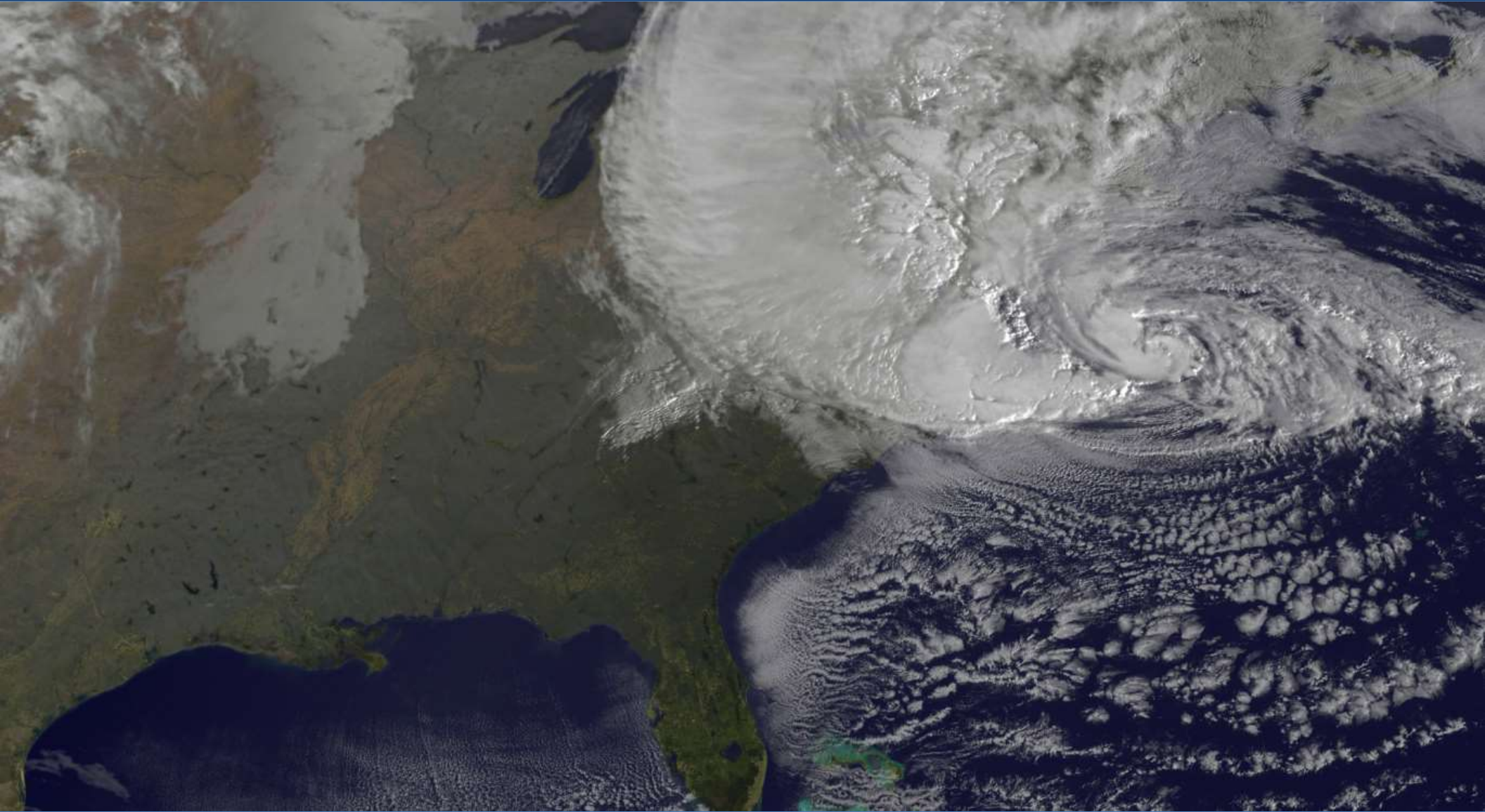


The Township of Little Egg Harbor Ocean County, New Jersey



Strategic Recovery Planning Report
May 2014

Township of Little Egg Harbor Strategic Recovery Planning Report

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The original of this document was signed and sealed in accordance with New Jersey Law.

Executive Summary

When Superstorm Sandy struck the coast of New Jersey on October 29, 2012, it brought extensive damage to Little Egg Harbor Township from both storm surge and wind damage. Little Egg Harbor reported that approximately 4,000 residential properties and a number of small retail businesses and marinas suffered damage. Additionally, the Township reported that seven roadways were damaged, and that electricity, water, and sewer service were disrupted. Superstorm Sandy also resulted in damage to the Little Egg Harbor Township Community Center and the Parkertown Dock Recreation Facility, and trees and power lines fell throughout the Township.

Little Egg Harbor Township has already done much to recover from the impacts of Superstorm Sandy. However, there is still significant work to be done to further promote recovery and resiliency to future storms. This report, therefore, outlines a recommended set of actions to guide the Township in promoting further recovery and resiliency. Among the actions it recommends are: incorporating the principles of the 2013 Multi-Jurisdictional All Hazard Mitigation Plan into the Township's master plan; developing evacuation routes and providing signage and education thereon; investigating opportunities for full-time staff within local fire and EMS agencies; investigating opportunities for shared services and mutual aid, in particular with inland communities that are not as vulnerable to major storms; providing natural gas service for generators at schools; providing the Department of Public Works with an emergency staging facility; improving communication infrastructure for police, fire, and EMS, and secure existing equipment; exploring opportunities to participate in the Community Rating System; adopting a master plan element for floodplain management; automating and expediting the processing of building and zoning permits; updating the township's master plan to address post-Sandy strategies and policies related to hazard mitigation and community resiliency; investigating the need for amendments to the township's zoning ordinance; improving communication between emergency management and water and electric utility companies; installing bay-front energy dissipation structures; installing riprap along the shoreline; repairing/replenishing the eroded beach at Dock Road; providing bulkheads at various locations; performing inlet and lagoon dredging; continuing to participate in the National Flood Insurance Program; maintaining a Local Emergency Planning Committee; holding quarterly emergency management meetings town hall meetings; obtaining a Reverse 911 system; maintaining an Emergency Operations Plan; completing flood protection projects at East Sail, Boat, and Dory drives; upgrading emergency equipment at the municipal building/emergency command center; and, developing a municipal GIS system to support future planning efforts.

Acknowledgements

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Introduction

This Strategic Recovery Planning Report (SRPR) serves as a blueprint to guide the recovery of the Township of Little Egg Harbor from the effects of Superstorm Sandy, and to reduce vulnerabilities to future storms. Accordingly, the report:

- Evaluates Superstorm Sandy's impacts on community features;
- Addresses conditions that Superstorm Sandy created or exacerbated;
- Articulates planning goals, strategies, and actions to improve public safety, develop resistance to future storms, and stimulate economic recovery; and,
- Describes each proposed project at a level of detail that:
 - Demonstrates how it relates to the storm's impacts;
 - Explains why it is important to the township's economic and environmental health;
 - Lists the major tasks with which it may be associated;
 - Includes an estimation of the cost of implementation;
 - Identifies potential or actual funding sources; and
 - Provides a timeline for implementation.

Description of the Township

Little Egg Harbor Township is located in southern Ocean County, and is bordered by: Stafford and Eagleswood Townships to the north; and, Bass River Township in Burlington County to the west. Additionally, the township shares water boundaries with: Long Beach Township and Beach Haven Borough to the east; and, Galloway Township in Atlantic County to the south. The Borough of Tuckerton is an enclave within Little Egg Harbor Township, and forms part of the area's downtown center. The Garden State Parkway, US Route 9, and Green Street (Ocean County Route No. 539) provide regional connections from Little Egg Harbor.

The Township encompasses an area of 73.4 square miles, 63.3 percent of which is land surface. The remaining 36.7 percent is comprised of non-linear (i.e., lakes, ponds, and other large bodies of water, not including streams and creeks) water surfaces, including Great Bay and Little Egg Harbor. Other important features of Little Egg Harbor Township include Bass River State Forest (located in the central part of the township and extending into Bass River Township), Freedom Fields County Park, and the Township Sports Complex (both of which are located off of Green Street and to the north of the Borough of Tuckerton). The regional location and key features of Little Egg Harbor Township are depicted in Figure 1 (located on the next page).

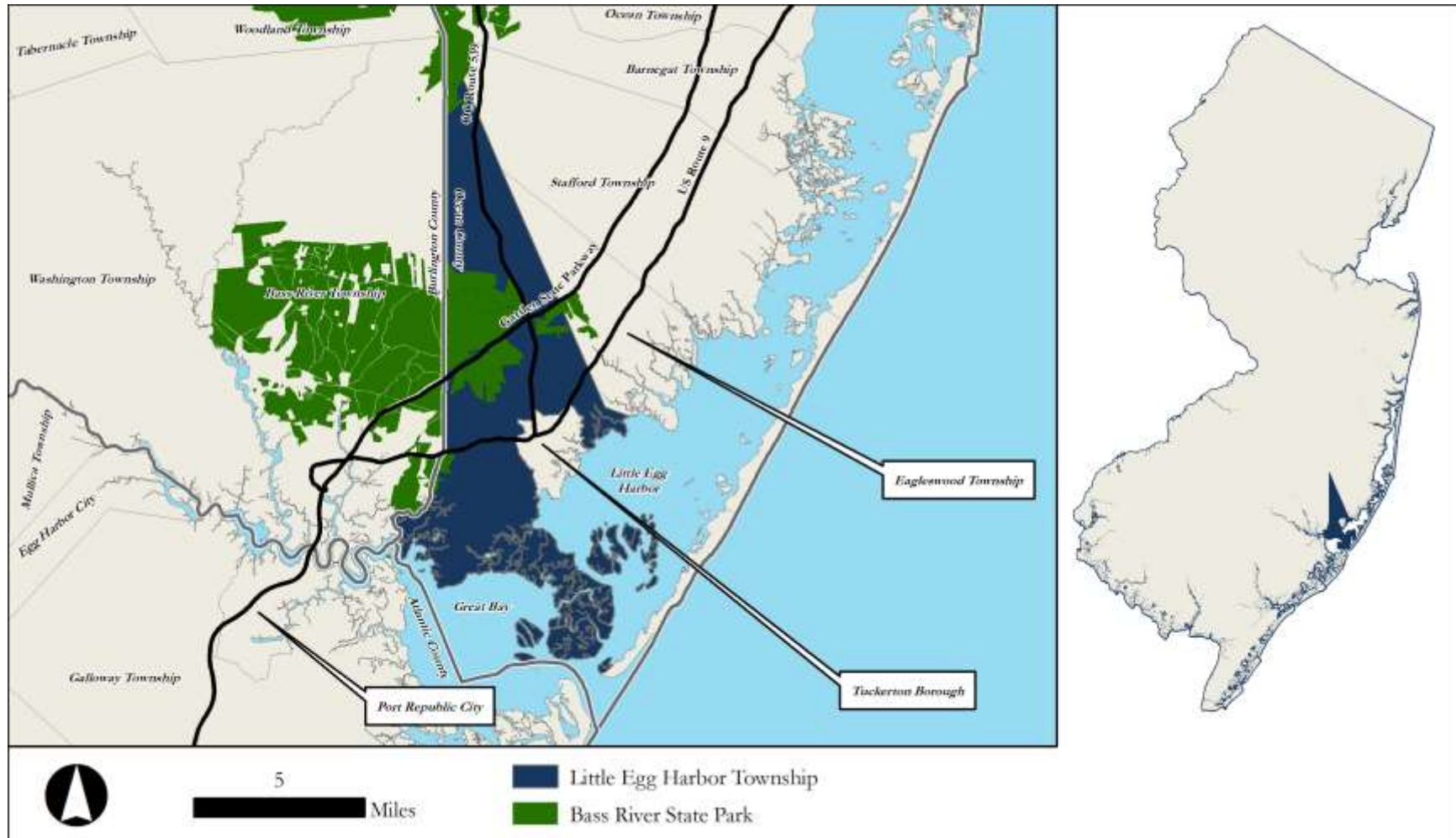
With regard to Little Egg Harbor's population, it is noted that the township had a population of 20,065 residents at the time of the

2010 US Census. This represents an increase of 25.8 percent over the 2000 population of 15,945 residents, and 50.5 percent over the 1990 population of 13,333 residents. By comparison, the 2010 Ocean County population of 576,567 residents grew by nearly 13 percent since 2000, and approximately 33 percent since 1990. Thus, Little Egg Harbor Township's population has grown at a considerably faster rate than at the county level in the period since 1990.

Portions of Little Egg Harbor Township are located within the New Jersey Pinelands. Areas of the township within the New Jersey Pinelands lie to the north of the Garden State Parkway, with the exception of the portion of Bass River State Forest that is situated to the south of the Garden State Parkway. As a result of the township's location within the New Jersey Pinelands, as well as historic development patterns, most of the population is located in the southern portion of the township.

Additionally, Little Egg Harbor Township is also partially located in the area that is regulated by the state's Coastal Area Facility Review Act (CAFRA). This area, called the CAFRA Zone, covers the portion of Little Egg Harbor Township that is generally located to the south of the Garden State Parkway and includes all areas that are not located within the New Jersey Pinelands. Certain types of development within the CAFRA Zone are subject to the enhanced review and permitting requirements, which are administered by the Division of Land Use Regulation of the New Jersey Department of Environmental Protection.

Figure 1: Regional Location



Assessment of Existing Planning Documents

This section of the Strategic Recovery Planning Report examines the adequacy of existing municipal and county planning documents to support recovery from the impacts of Superstorm Sandy, and to mitigate negative impacts from future storms.

Little Egg Harbor Township

The following municipal planning documents have been reviewed as part of this assessment: 1999 Master Plan; 2007 Master Plan Reexamination Report; 2007 Municipal Stormwater Management Plan; and, the 2008 Housing Element and Fair Share Plan. Each is discussed in the following subsections.

1999 Master Plan

Little Egg Harbor's master plan was adopted in 1999. The 1999 Master Plan outlines a number of goals, which also promotes recovery from the impacts of Superstorm Sandy and resiliency to future storms. These are outlined below:

- Reduce permitted residential densities, where appropriate, consistent with planning efforts aimed at minimizing the fiscal impacts of new residential development.
 - *In addition to reducing fiscal impacts, reduced residential density will help to increase the natural infiltration of groundwater, and promote increased mobility by reducing traffic generation.*
- Concentrate new residential and commercial development in planned centers or other growth corridors where infrastructure is available or comprehensively planned.
 - *Concentrating new development in planned centers or growth corridors will also help to promote the retention of open space, and, thereby, promote groundwater infiltration.*
- Adopt land use regulations that encourage a better balance among residential, commercial, and industrial land uses, so as to promote improved municipal fiscal planning efforts.
 - *Ensuring a better balance among land uses will help to promote mobility, which is important when the potential need to evacuate an area during a hurricane or storm is considered.*
- Promote better coordination and consistency between state and municipal planning efforts.
 - *Coordination between state and municipal planning efforts will help to promote smart growth principles, which can help to promote development that is resilient to storms and hurricanes.*
- Coordinate with the New Jersey Highway Authority and Ocean County in order to continually improve the roadway system of the township, and to plan for anticipated changes brought on by growth and development.
 - *Improving highways and other roads will help to increase mobility and facilitate evacuation of areas during hurricanes and storms.*

2007 Master Plan Reexamination Report

The Township's Master Plan was last reexamined in 2007. The 2007 Master Plan Reexamination Report reaffirmed all of the goals that have been outlined in the previous subsection (i.e., in the section on the 1999 Master Plan).

The 2007 Master Plan Reexamination Report makes the recommendation that the township amend its zoning ordinance to provide a maximum impervious coverage limit in all residential zones. Such an amendment will help to reduce impervious coverage which will promote resilience to hurricanes and storms by reducing stormwater runoff and promoting its natural infiltration.

2007 Municipal Stormwater Management Plan

The township's Municipal Stormwater Management Plan was originally adopted in 2005 and last revised in 2007. The 2007 revision was reviewed during the preparation of the Strategic Recovery Planning Report.

The Municipal Stormwater Management Plan outlines the strategy that the township will employ to address stormwater-related impacts. It was prepared to address state regulations for municipal stormwater management (NJAC 7:8), and sets the following goals:

- Reduce flood damage, including damage to life and property;

- Minimize, to the extent practical, any increase in stormwater runoff from any new development;
- Reduce soil erosion from any development or construction project;
- Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- Maintain groundwater recharge;
- Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, and recreational, industrial, and other uses of water; and
- Protect public safety through the proper design and operation of stormwater basins.

All of the goals of the 2007 Municipal Stormwater Management Plan are consistent with promoting recovery from the impacts of Superstorm Sandy and resiliency to future storms.

2008 Housing Element and Fair Share Plan

The 2008 Housing Element and Fair Share Plan outlines the means by which Little Egg Harbor intends to meet its fair share

affordable housing obligation. Since the adoption of this plan, numerous legal challenges have been made to the COAH process. As a result, the future fair share obligation is indeterminate until such time as new substantive rules for affordable housing planning are developed. Little Egg Harbor Township satisfied its prior round (or 1987-1999) obligation.

Nonetheless, and with regard to the nexus between affordable housing planning, the recovery from Superstorm Sandy, and the promotion of resiliency to future storms, it is noted that the fair share obligation includes a requirement to rehabilitate a number of housing units. This part of the fair share obligation and COAH process has not been challenged. While, as provided in the 2008 plan, Little Egg Harbor Township's rehabilitation obligation is zero (0) units, the township participates in the Ocean County Housing Rehabilitation Program. As of 2008, a total of four units had been rehabilitated. Rehabilitation of housing units helps to increase the structural integrity and safety of the township's existing housing stock. This increases resiliency to future storms. Additionally, if affected units are rehabilitated, it can promote recovery from the effects of Superstorm Sandy.

Parker's Run Business Park Redevelopment Plan, 2001

In 2000, the Little Egg Harbor Township Committee declared the area formerly known as Beach Haven Park as "an area in need of redevelopment" and in 2001 a redevelopment plan was prepared for the area.

The Parker's Run Business Park Redevelopment Plan is framed around the following goals:

- Create value for the municipality from existing underutilized municipal land holdings by consolidating parcels for future residential and commercial development;
- Reduce the fragmentation of public land ownership in the area through lot consolidations, street vacations, and land acquisitions to increase the potential valuable and useful contribution to the Township's tax base and residents;
- Provide opportunities for housing of senior citizens;
- Provide opportunities for the creation of a wide variety of non-residential space that will provide entrepreneurial opportunities as well as providing services to residents of the Township; and
- Utilize municipal resources and authority to increase the potential utilization of the lands within the redevelopment area.

Plan Endorsement

Little Egg Harbor Township has three center designations, including the Greater Tuckerton Town Center, Mystic Island Town Center, and the Parkertown Village Center, which are located in Little Egg Harbor Township and partially in Tuckerton Borough (see Figure 2).

Pursuant to amendments to the State Planning Rules, in May of 2004, the Center Designation process has been replaced by the

Plan Endorsement process, which seeks to ensure that planning throughout the entirety of a municipality is consistent with the goals and policies of the State Development and Redevelopment Plan. Plan Endorsement generally entails comparing existing zoning and land use practices town-wide to the key concepts and policies of the State Plan and its Policy Map. Under the new State Planning Rules, the Township's three center designations are considered "prior center designations." Little Egg Harbor is currently undergoing the process to receive Plan Endorsement from the State.

Environmental Resource Inventory, 1978 & 2009

This report was prepared to describe the natural resources of Little Egg Harbor Township, to identify the unique features to be found in the Township, and to suggest ways to ensure the future conservation of these resources through the local planning process.

The planning process involves an inventory and analysis of the natural and manmade resources, including physical factors such as physiography, topography, climate, geology, and soils; cultural factors including historical background, sites of historical significance, and past land uses; biological factors, including an inventory of plant and animal species; hydrologic factors to include water quality monitoring at eight selected sites on all major streams in the Township; and data regarding land use, transportation, population, and public services Little Egg Harbor Township also approved a Natural Resource Inventory in 2009

through a grant from the Association of New Jersey Environmental Commissions.

Open Space and Recreation Plan, 2002

In 1997, the Township Planning Board adopted a Recreation Plan that was re-adopted by reference in the Community Facilities Element of the 1999 Master Plan. In November of 2001 by voter referendum, residents of Little Egg Harbor Township approved an Open Space tax of one cent, which was estimated at that time to provide approximately \$93,000 per year to be used for open space preservation. In 2002, Little Egg Harbor Township adopted an Open Space Recreation Plan (OSRP), as an update to its 1997 Recreation Plan, to serve as a guide for future open space acquisitions and recreational development in the Township. The OSRP discusses open space activities and recreational development in the Township, as well as establishes goals and objectives for open space and recreation, inventories the Township's public land and quasi-public lands, conducts a needs analysis and resource assessment, and concludes with an Action Plan.

The 2002 OSRP Action Plan recommended that the Township continue to acquire additional land for recreation and open space, for greenways along stream corridors to protect streams and freshwater wetlands, and for conservation programs such as the NJDEP Green Acres Program and the Natural Lands Trust Program, and developer dedications. In protecting the amount of open space in Little Egg Harbor Township, these

recommendations guide the Township in its attempts to promote resiliency from future Sandy-type storms.

Emergency Operating Plan

The Emergency Operating Plan, updated in 2012, sets forth the general policies and procedures to be carried out by municipal and volunteer entities (such as the Fire Department and EMS) in order to provide the citizens of the Township with an effective integrated emergency response plan designed to minimize the loss of life and property during an emergency. The manual is comprised of the Basic Plan and the following list of annexes providing response plans for such emergency situations as: alerting, warning, and communications; damage assessment; emergency medical; emergency operating centers; emergency public information; evacuation; fire and rescue; hazardous materials; law enforcement; public health; public works; radiological protection; resource management; shelter, reception, and care; social services; terrorism incident; and veterinary services.

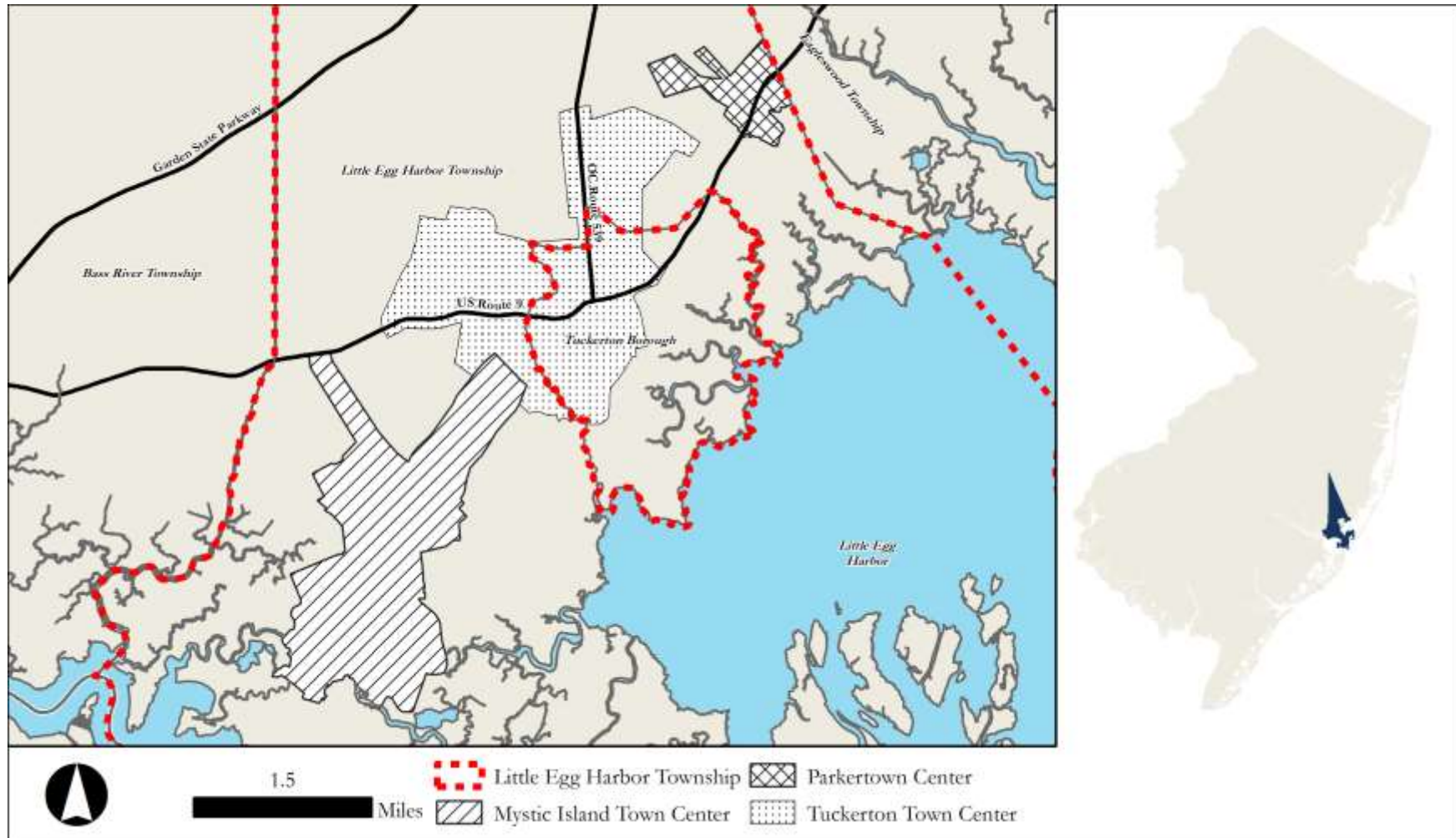
The purpose of the Emergency Operating Plan is to protect life and property in emergencies by coordinating response activities of municipal and volunteer entities to ensure their optimum use. It provides for actions to be taken to mitigate, prepare for, respond to, and recover from the effects of an emergency. The plan is an “all-hazards” approach to emergency management and covers natural disasters, technological disasters, and national security crises.

Approved Not Completed Developments

Little Egg Harbor Township also has two ongoing site developments that have been approved by the Planning Board and are located in a flood hazard area. Prior to construction, these projects may have to be revised in order to comply with the most current FEMA flood hazard elevations. These sites include:

- A retail plaza at 21 Jackson Street (Block 325.52, Lot 1, 9,630 sq. ft.), 2009;
- 43 townhouses at Harbor View Estates (Block 325, Lot 63), 2010.

Figure 2: Center Designations in Little Egg Harbor Township



Ocean County

The following county planning documents have been reviewed as part of this assessment: 2011 Comprehensive Master Plan; 2013 Multi-Jurisdictional All-Hazard Mitigation Plan; and, the 2008 Comprehensive Farmland Management Plan. Each is discussed in the following subsections.

2011 Comprehensive Master Plan

The Ocean County Planning Board adopted the Comprehensive Master Plan on December 21, 2011. It serves as a policy statement about the future development of Ocean County, and examines a wide range of topics, including: the county's demographics; economic planning and workforce development; transportation and mobility; housing; design; land use; agriculture; open space and recreation planning; regional environmental conditions; water resources; waste, wastewater, and stormwater management; and, regional air quality.

The Comprehensive Master Plan makes a number of recommendations that are relevant to Little Egg Harbor's recovery from the effects of Superstorm Sandy, and reducing vulnerabilities to future storms. These are outlined below:

- Encourage the New Jersey Department of Transportation to modernize and upgrade state highways throughout Ocean County, including US Route 9, NJ Route 35, NJ Route 37, NJ Route 70, NJ Route 72, NJ Route 88 and NJ Route 166.
 - *Modernizing and upgrading Ocean County's highways will improve mobility and facilitate the evacuation of Little Egg*

Harbor Township in times of crisis, including during future storms. This is particularly true for US Route 9, which provides a north-south connection through Little Egg Harbor Township, and intersects with numerous state highways and other roadways that provide connections to the west, in Ocean, Burlington, and Atlantic counties.

- Encourage the retention of established residential neighborhoods and the rehabilitation of the county's older housing stock. Facilitate participation in home rehabilitation and historical preservation grant programs, where applicable.
 - *Home rehabilitation may help to improve the structural integrity of existing housing stock. This, in turn, strengthens the structure and provides additional protection during extreme weather events, such as hurricanes and storms.*
- Encourage low-impact design techniques to minimize the disturbance of natural areas and maximize the recharge of stormwater on-site.
 - *Maximizing the recharge of stormwater on-site may help to decrease the incidence of flooding.*
- Support the tourism amenities and needs of shore towns and continue to facilitate the protection and replenishment of county's beaches and shoreline areas.
 - *Protection and replenishment of the county's beaches and shoreline areas, including those along the Great Bay and Little Egg Harbor, will help the county to cope with future hurricanes and storms and mitigate their impacts.*

- Continue to support the Ocean County Agriculture Development Board (OCADB) in its mission to protect and enhance the county's agricultural resources.
 - *Preservation of farmland helps to reduce vulnerabilities to storms by protecting and promoting agricultural land uses. Such land uses typically have a very low amount of impervious cover, and consequently support the infiltration of stormwater.*
- Maintain an ongoing evaluation of the recreational needs of Ocean County residents, and assist in identifying new park and open space areas, as necessary.
 - *Expansion of park and open space areas, particularly in the southern part of Little Egg Harbor Township, will help to preserve and protect natural and other areas with low impervious surface cover. This supports the infiltration of stormwater. Additionally, it eliminates the potential that such areas will be converted to residential uses. This helps to restrict population development in areas that may be vulnerable to hurricanes and other storms. It also protects the local and regional economy by guiding non-residential development (e.g., commercial and industrial uses) away from areas that may be susceptible to disturbance and interruptions caused by extreme weather events.*
- Continue to work with all federal, state, local and non-profit partners to acquire open space and maximize financial resources available for preservation.
 - *As has been previously noted, expansion of open space areas promotes resiliency to future hurricanes and storms.*
- Encourage land use planning strategies such as low-impact design to preserve open space and maximize the natural infiltration of stormwater.
 - *Preservation of open space and maximization of stormwater infiltration helps to minimize flooding and promotes resiliency to future hurricanes and storms.*
- Explore and assess best management practices used by other areas in the country to address stormwater management.
 - *Effectively addressing stormwater management helps to minimize flooding and promotes resiliency to future hurricanes and storms.*
- Continue to assess structural and nonstructural options for stormwater management to increase infiltration, remove debris and reduce nutrient and pollution loads.
 - *Increasing infiltration will help to reducing flooding. Additionally, removing debris will help to increase the efficiency of existing stormwater management facilities.*
- Encourage compliance with new legislation that requires the New Jersey Department of Transportation to address stormwater management issues on state highways, including US Route 9, NJ Route 35, NJ Route 37, NJ Route 70, NJ Route 72, NJ Route 88 and NJ Route 166.
 - *Addressing stormwater management issues along highways will help to minimize stormwater impacts, and increase highway safety. This is particularly important as highways generate stormwater runoff, and may serve as evacuation routes during emergencies.*

2013 Multi-Jurisdictional All-Hazard Mitigation Plan

Ocean County has prepared a Multi-Jurisdictional All-Hazard Mitigation Plan. At the time of the preparation of this Strategic Recovery Planning Report, the plan has not been formally adopted. The assessment of the 2013 Multi-Jurisdictional All-Hazard Mitigation Plan has, therefore, been completed with the draft plan, which was submitted by the county's consultant on December 5, 2013. It is anticipated that Ocean County and each of the 33 municipalities within it will adopt the plan. Representatives from Little Egg Harbor Township (incl., the deputy coordinator and coordinator of its office of emergency management, superintendent of its department of public works, assistant business administrator, and municipal engineer) were involved throughout the plan development process.

The key purposes of the Multi-Jurisdictional All Hazard Mitigation Plan are: to provide a blueprint for saving lives and reducing property damage from the effects of future natural and man-made disasters in Ocean County; and, to improve community resiliency following disastrous events. In addition, the Multi-Jurisdictional All Hazard Mitigation Plan also fulfills state and federal legislative requirements related to local hazard mitigation planning, and opens door to pre- and post-disaster grant funding.

The Multi-Jurisdictional All Hazard Mitigation Plan is comprehensive in scope and, in addition to examining the county's geography and natural environment, economic assets, and population, land use, and built environment characteristics,

includes a detailed risk assessment. Among the risks contemplated by the Multi-Jurisdictional All Hazard Mitigation Plan are: natural hazards, such as coastal erosion, drought, earthquakes, extreme temperature, flooding, storms (i.e., hurricanes, tropical storms, and nor'easters), tornadoes and windstorms, wildfires, and winter storms (i.e., heavy snowstorms and blizzards, and sleet and ice storms); human-made hazards, such as hazardous materials, nuclear incidents, transportation accidents, urban fire and explosion, and utility interruption; and, climate change hazards associated with sea level rise.

Based on the results of the Multi-Jurisdictional All Hazard Mitigation Plan's risk assessment, Little Egg Harbor Township has an elevated risk of floods, storms (incl., hurricanes, tropical storms, and nor'easters), utility interruptions, winter storms, wildfires, sea level rise, drought, and urban fires and explosions, as compared to the rest of Ocean County. The level of risk posed by extreme temperatures, coastal erosion, nuclear incidents, wind (incl., tornadoes), and earthquakes in Little Egg Harbor Township is equivalent to that of Ocean County as a whole. There is a decreased risk of environmental hazards (i.e. hazardous materials) and transportation accidents relative to Ocean County.

The Multi-Jurisdictional All Hazard Mitigation Plan outlines a mitigation strategy that is centered on the following goals and objectives:

- Encourage sustainable development to protect people, property, community resource and the environment from natural and human-made disasters.

- Meet and exceed minimum standards of the National Flood Insurance Program.
- Manage building code, land use code, ordinance and other planning mechanisms to prevent and mitigate the impact of disasters on people and property.
- Improve information available for mitigation planning.
- Coordinate and increase applications for federal and state grant programs.
- Integrate and leverage other planning mechanisms from: neighboring jurisdictions; local, county and regional organizations; and, state partnerships to implement the plan.
- Improve shelter management.
- Build and rebuild structures and infrastructure to protect people, and to reduce impacts of future disasters.
 - Increase the number of residential properties protected from hazards.
 - Increase the number of community resources and amount of infrastructure protected from hazards.
 - Improve the ability of critical facilities and infrastructure to safely operate during storms and utility interruptions.
 - Improve evacuation capability.
- Protect and restore the natural environment to support disaster resiliency.
 - Improve the health of natural systems to safely and naturally accommodate flooding and wildfire.
 - Improve the health of natural systems used to protect residential properties and other community resources.
 - Plan for increased open space in the most vulnerable areas.
 - Promote appropriate urban-wild land interface for wildfire mitigation.
- Promote education, awareness and outreach before, during and after disaster.
 - Improve and expand information and opportunities for input available by television, radio, websites, social media, newsletters, and meetings.
 - Increase participation in mitigation programs, including the Community Rating System, StormReady, and FireWise programs.
 - Tailor timely messages for audiences, including children, parents, community groups, universities, seniors and other groups.
 - Improve alert and warning systems.

In addition to the preceding mitigation strategy, the Multi-Jurisdictional All Hazard Mitigation Plan outlines the following actions for Little Egg Harbor Township:

- Adopt advisory base flood elevation mapping.
- Replenish beaches.
- Promote and develop a Community Emergency Response Team (CERT) program.

- Promote and develop a “We Care” program to better protect those with special needs or reduced mobility during emergencies.
- Promote and develop police outreach program in schools.
- Continue to enforce building codes.
- Continue to participate in the National Flood Insurance Program.
- Develop and implement shelter management plans.
- Dredge in appropriate locations to mitigate flooding and maintain lagoon access.
- Elevate residential properties.
- Implement debris management programs.
- Implement erosion control-related projects.
- Implement flood control-related projects.
- Implement generator-related actions.
- Implement prescribed burn actions.
- Improve mapping capability.
- Improve pump stations.
- Install a grounding system to protect against future lightning strikes.
- Install riprap along the shoreline.
- Participate in the Community Rating System program.
- Maintain a local emergency planning committee.
- Maintain and improve information on the Internet (e.g., on the township website and social media outlets).
- Maintain emergency operations plan.

- Maintain, improve, and expand education and awareness programs.
- Obtain new and improve existing warning systems (e.g., Nixle and Reverse 911).
- Participate in the National Night Out program.
- Distribute information on grant programs that support residential, business and natural resource mitigation projects to appropriate local stakeholders.

The mitigation strategy and municipal actions that have been outlined in the Multi-Jurisdictional All Hazard Mitigation Plan are generally supportive of and promote Little Egg Harbor’s recovery from the effects of Superstorm Sandy, and the reduction of vulnerabilities to future storms.

2008 Comprehensive Farmland Management Plan

The overall goal of the 2008 Comprehensive Farmland Management Plan is to support the promotion and retention of Ocean County’s agricultural industry through farmland preservation. This is primarily done through a variety of techniques, including: purchase of development easements; donation of development easements; fee-simple acquisition of farmland; and, other techniques.

According to the 2008 Comprehensive Farmland Management Plan, Little Egg Harbor Township has approximately 45 acres of farmland-assessed property. However, no portion of Little Egg Harbor Township is located within an Agricultural Development

Area. Agricultural Development Areas are outlined in the 2008 Comprehensive Farmland Management Plan, and are areas where agricultural uses are preferred. The 2008 Comprehensive Farmland Management Plan specifies that the county's future farmland preservation efforts will focus on its designated Agricultural Development Areas.

As a result of the above, Little Egg Harbor Township is not a focus of the future farmland preservation program envisioned by the 2008 Comprehensive Farmland Management Plan. However, much of Little Egg Harbor's existing farmland is located within the New Jersey Pinelands, and its already-limited development potential makes it less attractive than other areas for conversion to a non-agricultural use. Nonetheless, it is important to note that retention and expansion of agriculture in Little Egg Harbor Township, and Ocean County as a whole, is generally supportive of reducing vulnerabilities to storms. Indeed, agricultural lands typically have a very low amount of impervious cover, and, consequently, support the infiltration of stormwater.

Regional Plans

Little Egg Harbor Township has land within two different regulated areas that require special consideration with regards to development. Both the Coastal Area Facilities Review Act (CAFRA) zone and the Pinelands National Reserve have a significant effect on the regulation of development and land use in the Township. These specialty regulation areas are designed to limit the negative effects that development has on environmentally sensitive habitats.

Pinelands Comprehensive Management Plan

The Pinelands Comprehensive Management Plan (CMP) is intended to serve two functions: as a general guide for local authorities in preparing master plans and land use ordinances for certification by the Pinelands Commission, and as a planning and regulatory mechanism that can be adopted and enforced by the Commission if a county or municipality fails to secure certification.

The regulations and standards contained in this plan are designed to promote orderly development of the Pinelands so as to preserve and protect the significant and unique natural, ecological, agricultural, archaeological, historical, scenic, cultural, and recreational resources of the Pinelands.

According to the CMP, municipalities that have land within the Pinelands Area must bring their master plan and land use ordinances into conformance with the minimum standards set forth in the CMP.

Under the guidance of the Pinelands Comprehensive Management Plan, the Pinelands National Reserve is carefully regulated to support and preserve the health of the ecosystem, while permitting compatible development. The Pinelands Commission has applied many smart growth and planning concepts such as watershed management, Transfer of Development Rights (TDR) including the Pinelands Development Credit Program (PDC), and timed growth and conservation planning.

Portions of Little Egg Harbor Township within the New Jersey Pinelands lie to the north of the Garden State Parkway, with the exception of the portion of Bass River State Forest that is situated to the south of the Garden State Parkway (see Figure 3). The remainder of the Township's land (primarily south of the Garden State Parkway) falls within the CAFRA regulatory jurisdiction.

Coastal Area Facility Review Act (CAFRA)

Additionally, Little Egg Harbor Township is also partially located in the area that is regulated by the state's Coastal Area Facility Review Act (CAFRA). This area, called the CAFRA Zone, covers the portion of Little Egg Harbor Township that is generally located to the south of the Garden State Parkway and includes all areas that are not located within the New Jersey Pinelands (see Figure 3).

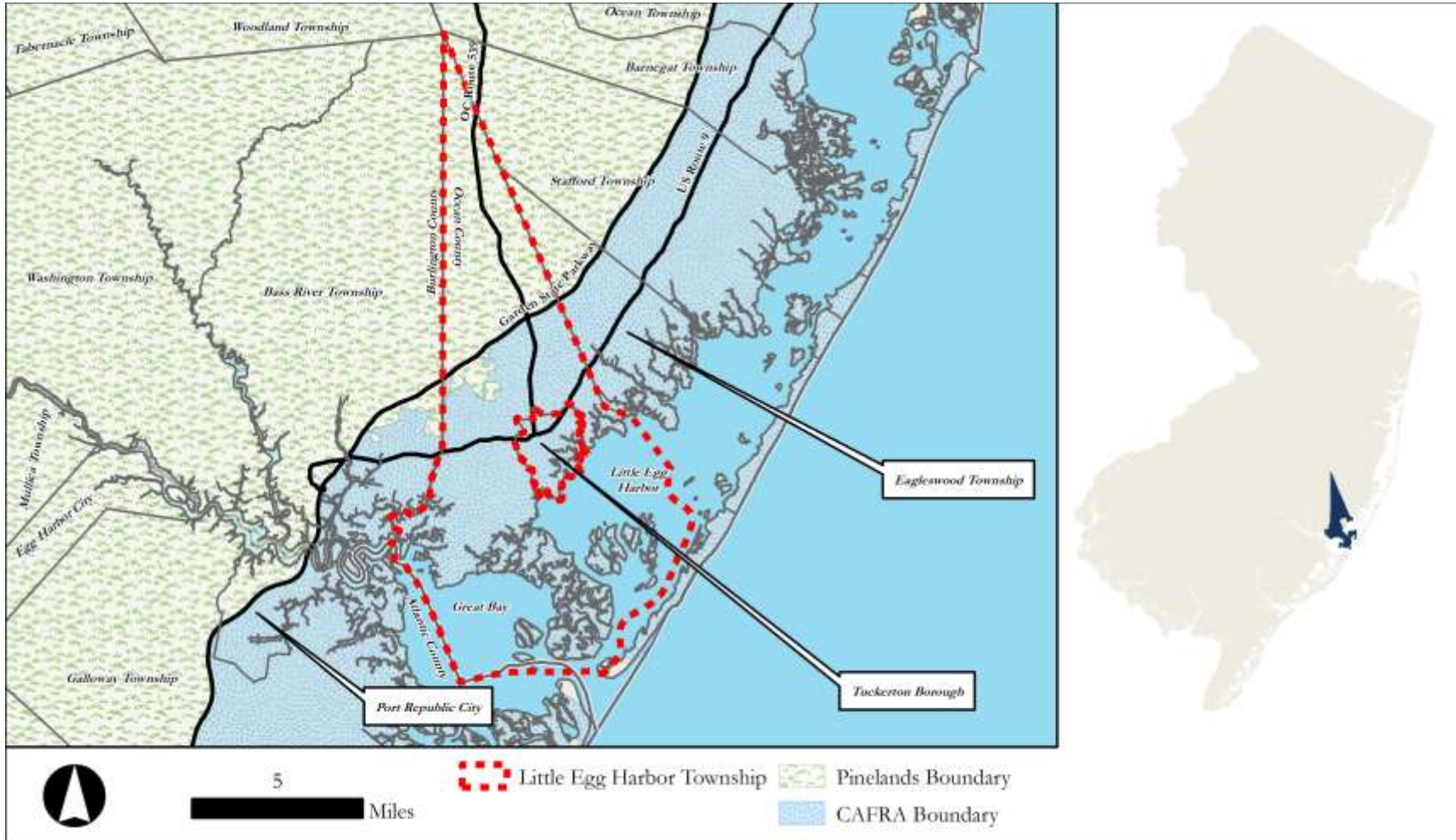
The CAFRA zone applies to development projects near coastal waters from Middlesex County down to Cape May and up again to Salem County. Generally, the closer the project is to the water, the more likely it will be regulated. Certain types of development within the CAFRA Zone are subject to the enhanced review and permitting requirements, which are administered by the Division of Land Use Regulation of the New Jersey Department of Environmental Protection. The CAFRA law regulates almost all development activities involved in residential, commercial, or industrial development, including construction, relocation, and enlargement of buildings, excavation, grading, shore protection, structures, and site preparation.

Most of the development in Little Egg Harbor Township takes place in the Coastal Suburban Planning Area under CAFRA jurisdiction, which encourages mixed-use development and redevelopment in compact centers.

There are also some developed areas of town located in CAFRA's Coastal Rural Planning Area, which is concentrated south of the Garden State Parkway and north of Tuckerton Borough. This planning area encourages maintenance of existing low-density and low-intensity development patterns in order to minimize the impact of new development on rural features as well as natural and built systems.

There are also some areas of the Township located in CAFRA's Coastal Environmentally Sensitive Planning Area, which are scattered throughout town south of the Garden State Parkway. This area has some development, which is mainly concentrated around Stage Road and Nugentown Road. This CAFRA planning area protects environmentally sensitive features by guiding development into centers, maintaining low intensity development patterns, and discouraging development of public infrastructure facilities outside of centers. Most of the undeveloped land along the bayfront is located in the Coastal Environmentally Sensitive Planning Area as well as in the Coastal Park Planning Area.

Figure 3: Pinelands and CAFRA Boundaries in Little Egg Harbor Township



Sandy's Impacts on the Township

The areas of Little Egg Harbor Township that are situated to the south of the Garden State Parkway were most impacted by Superstorm Sandy. These areas received up to four feet of storm surge and floodwater. They were also impacted by: storm-generated debris, which impeded the proper functioning of drainage structures and created roadway obstacles; winds; and, wave action.

Flooding and wave action were generally not a problem in the areas of the township that lie to the north of Garden State Parkway. Damage from wind, however, did occur. There were reports of trees falling on homes and roadways.

The following subsections further describe the full range of Superstorm Sandy's impacts on the Township. Specifically, they examine Sandy's specific impacts on: residential structures; local businesses; parks; electrical service; and, roadways.

Impacts on Residential Structures

Approximately 4,000 homes sustained damage during Superstorm Sandy, which is about 40 percent of the housing stock in the Township. Of these, 800 homes sustained substantial damage. Damage occurred as a result of flooding and high winds.

The substantially damaged homes were located in Census Tract No. 34029736105. A total of 90 percent (of 3,272) households

were affected with major or severe damage. Census Tract No. 34029736105 is shown in Figure 5 (located on the next page).

Many of the residents that were impacted by Superstorm Sandy were seniors. According to the 2010 United States Census, 29.5 percent of the population of Census Tract No. 34029736105 is aged 62 years or greater.

Figure 4: Damaged Residential Structure



Figure 5: Census Tracts with Major or Severe Damage to Residential Properties

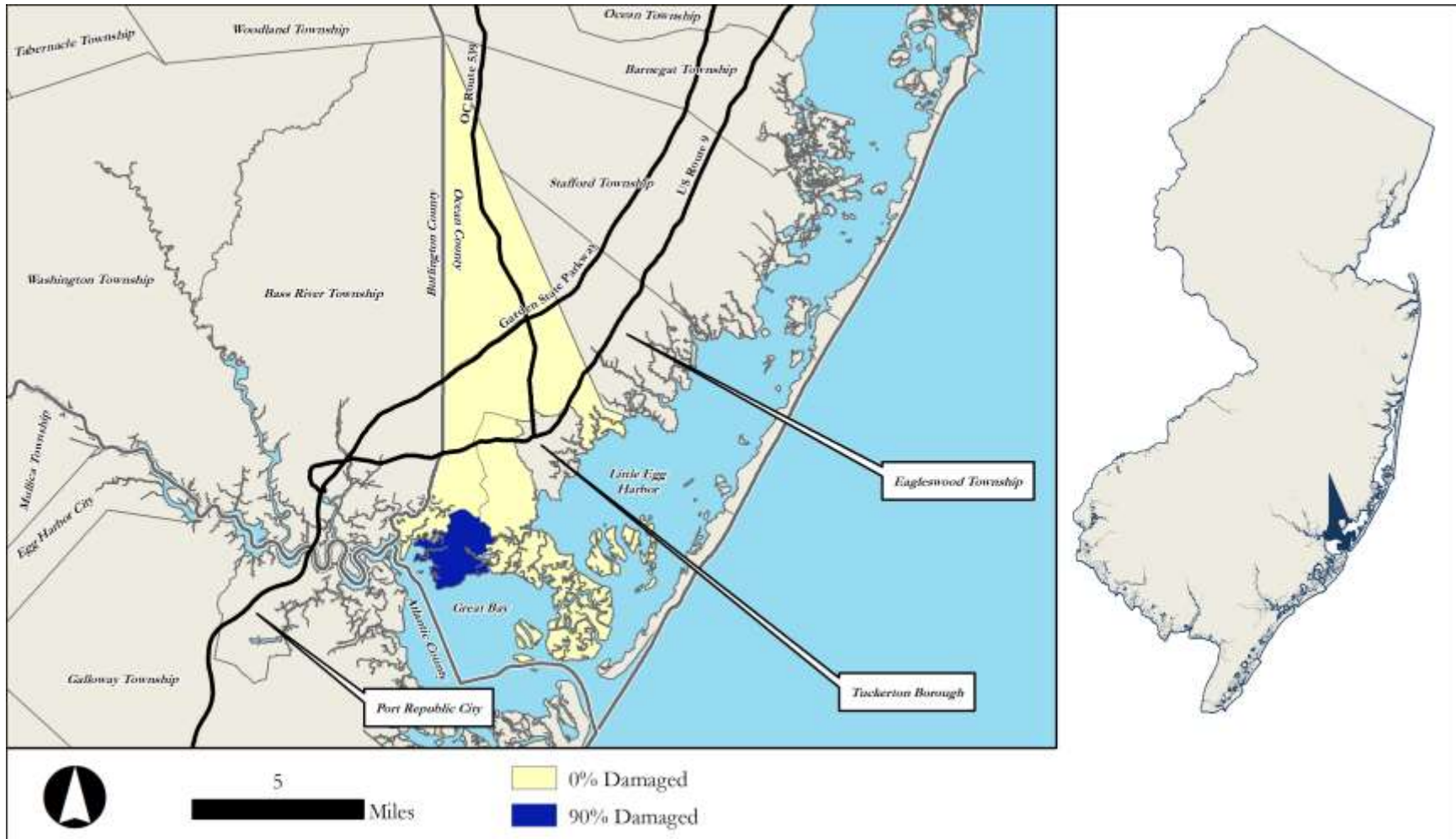
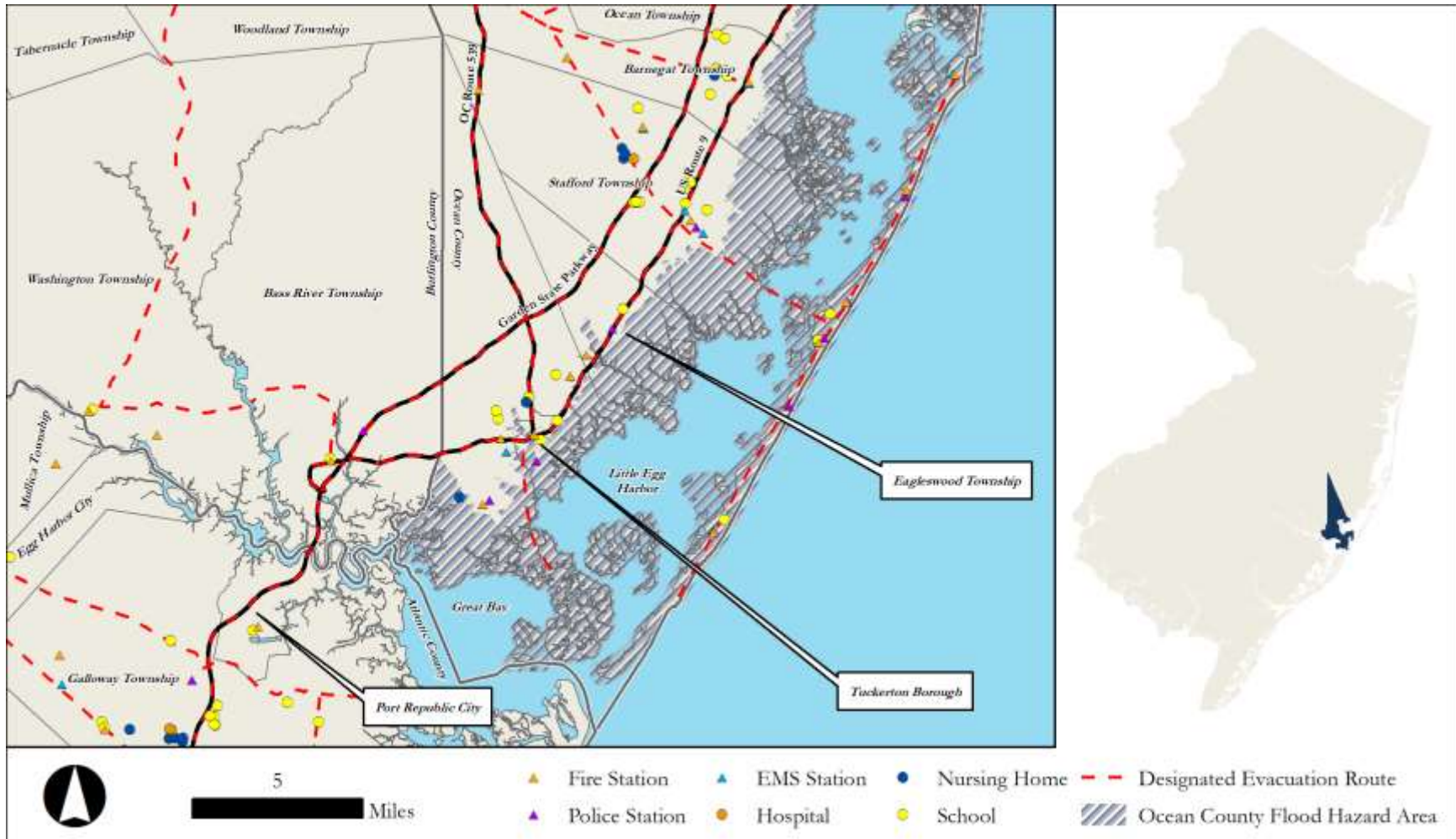


Figure 6: Critical Infrastructure in Little Egg Harbor Township



Impacts on Local Businesses

A number of small retail businesses in the Mystic Island/Radio Road area as well as some marinas were adversely damaged by the storm event. Most of the retail stores have re-opened for business. Marinas in the Mystic Island area that were damaged have made the necessary repairs. Most of the repairs/replacements have been in-kind with no mitigation improvements.

Impacts on Roadways

Superstorm Sandy significantly damaged some roadways in Little Egg Harbor. The following roadways were damaged:

- Great Bay Boulevard
 - Great Bay Boulevard Bridge was severely damaged.
- Iowa Court
 - 160 square feet of asphalt paving was washed out along the cul-de-sac which is immediately adjacent to Barnegat Bay.
- Radio Road
 - A retaining wall at the end of Radio Road was destroyed.
 - A portion of sidewalk that provided access to the beach was washed out.
 - A total of approximately 310 square feet of asphalt paving was washed out from two locations along Radio Road.
 - Six roadway signs were washed away.

Under heavy truck and loader activity performing debris removal operations, the following damages resulted:

- Maryland Road
 - 2,100 square-foot area of roadway disintegrated.
- North Spinnaker Drive
 - A portion of the roadway collapsed and created a one-foot hole with an area of 32 square feet.
- Columbia Road
 - A 300 square-foot area of roadway was disintegrated.
- South Portland Drive
 - A 700 square-foot area of roadway was disintegrated.

Figure 7: Roadway Damage on Great Bay Boulevard



Figure 8: Roadway and Sidewalk Damage at the end of Radio Road



Impacts on the Little Egg Harbor Township Community Center

Superstorm Sandy caused extensive damage to the interior and exterior of the Little Egg Harbor Township Community Center. Specifically, floodwaters entered the main community center building and accessory buildings. This caused extensive damage to: drywall; insulation; doors; electric systems; heating systems; hot water heater; HVAC units; tile flooring; kitchen; kitchen appliances; gas systems; fire suppression system; bathrooms; and, ductwork. Plumbing and related interior features were also damaged, and debris caused blockage of drainage lines.

In addition to the above, it is important to note that building furnishings and amenities were completely destroyed or damaged by Sandy. One of the accessory buildings (viz., 120 square foot wood-framed shed) was also completely destroyed.

The total damages to the community center amounted to more than \$400,000. The cost of new HVAC units and associated improvements is approximately \$260,000.

Impacts on Bulkheads

Superstorm Sandy caused extensive damage to bulkheads in several locations of the township. In total, FEMA estimated more than \$89,000 in damage was incurred. The replacement cost is anticipated to exceed that amount. The locations with bulkhead damage include:

- South Boom Way
- West Calabreeze Way
- Twin Lakes Boulevard
- East Playhouse Road
- Parkertown Beach

In addition, Superstorm Sandy produced significant siltation within many lagoons, in particular in the Osborn Island and Mystic Island areas. The decrease in water depth reduces property values and limits the viability of boat usage for the homes along the lagoons. The reduction of this recreational value of the properties has a negative impact on property values.

Figure 9: Bulkhead Damages along West Calabreeze Way



Figure 11: Bulkhead Damage along Twin Lakes Boulevard



Figure 10: Bulkhead and Drainage Damages along West Calabreeze Way



Figure 12: Bulkhead Damage along South Boom Way



Impacts on Parkertown Dock Recreation Facility

At Parkertown Beach, the docks, gangways, decking, and stringers were washed away during Superstorm Sandy. The Parkertown Dock Building was also damaged by the storm surge of seawater. The pavilion building was undermined and destroyed.

Figure 13: Damaged/Missing Docks at Parkertown Dock



Figure 14: Damaged Building at Parkertown Beach Area



Disruption of Services

Electric service was interrupted throughout Little Egg Harbor Township. Outages lasted for seven to ten days depending on the location in the Township.

Water and sewer service in the Township was disrupted by the outage of electrical service and by flooding. Seven sewage pump stations and two wells went down but were put back into operation by the following evening. Contamination did not occur. However, the high flood levels lead to floatable objects entering the sewer lines and causing some back-ups. In addition the flood waters shifted the building enclosure of one MUA well site.

Community Vulnerabilities Exacerbated by Superstorm Sandy

Superstorm Sandy exacerbated the following Township vulnerabilities:

- Homeowners and business owners located in low-lying areas in close proximity to the flooded waterways that border and run through Little Egg Harbor Township were threatened by four to six feet of flood water;
- The loss of power exposed residents to the dangers of cold fall nights and threatened emergency communication and service;
- The damage to the pump stations and wells threatened the effectiveness of sewer service by causing back-ups;
- The land around and to the south of Route 9 is mostly built out, and the Township faced limited options for relocating debris from the storm;
- Vulnerability to waterfront areas was exacerbated, as Sandy weakened bulkheading and eroded shorelines.
- Communication. Superstorm Sandy exposed vulnerabilities in existing means of communication between municipal and utilities personnel

Community Opportunities Created by Superstorm Sandy

Superstorm Sandy has provided Little Egg Harbor Township with an important learning opportunity, and its impacts demonstrate that the township may become more resilient to future hurricanes and storms by doing the following:

- Promoting public awareness of the importance of hazard mitigation and the need to develop resiliency;
- Focusing the attention of public entities on issues, such as flooding, high winds, and vulnerabilities;
- Encouraging regional solutions to flood- and storm-related impacts;
- Ensuring that future and reconstructed capital projects are designed and constructed to incorporate features that are resilient to storm- and hurricane-related impacts; and
- Encouraging/supporting the use of sustainable development techniques and green building design in future development and redevelopment.

Status of Recovery Efforts

In the days and weeks immediately following Superstorm Sandy's landfall, Little Egg Harbor Township responded by taking the following emergency protective measures:

- Evacuated more than 4,000 persons, including 100 residents of the Mystic Shores Nursing Home;
- Removed debris from 64 private properties, totaling approximately 111 cubic yards of vegetative debris, 660 cubic yards of construction and demolition debris, 6 trees leaning over 30 degrees, 1 flush cut tree over 6 inches, 34 items of white goods, 32 gallons of hazardous material, 10 motor vehicles, and 42 boats;
- Removed debris from remaining Township land, totaling approximately 1,950 cubic yards of vegetative debris, 38,000 cubic yards of construction and demolition debris, and 100 cubic yards of white goods;
- Partnered with the Red Cross to provide two shelter facilities for residents and their pets at the Pinelands Regional School District for over a month. At their peak the shelters housed almost 800 evacuees;
- Generators were available at the Pinelands Regional School District shelters.

In the months following the immediate aftermath of Superstorm Sandy's landfall, the Township has undertaken (and continues to undertake) the following emergency protective measures:

- Passing Ordinance Number 2013-01 in order to:

- Amend zoning regulations in the R-100, R-75A, R-70, and R-50 Residential Zones to allow a maximum building height of 40 feet on lots within flood hazard areas. These amendments facilitate the elevation of buildings above base flood elevation.
- Amend zoning regulations in the R-50 Residential Zone to allow a minimum lot area of 4,350 square feet and lot depth of 87 feet.
- Reduce set back regulations for air conditioning units from four feet to three feet.
- Reduce front set back regulations for steps to 15 feet.
- Filing FEMA grant applications for bulkhead repairs, repairs to the Little Egg Harbor Community Center and related buildings.
- Performing necessary demolition and repairs at the Little Egg Harbor Community Center.
- Providing recovery assistance information on the Township website covering federal and state programs, flood elevation levels, debris removal insurance and counseling.
- Partnering with New Jersey Future to assist in the planning of recovery and resiliency measures, to develop improved response measures, and to assist in identifying available grant funding.
- Flood proofing the generators at pump stations and well sites, including:
 - Pump Station #1 and Well #7 on Osborne Island (one property)

- Pump Stations #2, 3, 4, and 5 and Well #5, all at separate locations in Mystic Island
- Pump Stations #6 and 7 at the Atlantis section of the Township
- Elevating the generator at Well #7 on Osborne Island by one foot.
- Providing permanent repairs to the damages at the Great Bay Boulevard Bridge (completed by Ocean County)

Community Development Block Grant (CDBG) Disaster Recovery Programs

Little Egg Harbor Township has also received recovery aid from various federal funding programs. The NJ Department of Community Affairs has compiled an online database of CDBG programs that have aided in Superstorm Sandy recovery across New Jersey, updated as of May 5, 2014. Little Egg Harbor Township's residents have been awarded \$45,840,000 from the following housing programs:

Homeowner Resettlement Program (HRP): \$180 million in federal funds have been allocated to support a Homeowner Resettlement Program designed to encourage homeowners to remain in the nine most impacted counties (Atlantic, Bergen, Cape May, Essex, Hudson, Middlesex, Monmouth, Ocean, and Union) that were severely impacted by Superstorm Sandy. The funds may be used for any non-construction purpose that assists the Homeowner to remain in, or return to, the county in which they lived prior to Superstorm Sandy.

In Little Egg Harbor Township, 450 low-to-moderate income housing units and 477 urgent need units were awarded grant monies through the HRP, totaling 927 housing units for the Township. With a grant amount of \$10,000 per household, \$9,270,000 has been awarded to Little Egg Harbor, \$9,240,000 of which has been disbursed as of May 5, 2014.

Homeowner Reconstruction, Rehabilitation, Elevation, and Mitigation (RREM): \$600 million in federal funds have been allocated to help eligible primary homeowners repair or rebuild their Superstorm Sandy impacted homes. The RREM program will assist homeowners in rehabilitation, reconstruction, elevation, and mitigation so that they can do the necessary work on their homes to make them livable and to comply with requirements for structures located in flood plains. RREM provides grants to eligible Homeowners up to \$150,000, though the state has estimated an average award of \$100,000 per application. The RREM program is intended to "fill the gap" between the cost of repairs and other funds the owner has received to repair the structure.

In Little Egg Harbor Township, 272 low-to-moderate income housing units and 76 urgent need units were awarded funding through the RREM program, totaling 348 housing units for the Township. With an average award of \$100,000 per application, \$34,800,000 has been awarded to Little Egg Harbor. As of May 5, 2014, none of this money has been disbursed.

Small Rental Properties/Landlord Rental Repair Program (LRRP): This program provides up to \$50,000 per unit in grant funding assistance to eligible owners of rental property from 1 to 25 units. The LRRP program will provide funds to help rental property owners restore their properties through rehabilitation, reconstruction, elevation, and mitigation to rental property damaged by Superstorm Sandy. The LRRP program is intended to help existing owners restore their properties and receive reimbursement for eligible building expenses incurred by owners prior to the LRRP implementation but not paid for by other programs.

In Little Egg Harbor, 59 units have been awarded funding through the LRRP, totaling \$1,770,000 for the Township. As of May 5, 2014, none of this money has been disbursed.

Small Business Administration Disaster Loans

In the months following Superstorm Sandy, the Small Business Administration (SBA) has been issuing low-interest loans to homeowners, renters, businesses, and private nonprofit organizations in New Jersey to aid in their recovery and reconstruction efforts. Disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate; personal property; machinery and equipment; and, inventory and business assets. NJ.com has compiled data from the SBA and made it available online. As of February 2013, a total of \$19,232,400 had been loaned to applicants in Little Egg Harbor, including: 231 homeowners, which were loaned a total of \$18,878,600; and, seven businesses, which were loaned \$353,800.

FEMA Public Assistance Grants

FEMA has provided public assistance grants to Little Egg Harbor Township to aid with disaster recovery. NJ.com has compiled this data from FEMA and made it available online, although due to privacy concerns, the data on individual assistance grants have not been released. As of April 25, 2013, Little Egg Harbor Township had received the following FEMA Public Assistance grants, totaling \$4,239,479:

- The Township received \$3,344,363 for debris removal.
- The Little Egg Harbor Municipal Utilities Authority received:
 - \$825,244 for public utilities;
 - \$1,591 for public buildings; and
 - \$51,153 for protective measures.
- The Little Egg Harbor Board of Education received:
 - \$16,267 for protective measures; and
 - \$861 for debris removal.

Sandy Homeowner and Renter Assistance Program (SHRAP)

The Sandy Homeowner and Renter Assistance Program (SHRAP) is a temporary relief program offered by O.C.E.A.N., Inc., to Ocean County residents to assist those experiencing a housing crisis resulting from Superstorm Sandy. There are no income requirements for those seeking assistance under SHRAP. Affected households could qualify for up to six months of payment vouchers (and no more than \$15,000 in total assistance).

The program also provides housing stability by offering support to those affected by Superstorm Sandy with:

- Maintaining temporary housing while their primary residence is repaired/rebuilt;
- Maintaining a primary residence for the household to return to when repair/reconstruction is completed;
- Maintaining housing after a reduction in income;
- Ensuring that households have items deemed essential for health/safety upon return to a primary residence;
- Eligible households will be provided with assistance for paying mortgage, rent, retroactive, or current utility payments and the purchase of essential funding/appliances.

As is the case with the OCLTRG, there is no publicly available data regarding the SHRAP's recovery aid in Little Egg Harbor Township, but aid from this program remains available for the residents of Little Egg Harbor.

Community Outreach and Involvement

Part of Little Egg Harbor Township's response to and recovery from Superstorm Sandy includes community outreach and involvement. On January 4, 2013, the Township held a public meeting with FEMA officials. Issues of discussion with Township residents included some of the various assistance programs available to residents, such as the National Flood Insurance Program, the Hazard Mitigation Grant Program, and the Small Business Administration financing programs. At this

meeting residents also had the opportunity to discuss any concerns or issues regarding their individual storm recovery work.

In addition, the Township held a meeting on January 28, 2014 to discuss Superstorm Sandy's impacts, recovery efforts, and recommended actions to promote recovery, response, and resilience to future storms. Participating parties included Little Egg Harbor Township's Mayor, Deputy Mayor, Zoning Office, Assistant Administrator, Police Department, NJ Future, and T&M Associates.

Little Egg Harbor Township, through a combined agreement with Tuckerton Borough and New Jersey Future, has also taken part in a "Getting to Resilience" recommendations report, which was released in April 2014. In this process, New Jersey Future developed and implemented long-term recovery and resilience strategies. The report is partially the result of inputs from residents submitted via questionnaires.

Going forward, Little Egg Harbor Township also plans on taking part in the following activities:

- Establishing a resiliency steering committee with participating Township personnel to discuss priority recovery, response, and resiliency actions and to conduct a vulnerability analysis which may help pave the way for future recovery recommendations; and

- Holding a Sandy Recovery & Town Revitalization Seminar, involving inputs from NJ Future, the Ocean County Long Term Recovery Group, the New Jersey Department of Community Affairs, the New Jersey Department of Environmental Protection, the Sandy Recovery Task Force, along with Little Egg Harbor Township Officials. Information to be covered includes (but is not limited to) various assistance programs available to residents, resiliency efforts, township projects, and grant applications.

Ocean County Long Term Recovery Group

The Ocean County Long Term Recovery Group (OCLTRG) seeks to provide a coordinated recovery effort to the victims of disasters affecting Ocean County by identifying and assisting households affected by the disaster that do not have adequate personal resources for basic needs and recovery. The group's priorities include the following:

- Individuals and families who need assistance to maintain or obtain safe, sanitary, and secure housing, and who:
 - Are not served or are underserved by other existing aid programs, including people who are ineligible for FEMA.
 - Are experiencing economic hardship in pursuing a plan for recovery.
 - Are isolated or have difficulty accessing services.

- Have begun the recovery process but have encountered a setback and need assistance with their continued recovery.
- Need assistance in order to prevent deterioration in their continued recovery.
- Landlords of owner-occupied residential rental property of four units or less when such assistance will provide safe, sanitary, and secure housing that will be affordable and permanent for the owner-occupant and his or her residential tenants.
- Landlords of non-owner occupied residential property of three units or less when such assistance will provide safe, sanitary, and secure housing that will be affordable and permanent for residential tenants.

There is no publicly available data regarding the OCLTRG's recovery aid in Little Egg Harbor Township, but aid from this group remains available for the residents of Little Egg Harbor.

Rebuilding Approaches That Will be More Resistant to Damage from Future Storms

The recovery efforts previously mentioned all serve as rebuilding approaches that Little Egg Harbor Township is taking to be more resilient in the future. They serve to protect residents from the dangers of potential storm events by providing a solution to damaged services. The Township also may consider the following rebuilding approaches in its recovery efforts:

- Rebuilding and renovating homes and structures in accordance with flood hazard and construction codes.
- Completing repairs to roadways, bulkheads and docks (including the Parkertown Dock facility).
- Educating residents and builders about flood hazards and flood-resistant provisions in codes.
- Protecting natural areas that currently buffer developed areas from storm damage and storm surge.

Recommended Actions

To prevent damage from future hurricanes and storms, the Strategic Recovery Planning Report recommends that Little Egg Harbor employ storm-resistant building strategies in all future municipal construction in areas to the south of the Garden State Parkway. Examples of storm-resistant building strategies include: the use of steel, concrete, or wooden pilings to elevate buildings and protect them from storm surge; reinforcing construction to provide increased strength and wind load resistance; designing buildings to be aerodynamic; using wind-resistance doors and windows; and, using flexible (e.g., wood) or high-strength (e.g., reinforced concrete) building materials.

This report also recommends that the Township construct storm-resistant infrastructure including equipment, pumps and buildings elevated above the flood hazard elevation and berms or levees to protect capital facilities. In addition, green infrastructure and resilient design are encouraged.

This SRPR also recommends that Little Egg Harbor promote recovery from Superstorm Sandy and resiliency to future storms by taking the actions that are detailed in Table 1. These actions have been developed in consultation with the officials from a variety of township offices, and are intended to promote recovery from Superstorm Sandy and resiliency to future storms. Each action has an identified priority. A short-term priority should be implemented within 12 months and a long-term priority should be implemented within 36 months. The prioritization could shift

depending on available funding. Actual costs of each project will be prepared at the time that the specific scope of work is determined.

Based on the funding priorities of Table 1, the Township will be seeking additional funding from the NJ Department of Community Affairs as part of the Post Sandy Planning Assistance Grant Program (PSPAGP) for the following activities eligible for funding under the program:

- Automating and updating its system for processing zoning and construction permits;
- Creating a GIS database and low elevation aerial mapping to support future planning efforts;
- Updating the Master Plan to address post-Sandy strategies and policies related to hazard mitigation and community resiliency;
- Zoning amendments to increase the efficiency of permit review process and expedite recovery; provide resilient and sustainable design standards;
- Zoning amendments in conjunction with master plan amendments to address hazard mitigation and floodplain management;
- Creating and adopting a Floodplain Management Plan as an element of the Master Plan;
- Exploring opportunities to participate in the Community Rating System; and
- Preparing a multi-year capital improvement program to address improvements that will mitigate future damage.

Table 1: Recommended Actions to Recover from Superstorm Sandy and to Improve Response and Increase Resiliency to Future Storms

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Automate and expedite processing of building and zoning permits.</p> <ul style="list-style-type: none"> • Determine needs • Evaluate software options and other tools • Make necessary purchases 	<p>Superstorm Sandy placed a significant burden on township resources and personnel.</p>	<p>Increasing the efficiency of permit review and issuance will increase the efficiency of recovery, and promote resiliency.</p>	<p>Low</p>	<p>Long-term (within 36 months)</p>
<p>Develop a GIS database and user interface to catalog and inventory all infrastructure owned by the Township, including roadways, stormwater collection system, and sanitary sewer collection system. The database should also include essential residential and commercial property information, such as zoning and building data, occupant information, dog and cat license information, etc.</p>	<p>The emergency response to Superstorm Sandy identified the need for mapping of vulnerable areas and related infrastructure.</p>	<p>Improve mapping capability by highlighting at-risk areas that need to be addressed for better mitigation, preparedness, response and recovery measures</p>	<p>Medium</p>	<p>Long-term (within 36 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Compile low-elevation aerials to produce high-quality aerial mapping with 6" contour levels within identified special flood hazard areas.</p>	<p>The emergency response to Superstorm Sandy identified the need for mapping of vulnerable areas and related infrastructure.</p>	<p>This mapping would allow the Township the ability to complement the FEMA flood maps with the best available topographic information and to better delineate the FEMA flood elevations for buildings.</p>	<p>Medium</p>	<p>Long-term (within 36 months)</p>
<p>Update the Master Plan to address post-Sandy strategies and policies related to hazard mitigation, community resiliency, as well as forecasted sea level rise and its impacts. This should also integrate the assessment of community vulnerabilities exacerbated by Superstorm Sandy from this SRPR.</p>	<p>Planning documents should be more closely aligned with natural resources and processes.</p>	<p>Planning can mitigate risks and vulnerabilities, property may be protected and safety can be addressed.</p>	<p>Medium</p>	<p>Short-term (within 12 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Prepare amendments to the township's zoning ordinance</p> <ul style="list-style-type: none"> • Determine needs in coordination with the township's zoning and construction officials • Evaluate options • Prepare revisions • Adopt and implement 	<p>Superstorm Sandy placed a significant burden on township resources and personnel. It also placed a burden on property owners seeking to make repairs and rebuild.</p>	<p>Increasing the efficiency of permit review and issuance will increase the efficiency of recovery, and promote resiliency. It will also provide relief to property owners. Storm-resilient design standards will promote sustainability.</p>	<p>Low</p>	<p>Short-term (within 12 months)</p>
<p>Adopt a master plan element for floodplain management, including a detailed inventory and mapping of infrastructure damaged during Superstorm Sandy.</p>	<p>Superstorm Sandy caused extensive flooding.</p>	<p>Enhanced floodplain management will promote resiliency to future storms.</p>	<p>Low</p>	<p>Short-term (within 12 months)</p>
<p>Explore opportunities to participate in the Community Rating System.</p> <ul style="list-style-type: none"> • Identify funding sources. • Evaluate benefits. • File necessary applications. 	<p>Superstorm Sandy caused extensive flooding. The Community Rating System promoted floodplain management.</p>	<p>Enhanced floodplain management will promote resiliency to future storms. CRS participation will also increase outreach to Township residents and will better prepare them for natural risks.</p>	<p>Low</p>	<p>Long-term (within 36 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Prepare multi-year capital improvement program, including a detailed inventory and mapping of infrastructure damaged during Superstorm Sandy.</p>	<p>The Township requires capital improvements as part of its storm recovery efforts.</p>	<p>This will identify needed municipal investments in public facilities, fleets, and equipment to build community resiliency in plants and equipment.</p>	<p>Low</p>	<p>Long-term (within 36 months)</p>
<p>Develop evacuation routes and provide signage and education</p> <ul style="list-style-type: none"> • Investigate funding opportunities • Develop plans • Provide signage • Educate and Implement 	<p>More than 4,000 people were evacuated during Superstorm Sandy.</p>	<p>Increasing efficiency in evacuation will increase safety during and in advance of extreme weather events.</p>	<p>Medium</p>	<p>Short-term (within 12 months)</p>
<p>Investigate opportunities for full time staff within local fire and EMS agencies</p> <ul style="list-style-type: none"> • Investigate funding opportunities. • Hire staff 	<p>Emergency personnel are currently volunteers. This limits their commitment in times of emergency.</p>	<p>Increased emergency coverage will help to improve safety and efficiency of township response to emergencies.</p>	<p>High</p>	<p>Short-term (within 12 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Investigate opportunities for shared services and mutual aid, in particular with inland communities that are not as vulnerable to major storms</p> <ul style="list-style-type: none"> • Develop partnerships • Execute agreements 	<p>Superstorm Sandy stressed the township's existing volunteer fire and emergency medical services.</p>	<p>Increased emergency coverage will help to improve safety and efficiency of township response to emergencies.</p>	<p>Low</p>	<p>Short-term (within 12 months)</p>
<p>Provide natural gas service for generators, as well as more generators, at schools</p> <ul style="list-style-type: none"> • Investigate feasibility • Develop plans • Implement 	<p>The Little Egg Harbor Township Middle School and High School were used as emergency shelters. Though they have generators, the experience of Superstorm Sandy demonstrated that the generators in schools were insufficient</p>	<p>Use of natural gas could result in increased resiliency to storms.</p>	<p>High</p>	<p>Short-term (within 12 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Improve communication infrastructure for police, fire, and EMS, Secure existing equipment</p> <ul style="list-style-type: none"> • Investigate storm-resistant communication technologies (e.g., radio) • Coordinate stakeholders • Develop plans • Implement plans 	<p>Superstorm Sandy exposed vulnerabilities and inefficiencies in existing means of communication.</p>	<p>Efficient communication among police, fire, EMS, and water and electric utility companies is critical during extreme weather events, including hurricanes and storms.</p>	<p>Medium</p>	<p>Short-term (within 12 months)</p>
<p>Improve communication between emergency management and water and electric utility companies.</p>	<p>Superstorm Sandy exposed vulnerabilities in existing means of communication between municipal and utilities personnel</p>	<p>Coordination between emergency management and water and electric utility companies is critical during extreme weather events, including hurricanes and storms.</p>	<p>Low</p>	<p>Short-term (within 12 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Install a town-wide Supervisory Control and Data Acquisition (SCADA) system in conjunction with the Township's owned and operated facilities (including the Municipal Building, Police Department, fire houses, etc.) to communicate critical alarms to a centralized location or operational personnel.</p>	<p>Little Egg Harbor Township faced damages to many of its services and municipal facilities.</p>	<p>Use of a SCADA system can provide the Township with accurate information on water and wastewater collection, pump control, pump station performance, as well as provide alarm notifications of system failure, emergency levels, and any other events as they occur. This will help protect the environmental quality of the Township by preventing sewer spills into local waterways. The SCADA also will monitor fire, security, power failures, and generator operations for the Township.</p>	<p>High</p>	<p>Short-term (within 12 months)</p>
<p>Restore Radio Road</p> <ul style="list-style-type: none"> • Prepare design plans • Initiate construction 	<p>Radio Road, a County roadway, acts as a barrier to flooding.</p>	<p>Community is susceptible to flooding from coastal storms</p>	<p>High</p>	<p>Short-term (within 12 months)</p>
<p>Installation of bay-front energy dissipation structures</p> <ul style="list-style-type: none"> • Inventory necessary locations • Prepare design plans • Initiate construction 	<p>Reduce coastal erosion</p>	<p>Mitigates flood related hazards and reduces undermining of bulkheads</p>	<p>High</p>	<p>Short-term (within 12 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
Install riprap along shoreline <ul style="list-style-type: none"> • Inventory needs • Prepare plans • Initiate construction 	Low-lying areas of the community are susceptible to flooding from coastal storms.	Protects shoreline from erosion	High	Short-term (within 12 months)
Repair/replenish eroded beach and dock at Dock Street/Parkertown Dock <ul style="list-style-type: none"> • Survey and Prepare Design Plans • Initiate Construction 	Superstorm Sandy eroded beach areas.	Protection of natural resource and public property	High	Short-term (within 12 months)
Iowa Court Seawall	Street was partially washed out by Superstorm Sandy	Protection of property and road.	High	Short-term (within 12 months)
Bulkhead-various locations <ul style="list-style-type: none"> • Prepare inventory • Prepare Design plans • Initiate construction 	Bulkheads were damaged and undermined by Superstorm Sandy.	Protection of municipal roads and property	High	Short-term (within 12 months)
Continue to participate in the National Flood Insurance Program	NFIP is critical for recovery from hurricane impacts	Rebuilding of damaged structures	Low	Short-term (within 12 months)

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
Maintain Local Emergency Planning Committee	Coordination of police, fire and first aid was critical to Sandy response.	Improves emergency response; saves lives and property.	NA	Short-term (within 12 months)
Quarterly emergency management meetings town hall meetings	Improve public information	Improves emergency response; saves lives and property.	Low	Short-term (within 12 months)
Reverse 911	Post-storm recovery efforts had difficulty in reaching residents	Improves emergency awareness and evacuation	Low	Short-term (within 12 months)
Maintain/update Emergency Operations Plan	Reliable current plan required for future storm events.	Protection of life, health, safety and property.	Low	Short-term (within 12 months)
Complete flood protection project at East Sail, Boat Dory Drives	Structural Protection from flooding	Protection of property, safety and health from flood hazards	High	Short-term (within 12 months)
Upgrade emergency power supply at Municipal Building /Emergency Command Center	Current generator was not sufficient during last storm	Emergency power is critical for operations	High	Short-term (within 12 months)

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Supply the Municipal Utilities Authority with five on-site generators for back-up power for wells, pump stations, and the MUA office. The generators must be installed above flood hazard elevation.</p>	<p>Water and sewer service in the Township was disrupted by the outage of electrical service and by flooding. Flood waters shifted the building enclosure of one MUA well site.</p>	<p>Emergency power is critical for operations</p>	<p>Medium</p>	<p>Short-term (within 12 months)</p>
<p>Prepare a Township debris management plan, to include providing the Department of Public Works with an emergency staging facility and a designated debris management area</p> <ul style="list-style-type: none"> • Investigate funding • Determine appropriate locations • Develop plans • Implement 	<p>Superstorm Sandy required a significant response by the Department of Public Works. A proper staging facility would result in increased efficiency of response.</p>	<p>An efficient response of the Department of Public Works is critical during times of emergency and will help to protect lives and property.</p>	<p>High</p>	<p>Long-term (within 36 months)</p>
<p>Inlet-sand moving, dredging</p>	<p>Siltation of inlets occurred during Sandy.</p>	<p>Mitigate flooding hazards</p>	<p>High</p>	<p>Long-term (within 36 months)</p>

Action	Relation to Superstorm Sandy's Impacts	Importance to Promoting Recovery, Response, and Resiliency	Estimated Cost	Length of Project/ Priority
<p>Lagoon dredging of all lagoons in Mystic Island and Osborne Island areas.</p> <ul style="list-style-type: none"> • Survey areas • Sampling and testing • Permitting • Dewatering and disposal area feasibility study • Design 	<p>To remove siltation of lagoons by storm surge.</p>	<p>Mitigate flooding hazards</p>	<p>High*</p>	<p>Long-term (within 36 months)</p>
<p>Perform video inspection and sewer cleaning of sanitary sewer lines in the Mystic Island area and other flood inundated sections of the Township to determine where repairs or replacements are needed.</p>	<p>Water and sewer service in the Township was disrupted by the outage of electrical service and by flooding. High flood levels lead to floatable objects entering the sewer lines and causing some back-ups.</p>	<p>Protection of property, safety and health from flood hazards</p>	<p>Medium</p>	<p>Long-term (within 36 months)</p>

*Engineering estimates for this project range from \$500,000 to \$700,000.