envisioned that this area could be revitalized as a commercial hub for the town. This activity would benefit the town with proximity to amenities for its citizens and as a tax base for the municipality. It is also hoped that this enhancement would increase the economic viability of the town in terms of competing for funding for future development activities, such as maintenance river dredging and Bayshore-related projects.

This area is comprised of five lots. Two parcels are situated east of Main Street; one of which borders the Little River while the other is located immediately north of that lot. This lot has standing pilings driven into the sediment. Permitting issues stopped development.

This property was previously occupied by a commercial structure known as the Laughing Gull Tavern and Package Store. This structure incurred severe storm-related flood damage approximately 30 years ago. Subsequently, the business was relocated across Main Street to the west. The lot next to the Little River is currently vacant but had been home to an oyster shucking house until the 1960s.

Two other lots are to the west of Main Street. One lot is adjacent to the Little River while the other lot borders just to the north. This lot has a parking area and a vacant structure that was most recently a restaurant into the early 2000s. A small structure that operated



as a bait shop and seafood market is situated on the lot next to the Little River. This business has been defunct for several years.

The fifth lot is across the Little River to the south of town on the west side of State Route 9 on the corner with South Little Creek Road. It was previously home to a popular restaurant known as the Village Inn, which closed in the late-2000s. It is thought that the downturn in the economy in 2008 coupled with the opening of the Route 1 bypass in the 1990s were contributing factors.

While it is the vision of the town to revitalize some or all of these five lots/businesses as an economic hub on the town’s waterfront, it has been discerned that wetland permitting issues and sea level rise may prohibit development on the two lots east of Main Street. Efforts have been underway by the Town Council in recent years to attract new restaurants into the empty buildings.

Other business types have been considered as well. Just to the north there are two lots on which a deli business has operated in the past. A new owner has been working to open this business in the near future.

### Little River waterfront

Some degree of revitalization of the waterfront area on the Little River was a common theme among respondents. Suggestions for this included a boat ramp and associated dock on the river itself and the re-establishment of businesses on the five commercial properties adjacent to the river.

The State of Delaware is in the planning process to install a boat ramp and dock in 2017 on the south side of the river east of the bridge. It is anticipated that this amenity coupled with dredging of the river would attract water-related businesses to the waterfront area. It is hoped that businesses, such as a recreational fishing tackle shop, kayak rental, seafood market and restaurants would be established.

The Little Creek Volunteer Fire Company’s smaller fire boat could be docked here to service the Little River out to the bay. This would enhance the company’s coverage area and response times.

Beautification of the river along the waterfront is considered to be a necessary compliment to dredging the river and adding a boat ramp/dock. Ideas include removal of the old pilings and cleanup of trash dumped in the river over the years. Additionally, stabilization of the north bank of the river would not only preserve the upland, but would have a positive aesthetic value on the view shed.

### River dredging

Sedimentation of the river has become a serious issue as it has impaired navigability. Dredging was completed in the fall of 2015. The Little River was dredged to a depth of six feet and a width of 30 feet within the Little Creek waterfront area east of the bridge. Dredging west of the bridge extended only about 30 yards. The river was dredged all the way to the Delaware Bay.

It is anticipated that the waterfront area could be become a prime destination for recreational anglers and crabbers once the dredging has been completed and the boat ramp and dock are installed. In turn, the Little River will also be a much better place for recreational boating and kayaking.

### Damming of the Little River

The Little River was dammed at some point in the 1980s approximately a quarter of a mile west of the bridge. This dam was created on private property by private individuals. The presumed purpose of the dam was to



*This snapshot from Google Earth shows where the Little River has been dammed about a quarter mile west of the town. The private dam is believed to have increased sedimentation and localized flooding.*



create an impoundment for use in waterfowl hunting. Many respondents believe this dam has altered/reduced the flow of the river resulting in increased sedimentation and has contributed to localized flooding within town limits. It is also asserted by some respondents that the dam has adversely impacted the function of wetlands both adjacent to the dam and downstream in town limits. Restoration of the proper function of the river and wetlands is a common goal among these respondents.

### Walkable town concept

A self-guided walking tour of the town is envisioned by many respondents. It is believed that informational kiosks could be placed along a walking tour taking people on a journey of discovery about Little Creek and its history and maritime heritage. The Old Stone Tavern and the Octagonal School House just north of town limits could be used as part of this tour providing an information booth as well as public restrooms and parking. Some respondents support acquiring the property that borders the east of the town from Port Mahon Road south to the Little River and incorporating a nature walk into the walking tour. This would allow the tour to come full circle, taking visitors to the river and on main street along the way.



The Old Stone Tavern is a Little Creek landmark, dating to about 1829.

It is envisioned that a walkable town concept would position the town well with the ecotourism components of the Delaware Bayshore Initiative. It would also enhance the Little Creek Discovery Zone as part of the Delaware Bayshore Byway Corridor Management Plan.

### Jarmon property

The parcel targeted for a potential nature trail is known as the Jarmon property. The Town and State of Delaware have approached the owner in an attempt to purchase the property for inclusion in the Bayshore Initiative. The property would provide ecological benefit to the town in that it could be used for Sea Level Rise mitigation strategies as well as to address a drainage issue on the north end of town (this topic is discussed in greater detail later in this report). The property is also of interest to the town for the economic benefits that it would provide for ecotourism projects like the walking trail described above.

### Phragmites control

Many coastal towns are adopting regulations requiring the control and reduction of Phragmites within municipal limits. Reasons for this are generally twofold: removal of this invasive species improves aesthetics and secondly, dry Phragmites is increasingly becoming recognized as a fire hazard. Several respondents recognized a need for a town ordinance regarding Phragmites.

### Storm water management

Two areas in town were repeatedly mentioned by respondents with regard to problems with storm water management. One area is on the north end of town near the post office. Storm water drains in this area are apparently not functioning properly resulting in flooding of lots and roads during heavy rain events. These storm drains apparently empty into a ditch on the aforementioned Jarmon Property. This ditch has filled in due to a lack of maintenance.

The second area, on the south end of town, adjacent to the vacant lot with pilings, has a similar issue in that it backs up from water coming in from the river. This problem has been exacerbated by the recent dredging.

### Transportation/Traffic Issues

Traffic issues on Main Street were noted by several respondents. Specifically speeding and truck traffic were the two most common issues identified. The Town does not have a police department and contracting the

*“Local folklore says the town was originally inhabited by pirates.”*

*- Little Creek resident*

Delaware State Police is cost prohibitive. The Town is exploring traffic modification scenarios, such as traffic calming devices, with DELDOT.

### Port Mahon Road

Maintaining and improving Port Mahon Road is almost universally supported by respondents. This is a high priority for watermen, environmentalists, eco-tourists and government officials. Even though the Dover Air Force Base Oils Spill Contingency Plan requires the road to be open, the perception is that maintenance of the road has been done in a patchwork style, indicating that is not a priority project for responsible agencies.

There is reason to believe this could be changing. Dover Air Force Base has an ICEMAP – Installation Complex Encroachment Management Plan- that is addressing the issue of encroachment of the Delaware Bay on Port Mahon Road. This effort is being coordinated with Delaware Department of Transportation and Delaware Department of Natural Resources and Environmental Control.

### Horseshoe crab mortality

Much of the shoreline at Port Mahon has been reinforced with rip-rap to protect it from encroachment by

the bay. This has resulted in what some call “horseshoe crab killing zones” during the May-June spawning season. Horseshoe crab mortality results when the crabs becoming trapped in the rip-rap.

The Army Corp of Engineers has a proposed plan for periodic nourishment of 5,200 feet along the Port Mahon coast to provide for horseshoe crab and shorebird habitat. This project is not currently scheduled or funded. It is also believed that a sandy beach would provide for additional recreational fishing activities attracting shore-based anglers.

### Lighthouse restoration

The Port Mahon Lighthouse is viewed by many to have been a symbol of the maritime heritage of the area. The loss of the lighthouse in 1984 is pointed to by some as creating a disconnect between the community and its heritage.

Re-establishment of the lighthouse could serve to reconnect the community to its maritime heritage. It could be restored as fully functional, serving as an aid to navigation or as a museum showcasing the maritime heritage of the area for current and future generations. Descendants of the last lighthouse keeper have begun to



Karen Bennett, coordinator of the Delaware Bayshore program, scopes for birds with her husband, Chris, at Little Creek Wildlife Area. Little Creek is a “Discovery Zone” and part of the Delaware Bayshore Byway Corridor Management Plan.





investigate options and funding opportunities for restoring the lighthouse.

### Pickering Beach

Pickering residents would like to position the town to offer and benefit from low-impact, passive eco-tourism. This could be enhanced with informational kiosks for birdwatchers and horseshoe crab enthusiasts. Temporary restrooms were also suggested.

Flooding of Pickering Beach Road has become an issue in recent years, especially after Hurricane Sandy in 2012. The impoundments in the Little Creek Wildlife Area no longer drain properly and have contributed to flooding in the local area.

One other suggestion was the incorporation of Pickering into a bike path into the Little Creek Wildlife Area.

### Sea level rise

A series of questions focusing on sea level rise (SLR) were added to the survey at the request of University of Delaware researchers (Institute for Public Administration). Generally speaking, the SLR issue elicited a wide range of responses ranging from serious concern to disbelief in SLR occurring at all. Pre-testing of the questions found the SLR concept to be somewhat abstract to respondents. This lack of understanding of the issue highlights the need for more education at the community level.

*(See page 14 for sea level rise scenarios and environmental features in and around Little Creek.)*

Pre-testing of the questions also found the issue of localized flooding in the community to be a concern. Given this, the interviewer initiated the SLR discussion with future respondents through the issue of local flooding.

As noted earlier, local flooding is a concern for many in the community. When discussed with SLR in mind, this prompted many respondents to further insist that the

flow of the Little River be restored through dredging and the removal of the dam on private property west of the bridge. The consensus developed that once the function of the river and associated wetlands are restored, then the issue of SLR can be addressed in a more appropriate manner. Respondents did indicate an interest in projects that would address this issue.

The shoreline erosion at Port Mahon was commonly referred to as possible evidence of SLR occurring in the area. The old docks and pilings from the 1930s are now partially submerged, in some cases extending 30 feet into the bay. The pilings from the most recent lighthouse extend 20 yards into the bay. It was also noted that a day marker that is now out in the bay was once on land as well.

### Strategic Doing/Path Forward

This report summarizes the attitude of the town toward the working waterfront, identifies business infrastructure needs, addresses issues associated with these needs, and then lists additional opportunities. It is evident from this research that the town wants to preserve and enhance the working waterfront, embraces low impact day use tourism and wants to take advantage of eco-tourism opportunities. The question now becomes: How does the town want to go forward?

This research represents the first step in potential implementation of a “Strategic Doing” process in Little Creek. With an initial Needs Assessment completed, the community may consider becoming engaged in a facilitated process that results in implementation of actions based on four simple questions:

- “What COULD we do together?”
- “What SHOULD we do together?”
- “What WILL we do together?”
- “When will we meet again?”

The answer to these questions evolves during a town meeting facilitated by University of Delaware Sustainable Coastal Communities Initiative staff. This conversation leads to a prioritization of preferred projects through the development of an action framework. At this point, the town will need to determine roles and responsibilities by assigning appropriate tasks for the desired projects. Throughout this process, the facilitators will make efforts to have appropriate state and federal personnel involved in the conversation to answer regulatory, policy and funding questions.

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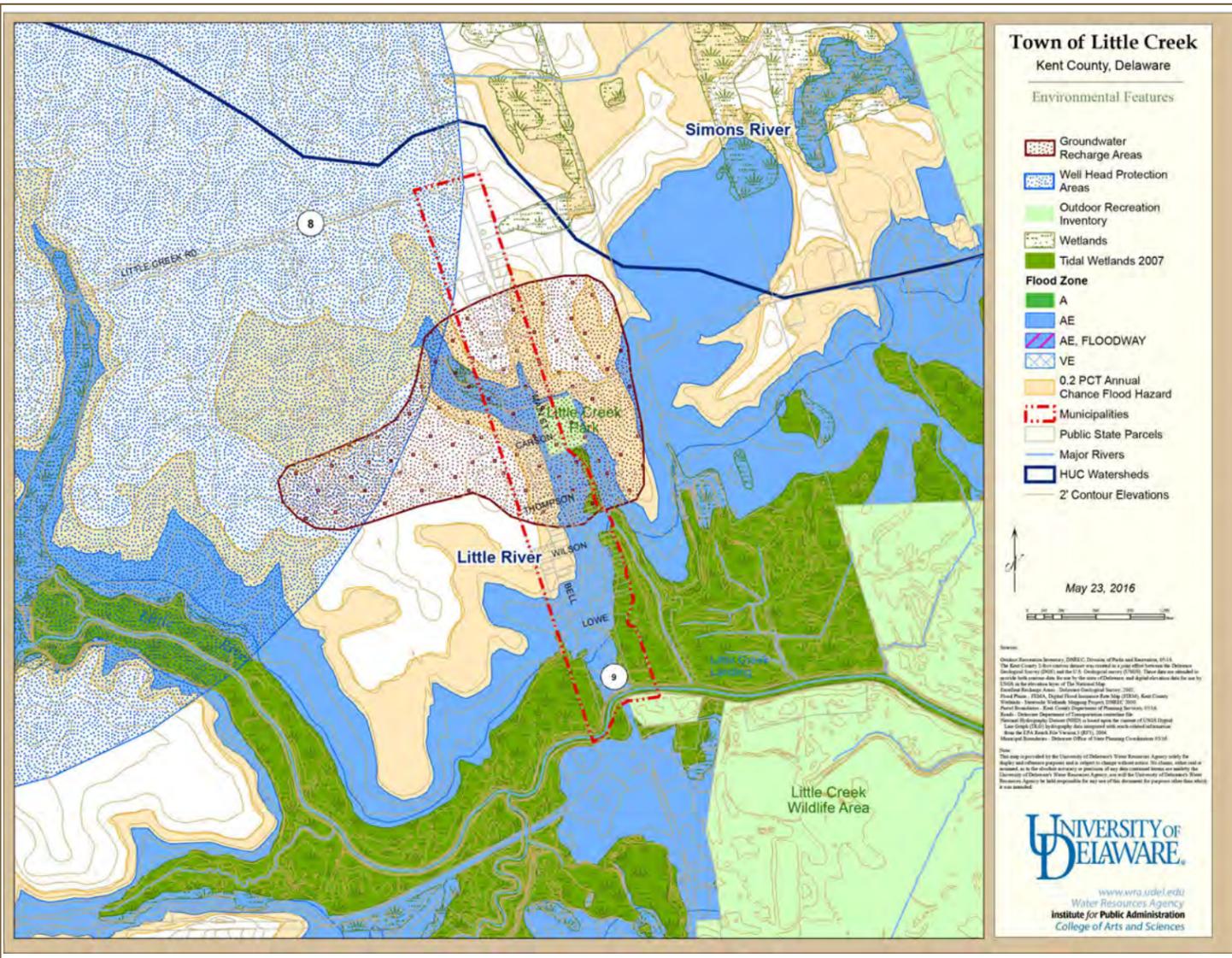
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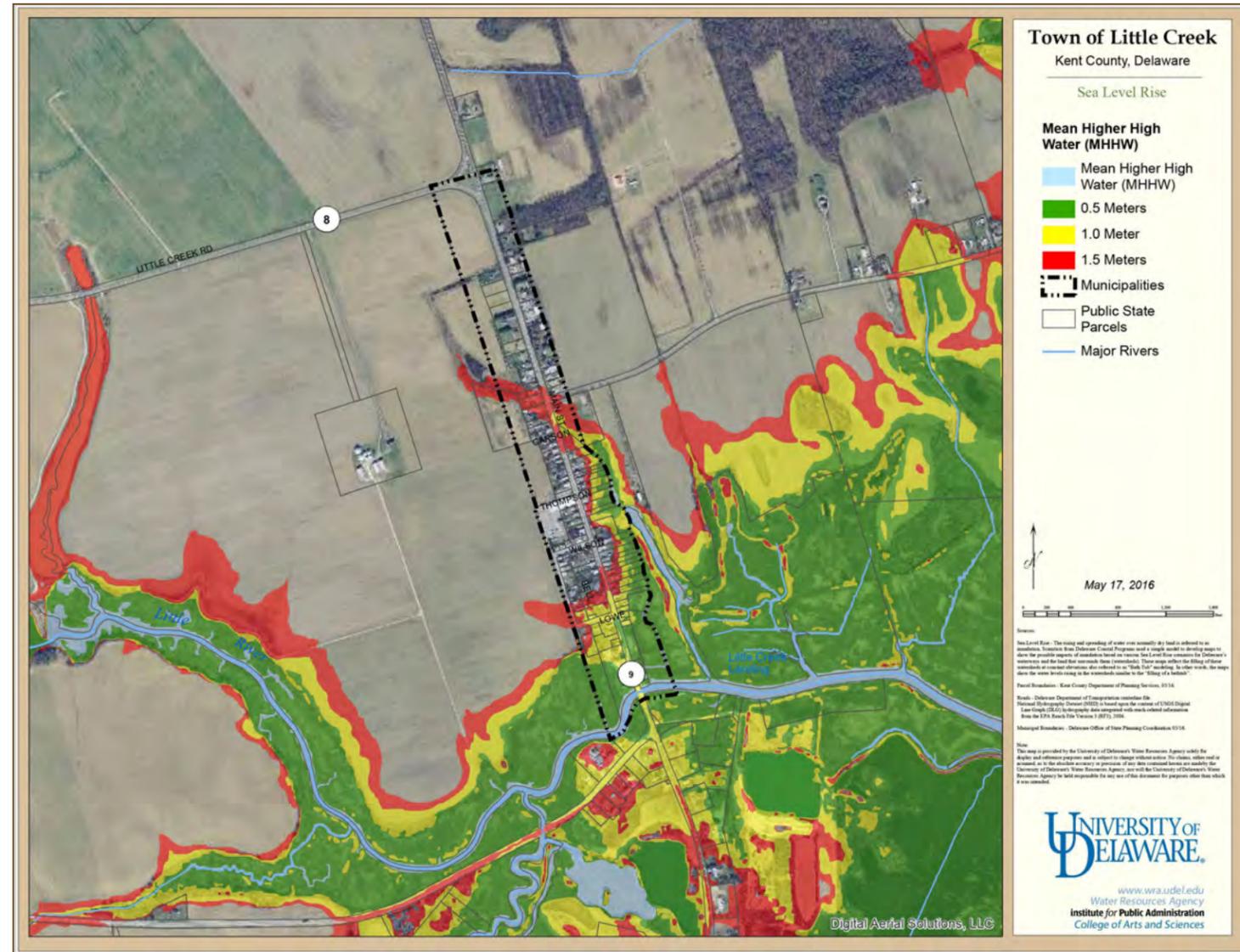


*Above, looking south down Little Creek’s Main Street.*





This map shows the numerous environmental features that affect the Town of Little Creek (outlined in red dashed lines). Zones marked A and AE are subject to a 1 percent annual chance of flooding. There are also parcels within delineated tidal wetlands.



This map shows the various sea level rise scenarios of 0.5 meters (green), 1.0 meters (yellow) and 1.5 meters (red).

Little Creek statistics	
Population (2010 Census)	224
Median age	41.6
Median Household Income	\$55,833
% low-moderate income (HUD)	40.0
Number of housing units	92
- Owner-occupied	81
- Rental	11
Vacant units	5

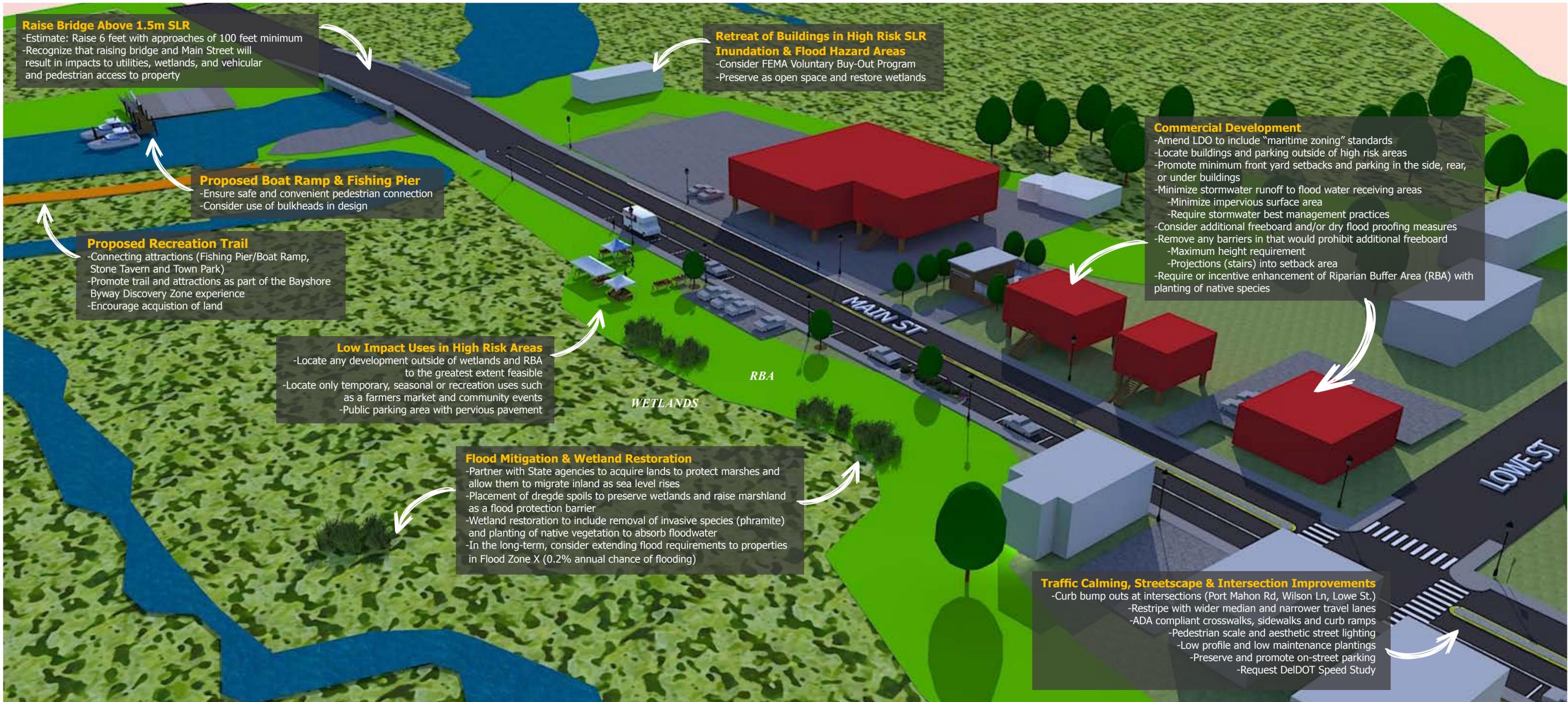
Occupations	Number	%
Civilian employed population 16 years and over	112	100
Management, business, science, and arts occupations	13	11.6%
Service occupations	26	23.2%
Sales and office occupations	43	38.4%
Natural resources, construction, and maintenance occupations	20	17.9%
Production, transportation, and material moving occupations	10	8.9%

Statistics are from the 2010 Census and HUD Exchange.



## Appendix D: Illustrative Plan

Illustrative Summary of Plan Recommendations - South  
Illustrative Summary of Plan Recommendations - North



**Raise Bridge Above 1.5m SLR**

- Estimate: Raise 6 feet with approaches of 100 feet minimum
- Recognize that raising bridge and Main Street will result in impacts to utilities, wetlands, and vehicular and pedestrian access to property

**Retreat of Buildings in High Risk SLR Inundation & Flood Hazard Areas**

- Consider FEMA Voluntary Buy-Out Program
- Preserve as open space and restore wetlands

**Proposed Boat Ramp & Fishing Pier**

- Ensure safe and convenient pedestrian connection
- Consider use of bulkheads in design

**Proposed Recreation Trail**

- Connecting attractions (Fishing Pier/Boat Ramp, Stone Tavern and Town Park)
- Promote trail and attractions as part of the Bayshore Byway Discovery Zone experience
- Encourage acquisition of land

**Commercial Development**

- Amend LDO to include "maritime zoning" standards
- Locate buildings and parking outside of high risk areas
- Promote minimum front yard setbacks and parking in the side, rear, or under buildings
- Minimize stormwater runoff to flood water receiving areas
  - Minimize impervious surface area
  - Require stormwater best management practices
- Consider additional freeboard and/or dry flood proofing measures
- Remove any barriers in that would prohibit additional freeboard
- Maximum height requirement
- Projections (stairs) into setback area
- Require or incentive enhancement of Riparian Buffer Area (RBA) with planting of native species

**Low Impact Uses in High Risk Areas**

- Locate any development outside of wetlands and RBA to the greatest extent feasible
- Locate only temporary, seasonal or recreation uses such as a farmers market and community events
- Public parking area with pervious pavement

**Flood Mitigation & Wetland Restoration**

- Partner with State agencies to acquire lands to protect marshes and allow them to migrate inland as sea level rises
- Placement of dredge spoils to preserve wetlands and raise marshland as a flood protection barrier
- Wetland restoration to include removal of invasive species (phramite) and planting of native vegetation to absorb floodwater
- In the long-term, consider extending flood requirements to properties in Flood Zone X (0.2% annual chance of flooding)

**Traffic Calming, Streetscape & Intersection Improvements**

- Curb bump outs at intersections (Port Mahon Rd, Wilson Ln, Lowe St.)
- Restripe with wider median and narrower travel lanes
- ADA compliant crosswalks, sidewalks and curb ramps
- Pedestrian scale and aesthetic street lighting
- Low profile and low maintenance plantings
- Preserve and promote on-street parking
- Request DelDOT Speed Study



**Wayfinding and Interpretive Signage**  
-Wayfinding signage for area attractions along the Bayshore Byway  
-Interpretive kiosk for Little Creek and area attractions

**Town Park Improvements**  
-Coordinate with DNREC to seek funding sources for potential park improvements and amenities, such as new ballfields  
-Encourage use of land for seasonal or short-term uses such as a farmers market or community events  
-Promote stormwater best management practices

**Flood Mitigation & Wetland Restoration**  
-Partner with State agencies to acquire lands to protect marshes and allow them to migrate inland as sea level rises  
-Placement of dredge spoils to preserve wetlands and raise marshland as a flood protection barrier  
-Wetland restoration to include removal of invasive species (phramite) and planting of native vegetation to absorb floodwater  
-Partner with County Conservation District and DNREC to acquire or gain access to private property, and to improve drainage issues by investigating, cleaning, and maintaining sediment build-up in drainage channels

**Traffic Calming, Streetscape & Intersection Improvements**  
-Curb bump outs at intersections (Port Mahon Rd, Wilson Ln, Lowe St.)  
-Restripe with wider median and narrower travel lanes  
-ADA compliant crosswalks, sidewalks and curb ramps  
-Pedestrian scale and aesthetic street lighting  
-Low profile and low maintenance plantings  
-Preserve and promote on-street parking  
-Request DelDOT Speed Study

**Proposed Recreation Trail**  
-Connecting attractions (Fishing Pier/Boat Ramp, Stone Tavern and Town Park)  
-Promote trail and attractions as part of the Bayshore Byway Discovery Zone experience  
-Encourage acquisition of land between waterfront and town park

WETLANDS

RBA



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