

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

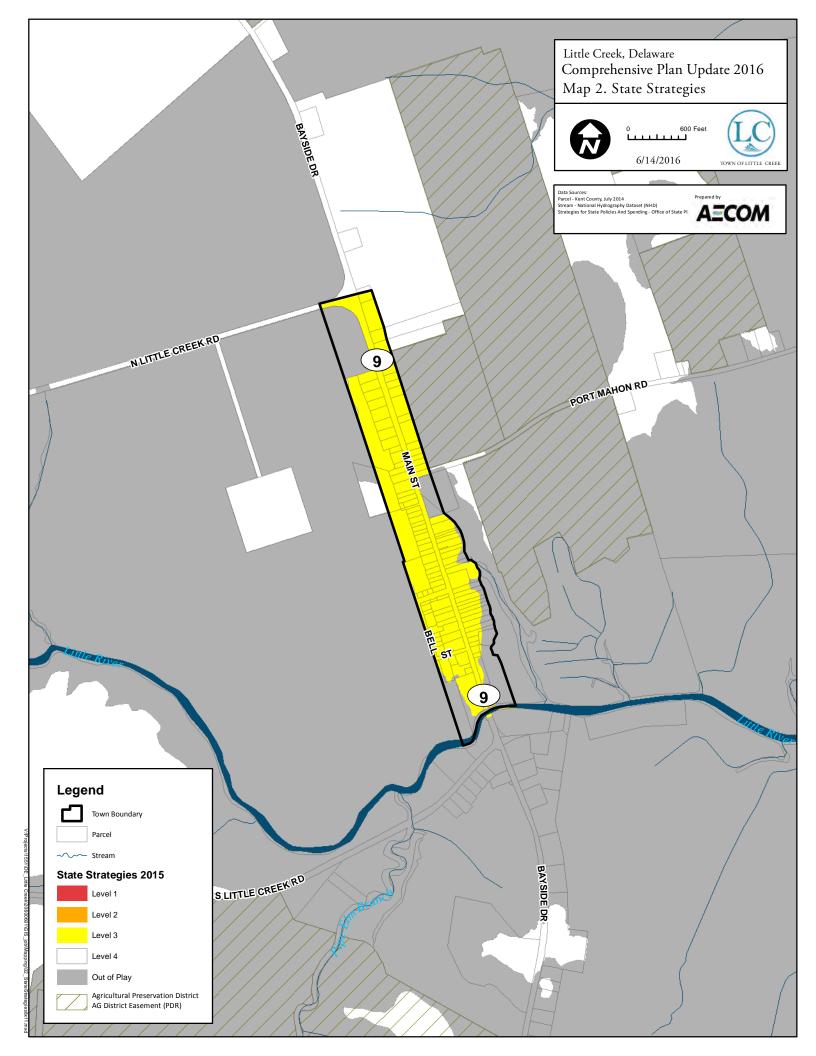
Map 9: Sea Level Rise Vulnerability

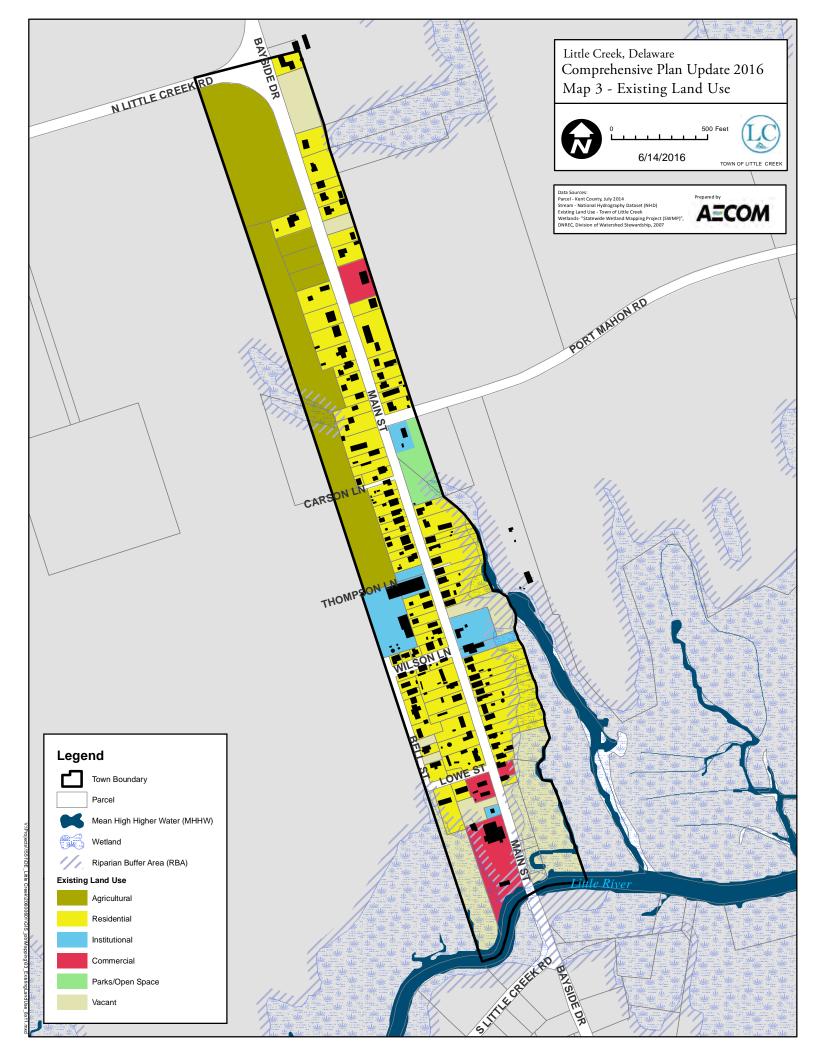
Map 10: Environmental Features

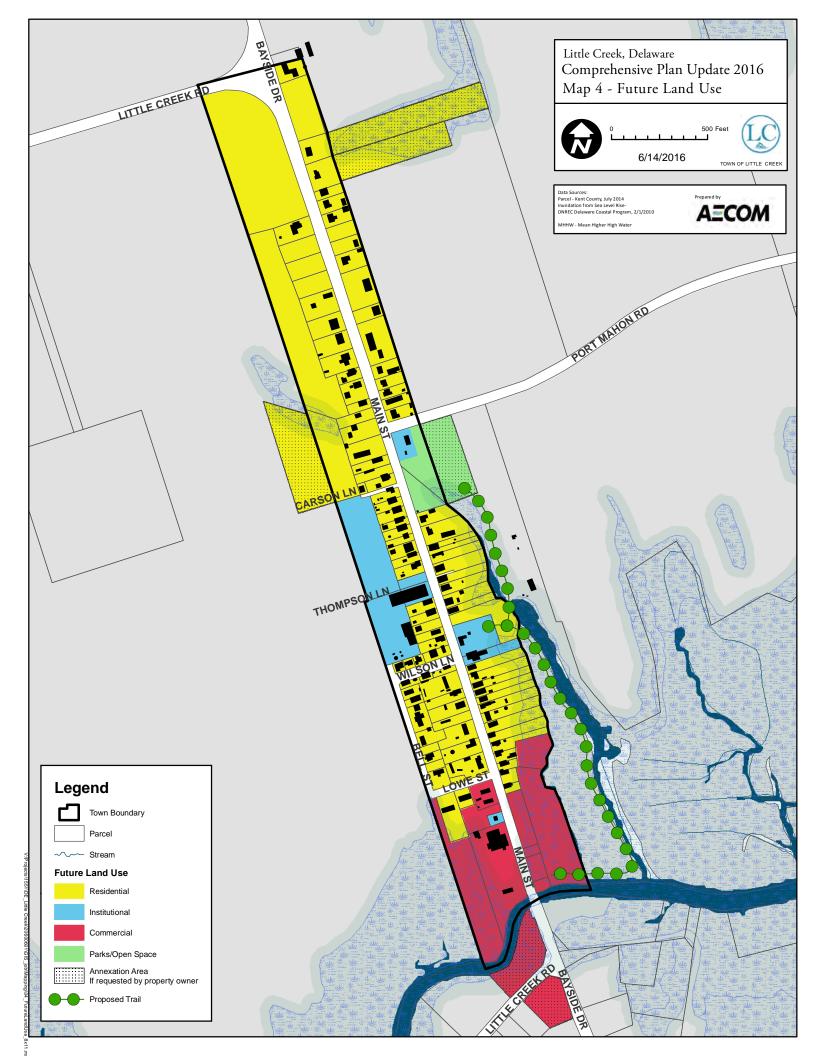
Map 11: Soil Classification

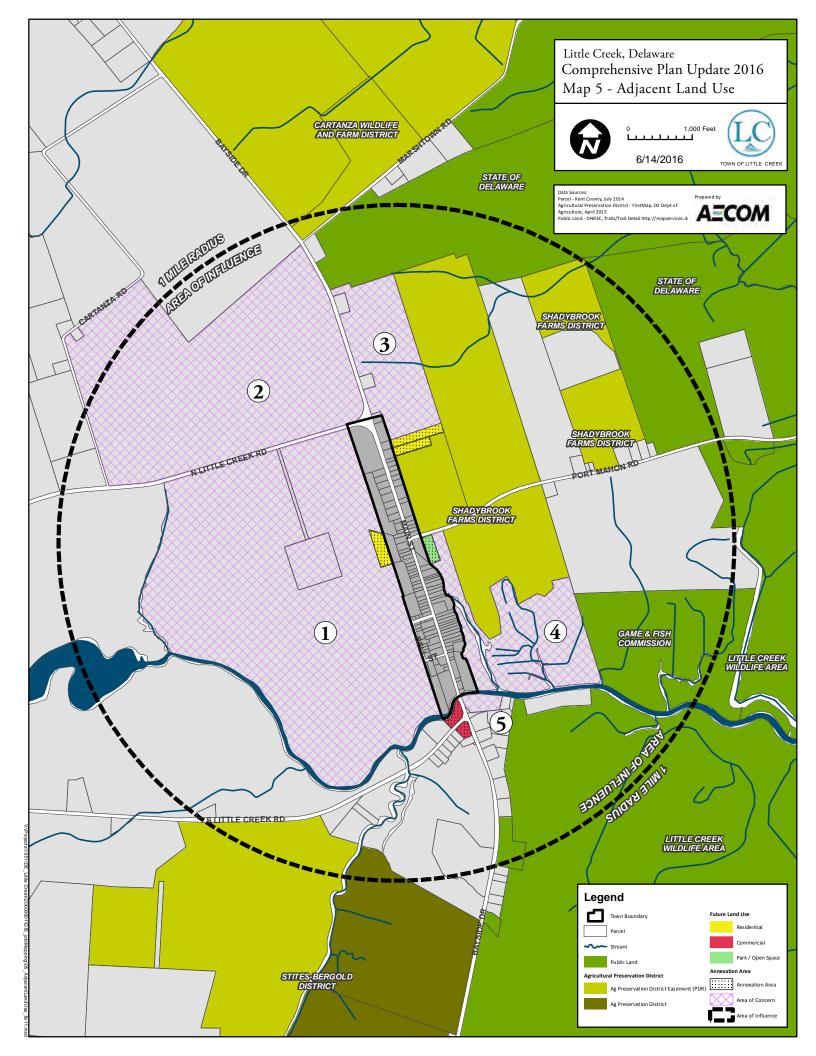
Map 12: Roads

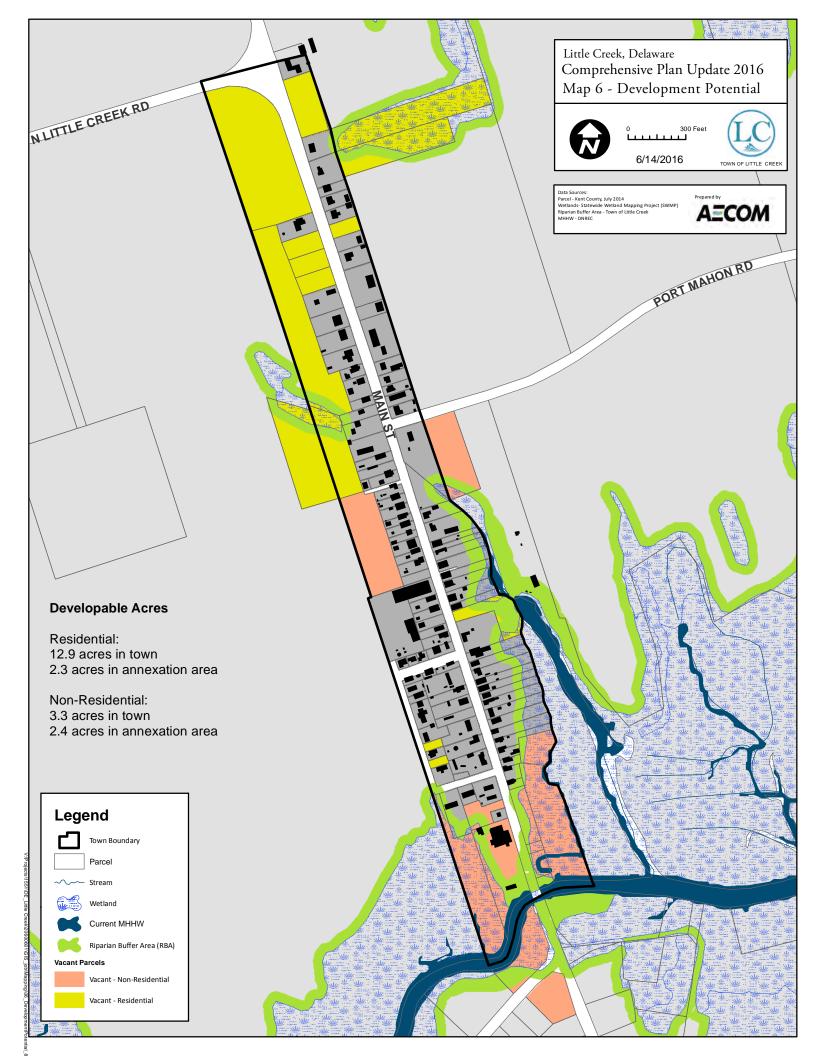


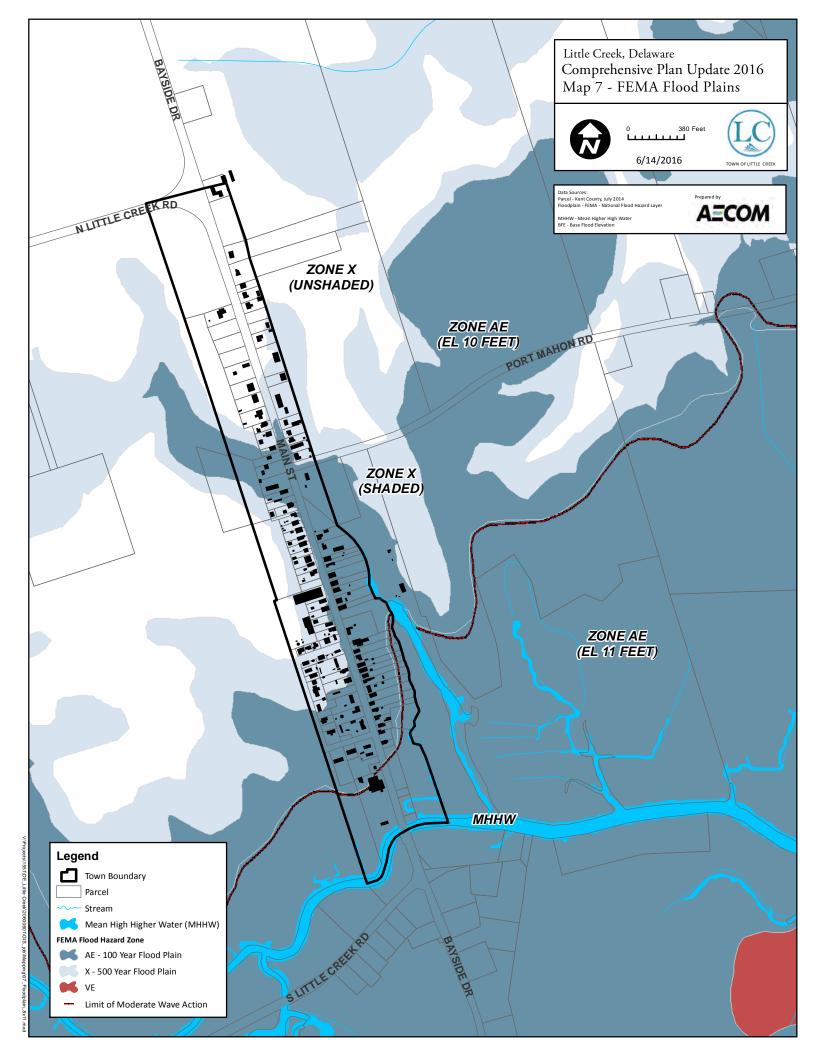


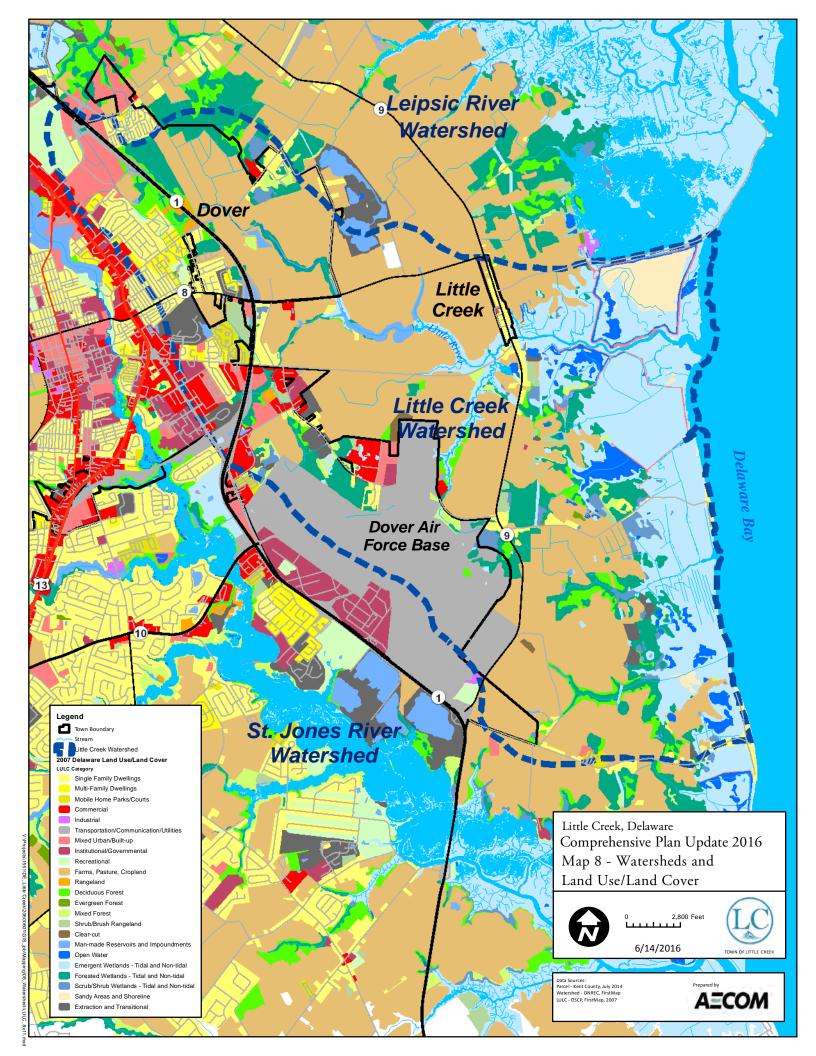


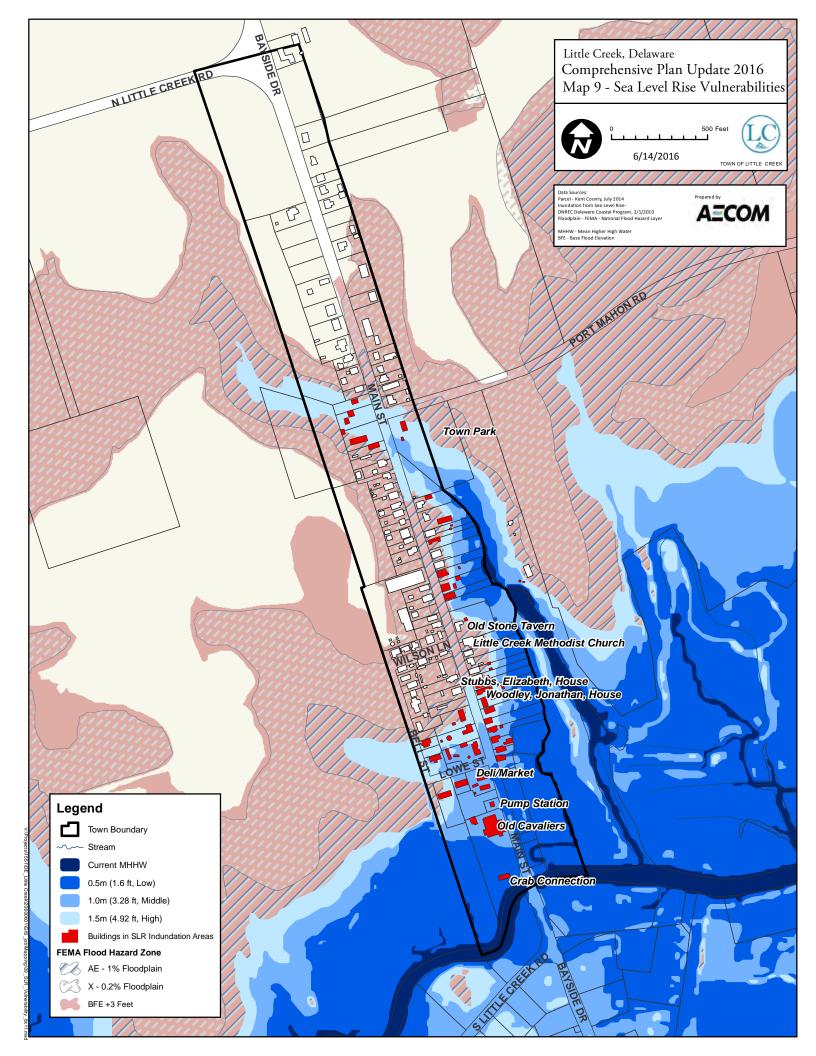


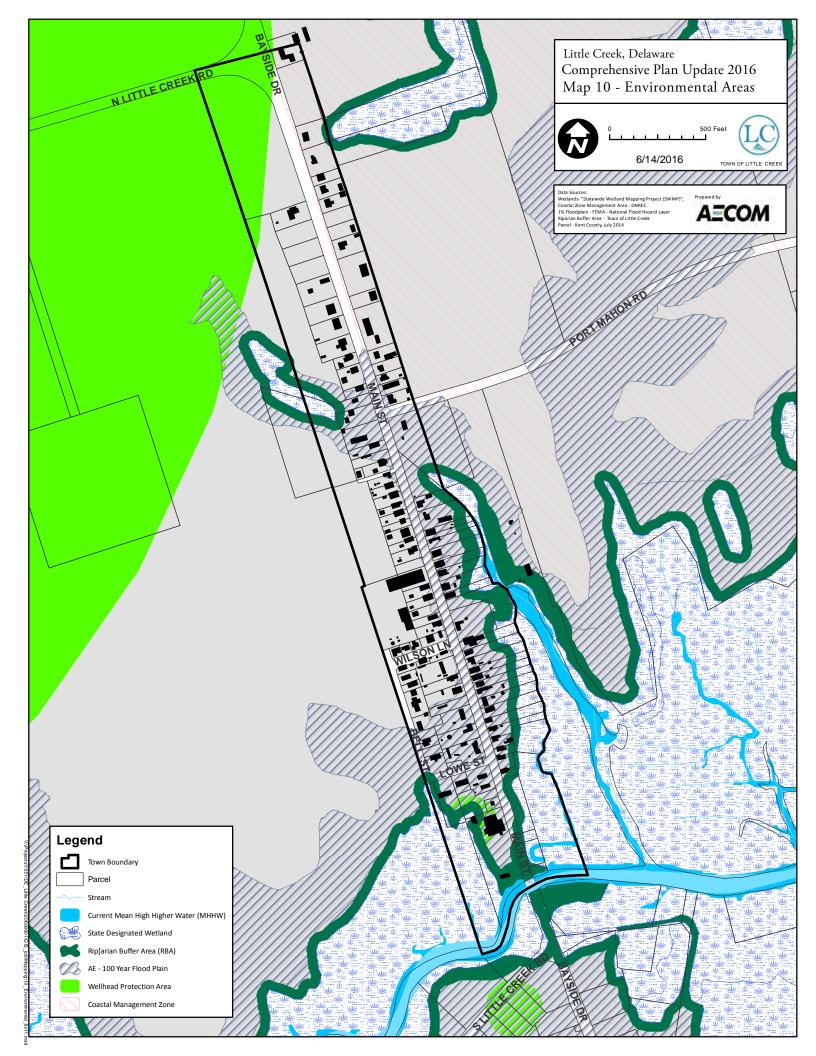


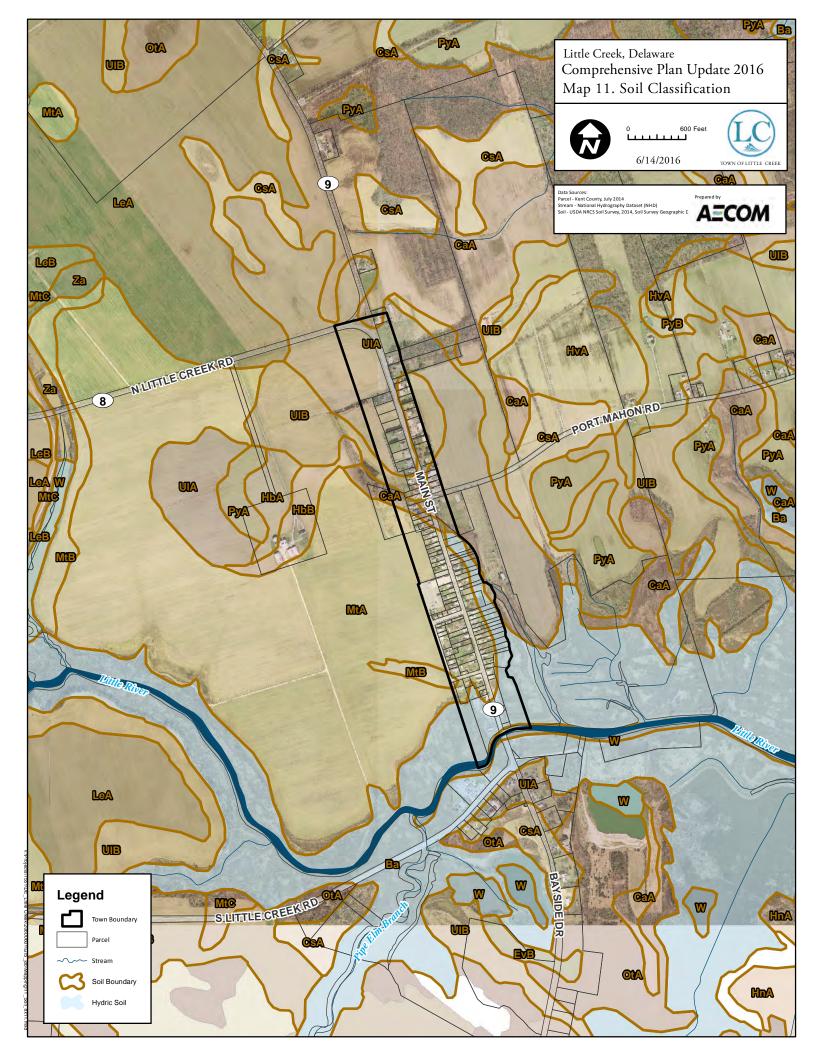


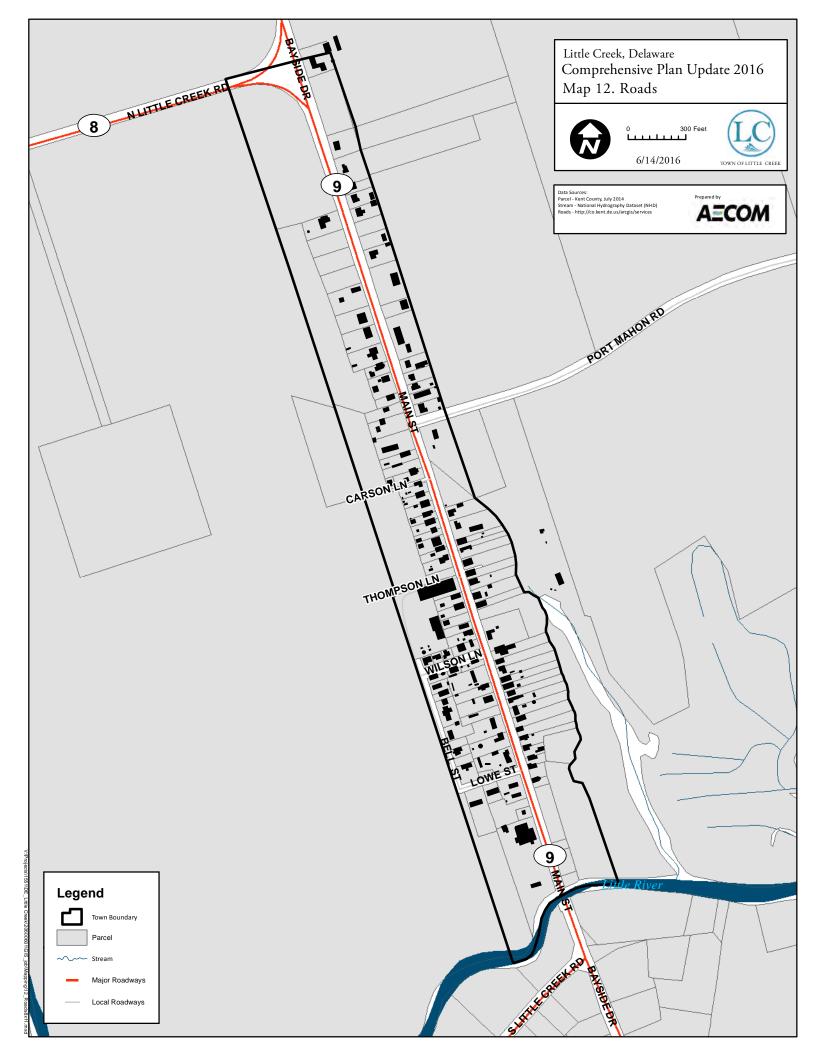












Appendix B: Community Questionnaire Community Planning Questionnaire, July 2015 Community Planning Questionnaire Results - Presentation slides from Public Workshop, October 20, 2015

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. \square YES	
☐ I rent my home	☐ I own my home
I live outside of town limits in the immediat	e 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 $10-20$ miles More than 2	
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	1	2	3	4	5
distance					
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	1	2	3	4	5
towns like Dover and Wilmington.					
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.			3	4	5

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

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	1	2	3	4	5
in the Little Creek area.					
Commercial development (i.e. restaurants, convenience stores, grocery stores,	1	2	3	4	5
etc.) should be encouraged.					
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	1	2	3	4	5
boundaries.					
The town should seek to preserved adjacent land strictly as farmland and open	1	2	3	4	5
space.					
Development should be balanced with protection of farmland and open space	1	2	3	4	5
in the Little Creek area.					
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	1	2	3	4	5
travelers).					
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.

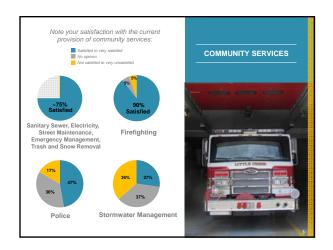
Below are some questions meant to gauge your experience with various flooding and sea level rise issues. Please check the best response for each.

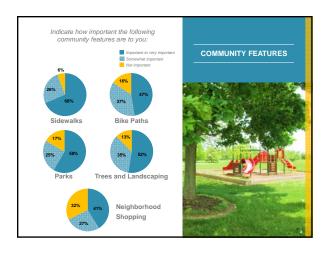
Is your property	is in a floodplain?	
Yes	No	I Don't Know
Is your property	adjacent to a flood	olain?
Yes	No	I Don't Know
Is your property	adjacent to a pond	or stream?
Yes	No	
Does your prope	erty have standing w	ater on it when it rains?
Yes	No	

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 \square
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 of 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.





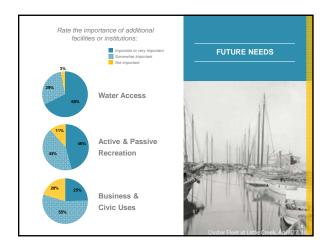
















Ар	pendix C: Working Waterfronts Initiative
	Town of Little Creek Working Waterfront Initiative, University of Delaware's Sustainable
	Coastal Communities Initiative, Institute for Public Administration, 2016

Town of Creeks WORKING WATERFRONTS INITIATIVE



- Little Creek resident

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

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Design, layout and photography (unless otherwise credited)
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Little Creek
Mayor Glenn
Gauvry discusses
the town in his
home on Main
Street. Underlying
photo, the remains
of Port Mahon.

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.



- 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

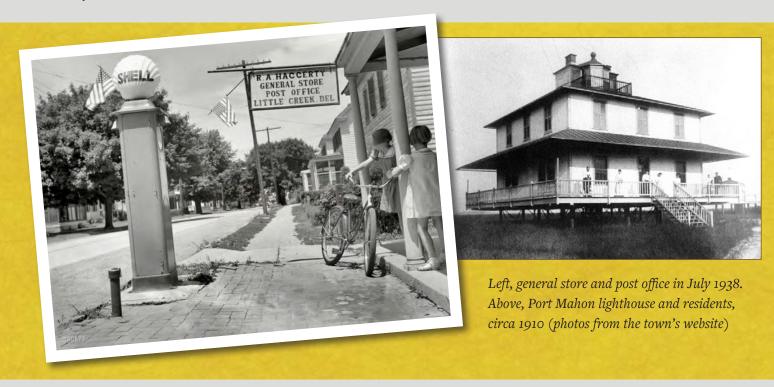
retirement destination as well. Several Pickering Beach residents are active members of the Alliance of Bayshore Communities.

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





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

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.

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.

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

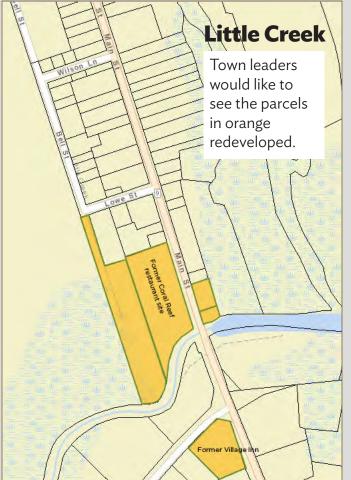
envisioned that this area could be revitalized as a commercial hub for the town. This activity would benefit the town with proximity to amenities for its citizens and as a tax base for the municipality. It is also hoped that this enhancement would increase the economic viability of the town in terms 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 down turn 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



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 Intiative. 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 shorebased 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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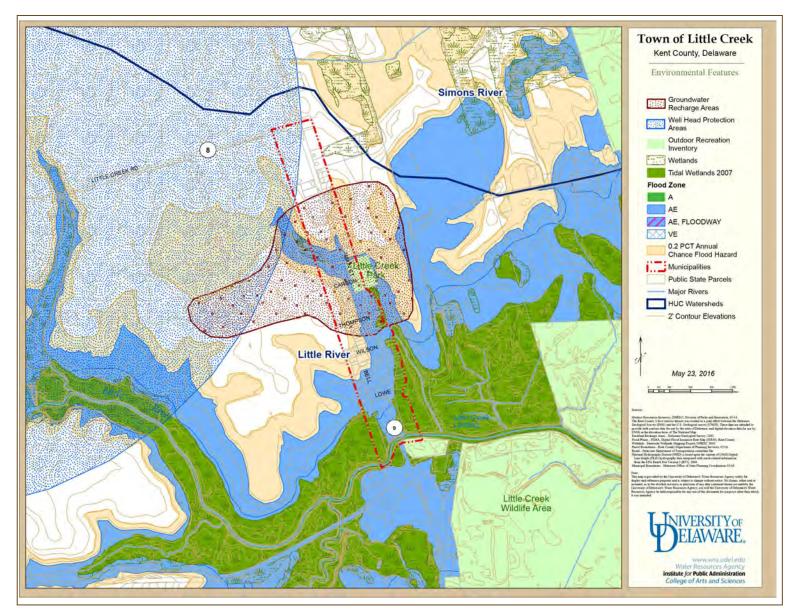
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Above, looking south down Little Creek's Main Street.



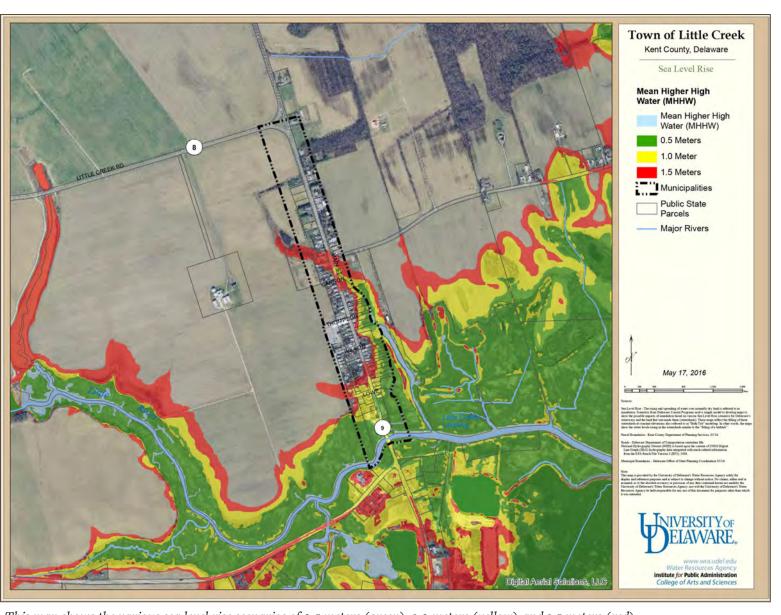


This map shows the numerous environmental features that affect the Town of Little Creek (outlined in red dashed lines). Zones marked A and AE are subject to a 1 percent annual chance of flooding. There are also parcels within delineated tidal wetlands.

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.



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





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

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

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

Appendix D: Illustrative Plan
Illustrative Summary of Plan Recommendations - South Illustrative Summary of Plan Recommendations - North

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

etreat of Buildings in High Risk SLR nundation & 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

- 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 acquistion of land

-Public parking area with pervious pavement

-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

- -Partner with State agencies to acquire lands to protect marshes and allow them to migrate inland as sea level rises
- Placement of dregde 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)

- -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,
- -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

Traffic Calming, Streetscape & Intersection Imp

-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 -Interpretative 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 dregde 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

- -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

- -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 acquistion of land between waterfront and town park

RBA

