

STRATEGIC RECOVERY PLANNING REPORT

STAFFORD TOWNSHIP OCEAN COUNTY, NEW JERSEY

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1. Executive Summary

Superstorm Sandy was one of the largest storms to ever hit the northeastern United States. Causing an estimated \$70 billion in damage, Sandy was the most destructive hurricane of the 2012 Atlantic hurricane season and the second-costliest hurricane in U.S. history. In New Jersey, high winds and precipitation, as well as overflowing rivers and bays, caused direct damage to homes, businesses and town facilities, including fallen trees, blown off roofs, and flooded critical infrastructure. Tidal surges caused flooding and excessive damage to coastal protective barriers including dunes, bulk heads, and jetties.

The Department of Community Affairs initially allocated \$5 million in Community Development Block Grant – Disaster Recovery (CDBG-DR) funds towards the Post Sandy Planning Assistance Grant Program (PSPAG). The goal of the PSPAG is to support municipalities and counties affected by Superstorm Sandy to develop long range plans for community redevelopment and hazard mitigation. The PSPAG program offers grants to municipalities and counties to hire American Institute of Certified Planners/New Jersey Board of Professional Planners (AICP/PP) licensed planners to address the issues caused by the storm, draft plans to rebuild a more sustainable and resilient community that can withstand damage from future storms, and encourage sustainable economic growth.

On October 28, 2013, Housing and Urban Development (HUD) announced a second allocation of CDGB-DR funds to Sandy-impacted states. As a result, New Jersey published a Substantial Amendment to its Action Plan and allocated an additional \$10 million to the PSPAG and other planning-related programs.

In order for the Township of Stafford to be eligible for grant activities under the PSPAG program, a comprehensive Strategic Recovery Planning Report must be completed. This Report will evaluate the impacts of Superstorm Sandy on the community's housing, infrastructure, and economic growth and sets forth the goals, strategies, and actions that are urgently needed for the public safety of Stafford's citizens and the economic recovery of the Township. Once the Strategic Recovery Planning Report is completed, the Township of Stafford will be eligible for the following grants under the PSPAG program: re-examination reports for master plans or resiliency plans, community

development and neighborhood plans, design standards, capital improvement plans, suburban environmental design, and development of codes or ordinances.

2. Introduction

2.1 Purpose of Report

Due to the damage caused by Superstorm Sandy, many New Jersey municipalities and counties face a myriad of recovery challenges. Among them is the need for planning support to develop community recovery plans that strategically address the issues that now confront them.

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

- Evaluate the impacts on affected community features in Stafford and address the conditions created or exacerbated by the storm;
- Articulate the planning goals, strategies, and priority projects and actions that are most urgently needed to improve public safety, increase resistance to damage from future storms, and stimulate economic recovery; and
- Contain detailed descriptions of each proposed action and project; a statement of need that demonstrates how each action or project relates to the impacts of Superstorm Sandy; why the action or project is important to the economic and environmental health of the community; and the major tasks associated with each action or project.

2.2 Stafford Township Profile

Stafford Township is located in southeastern Ocean County. The Township is bordered by Barnegat Township to the north, Little Egg Harbor Township to the west, and Eagleswood Township to the south. The township has a total area of 54.882 square miles, of which, 45.849 square miles is land and 9.033 square miles is water. Beach Haven West and Manahawkin are census-designated places and unincorporated communities contained within Stafford Township, while Ocean Acres

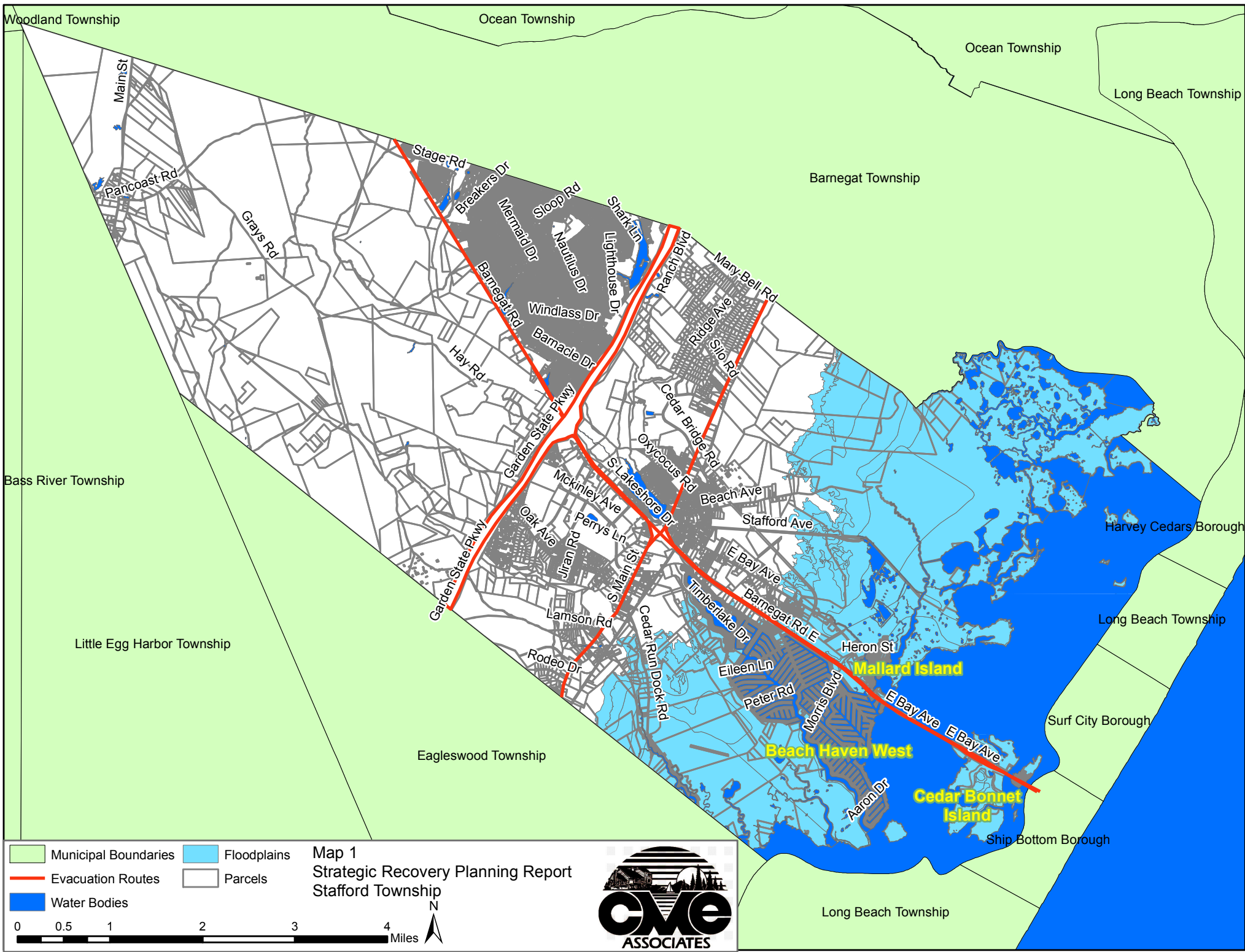
is a census-designated place and unincorporated area split between Barnegat Township and Stafford Township.

Stafford Township lies primarily within the Manahawkin/Upper Little Egg Harbor tributaries Watershed, which is located in Watershed Management Area 13. The majority of the Township drains to Manahawkin/Upper Little Egg Harbor, but the more significant small feeder streams in Stafford include Mill Creek, Cedar Creek, and Big Flat Creek. Manahawkin/Upper Little Egg Harbor drains nearby to the Atlantic Ocean.

According to the 2010 United States Census, Stafford Township had a population of 26,535 people. The population density was 578.8 people per square mile. There were 13,604 housing units at an average density of 296.7 units per square mile. Development patterns within the Township are typical of an auto-oriented suburban community. Residential development in the Township is predominately low- to medium-density single-family housing, with non-residential uses concentrated along regional highway corridors and county routes. Single-family detached residences are the most common housing type within the Township; however, considering the continuing increase in population, new residential development within the Township has trended toward townhome, condominium, and multi-family developments. According to the Stafford Township 2007 Master Plan, about 60% of the total area of the Township consist of parks or environmentally constrained vacant land. Additionally, the Township is almost entirely built-out, and the Township is striving to add open space to bring the total area of open space to 80%.

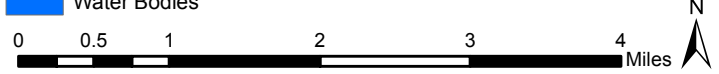
Stafford is served by a few major roads. County Route 539 passes through in the western part of the Township. U.S. Route 9 passes north-south through the central portion of the Township and Route 72 is the main artery that passes from the northwest to the southeast. Additionally, the Garden State Parkway passes through Stafford and intersects with Route 72 at Exit 63.

Stafford Township does not currently have any mass transit train stations nearby. The New Jersey Transit bus service between the Township and Atlantic City is available on the 559 route.



- Municipal Boundaries
- Floodplains
- Evacuation Routes
- Parcels
- Water Bodies

Map 1
 Strategic Recovery Planning Report
 Stafford Township



Long Beach Township

3. Evaluation of Superstorm Sandy's Impact and Recovery Efforts

This report section discusses the impact of Superstorm Sandy on the Township's infrastructure, private property, economy, and community. Each subsection includes recovery efforts undertaken by Stafford Township, as well as available county and state recovery programs.

3.1 Damage to Infrastructure

Of every state in the region, New Jersey suffered the most in terms of power outages from Superstorm Sandy. New Jersey had the largest number of customers without power at the peak, 2.6 million. Stafford Township sustained a ratable loss as a direct result from Superstorm Sandy in excess of \$200 million.

To recover from Superstorm Sandy damage and prepare for future disasters, the Township has pursued the following measures to improve infrastructure.

Hazard Mitigation Grant Program Infrastructure Projects

Stafford Township has been active in pursuing funding from the Hazard Mitigation Grant Program (HMGP). The Township has provided several Letters of Intent for an array of hazard and flood mitigation in different areas of Stafford Township, which are discussed in further detail below.

Of the public buildings and facilities to receive damage from SuperStorm Sandy, Mill Creek Community Center (MCCC) received the most damage. There was significant damage to the settlement of the main building floor and the entire structure has been deemed a total loss. Longitudinal cracks were observed on the floor and exterior walls, the tennis courts and basketball courts have cracks, benches, and the tot lots require replacement. The MCCC is used by the community for civic association meetings, Township sponsored events, and as a recreation hub for the community. The proposed improvements plan to use the building not only as a community center, but as an emergency response staging area and temporary evacuation center. In addition to reconstructing the community center above the new ABFE, a diesel powered emergency generator is planned to be included to ensure the community center can be used as an emergency response staging area during an

emergency evacuation. Total estimated restoration costs for the Mill Creek Community Center total \$2,149,900.00.

Additionally, Stafford Township submitted an application for the Hazard Mitigation Grant Program for hazard mitigation improvements to the “Old Town Hall” building. After Superstorm Sandy, FEMA officials used this location as an information center, staging area, and preparation area for emergency response activities. The addition of a diesel powered emergency generator will prevent disrupted electrical service and the potential disruption of gas service that may inhibit occupation of the building to continue future emergency personnel management. Total estimated costs for these improvements total \$175,500.00.

Shore Stabilization and Bulkhead Improvements

Three areas within the Beach Haven West section of Stafford Township received damage from Superstorm Sandy including bulkhead damage, shoreline erosion, and damage to infrastructure due to bulkhead damage or non-bulkheaded sections. These areas have been selected for shore stabilization through bulkhead improvements and other long term hazard mitigation practices.

Two bulkhead projects are planned near the Mill Creek Community Center. The first is at the rear of the Community Center and the second is opposite Mill Creek Community Center along the edge of Mill Creek Road. New vinyl sheet bulkhead behind and opposite the Mill Creek Community Center will protect against shoreline erosion along Mill Creek Road while connecting with existing residential bulkhead on both ends. The improvements will stabilize the shore, add protection from wave action along the lagoon, and ensure the roadway will be safe during an emergency evacuation.

An additional bulkhead project along the lagoon frontage between Amy and Clara drives is planned to protect the Clara Drive sewer pump station from further water damage during a storm. The existing bulkhead was undermined during Superstorm Sandy which caused the pump station to flood. All bulkhead projects are estimated to cost \$1,012,500.00.

Additionally, Jennifer Lane Beach sustained significant damage and erosion along the beach shoreline. The existing Township bay beach is planned for long term shore protection measures and hazard mitigation against future storm events. The shallow bathing beach experienced severe erosion to its existing bulkheads, which require construction. Other construction includes replacement of storage shed with a structurally anchored structure, post, and rail fence with permanent concrete posts. Total estimated cost for these hazard mitigation improvements is \$334,100.00.

Water and Sewer Improvements

The Storm damaged public critical infrastructure and several buildings and facilities throughout the Township. During the Storm control panels and three sewer pump stations in Beach Haven West were damaged due to flood waters. The Township has proposed to raise all power and controls to above the new ABFE to prevent future damage. Also the Township proposes to add diesel powered emergency generators above the ABFE for each pump station to prevent shut down of gas and electric that will cause backups at the pump stations. The pump stations are located at Newell Drive, Jane Drive, and Clara Road. The total cost to repair and upgrade each pump station is \$472,500.00. The Pumping stations at Newell Park and Mill Creek did not receive damage, but are deemed critical infrastructure and the Township proposes to install emergency backup generators at those pumping stations.

Road Improvements

Road elevations and associated improvements are planned for Cedar Bonnet Island, Mallard Island, and other miscellaneous roads throughout the Township. Cedar Bonnet Island is located entirely within Barnegat Bay and is split by New Jersey State Highway Route 72. The low lying roads are frequently flooded by normal high tides, and especially during major storm events such as Superstorm Sandy. The focus is to raise the roads to provide safe access during an emergency evacuation and to raise drainage structures to keep high tides from flooding the roadways. The total estimated cost of this project is \$5,651,100.00.

Mallard Island is located just north of New Jersey State Highway Route 72 Causeway Bridge on the westerly side of Barnegat Bay. Road elevations are

planned to raise the roads at least 1 foot to provide safe access and avoid flooding during high tides and emergency events. The total estimate cost of this project is \$5,096,600.00. Other roads located in Beach Haven West and other areas of the Township are planned for restoration at an additional estimated cost of \$1,030,800.00.

Park Improvements

Mill Creek Park is planned for shore stabilization improvements to protect the park from erosion, protect water tower supports, and have less overall damage to park amenities during future storm and flooding events. Total estimated restoration cost for Mill Creek Park improvements is \$490,900.00.

Other public recreation facilities that received damage include the Mill Creek and Paul Boulevard Outlet Structure, the fencing at Beach Avenue Park, the field goal at the Pop Warner Football field, and the backstops at Doc Cramer Park. The Mill Creek and Paul Boulevard Outlet Structure was present to direct storm piping to the lagoon. The structure was significantly damaged and requires a full replacement. Significant clearing and dewatering would be needed to install a new box, with bulkhead and pipe penetration to lagoon. Total estimated restoration costs for Township recreation areas totals \$217,700.00.

Debris Removal

An area of approximately four acres was selected by Stafford Township to be the regional receiving site of debris generated by Hurricane Sandy. It cost the Township \$59,500 to remove all debris caused by the storm.

3.2 Property Damage

Like many of the waterfront municipalities affected by Superstorm Sandy, Stafford Township was significantly impacted by the storm surge caused by Superstorm Sandy. Sandy-related flooding impacted the east end of Bay Avenue, from the Mallard Island Yacht Club to east of Heron Drive and Marsha Drive. This flooding from the bay included all of Mallard Island and Avenues A through K. Additional flooding was observed throughout the Township at approximately 15 locations including New Jersey State Highway Route 72 which is an evacuation route.

Approximately 4,600 homes are within the flood zone in the Township with 1,250 receiving substantial damage. The other 3,300 homes are in various stages of recovery such as completion of construction, rebuilding now, raising the home, or waiting for insurance claims to be completed. Stafford Township reported over 4,000 homes damaged or destroyed during the storm, and averages of \$19,000 in losses were reported from homeowners of the Township. Many of these homes are primary residences. However, in some cases, these homes are owned by homeowners who inherited these houses or purchased a second home as an investment. In these situations, the owners are typically disqualified from most types of financial aid to rebuild or elevate the structures. Additionally, 130 residents were awarded funding under the Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) program, with \$4.43 million disbursed to Stafford home owners as of September 2014. A total of \$15.63 million dollars is obligated to Stafford Township.

State and Federal Homeowner Recovery Programs

FEMA runs a Hazard Mitigation Grant Program (HMGP) which is a \$100 million reimbursement grant program set up to assist homeowners elevate their homes after Hurricane Sandy. The HMGP elevation program provides up to \$30,000 of reimbursement for eligible homeowners to elevate their primary single-family residences. The program is being paid for by FEMA funds. The application period for homeowners closed on September 15, 2013.

At the State level, the Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program and Homeowner Resettlement Program are the primary CDBG-DR funded recovery programs for homeowners. These programs are intended to “fill the gap” between the cost of Sandy-related repairs and other funds received by the owner. The State has allocated \$710 million and \$215 million of the first wave of CDBG-DR funds to support these programs, respectively. However, Tables 2-2 and 2-3 below show that the unmet needs for the RREM Program remain substantial.

Table 2-2: Summary of Homeowner Program Allocations and Existing Unserved Needs

Program	Total Allocation ^a	Total Number of Eligible Households	Number of Households Receiving Grant Award	Average Allocation per Unit	Estimated Program Need for Eligible Households (\$) ^b	Excess / (Shortfall)
RREM	\$710,000,000	12,389	5,124	\$106,000 ^c	\$1,313,234,000	\$(603,234,000)
Homeowner Resettlement	\$215,000,000	18,335	16,791	\$10,000	\$183,350,000	\$0

^a This Total Allocation amount reflects the shift of funds approved in Action Plan Amendment 4.
^b These figures exclude program delivery costs.
^c This figure is based on the average RREM grant awards that were signed as of January 13, 2014, and reflects the impact of private insurance, U.S. Small Business Administration (SBA) loans and other funding sources that are accounted for in the State's duplication of benefits analyses performed to ensure that CDBG-DR funds only are provided to address unmet needs. Notably, as of September 12, 2013, SBA disbursed more than \$122 million in loans across 5,100 homeowners and renters.

Table 2-3: Summary of Unmet Need Based on Elevation Program

Program	Total Allocation	Projected Number of Households Assisted	Number of Households Requesting Assistance	Average Cost of Elevation	Need of Households Requesting Assistance (\$)	Excess / (Shortfall)
HMGP Elevation Program	\$100,000,000	2,700	6,510	\$65,000 ^a	\$423,150,000	(\$323,150,000) ^b

^a Costs of elevation vary significantly by property, depending on such factors as the size of the home to be elevated and the footprint of the home. A \$65,000 elevation cost estimate is used because it is an approximate average of what an elevation in New Jersey might be expected to cost.
^b This figure excludes program delivery costs.

The New Jersey standard is to elevate residential structures a minimum of one foot higher than the Advisory Base Flood Elevation (ABFE). This reduces the risk of damage to the property and its contents in the event of major flooding. It may also provide a significant reduction in flood insurance premiums compared to a structure that is not elevated.

In order to alleviate some of the unmet need, Table 2-4 shows the second tranche of CDBG-DR funding has allocated the following for these programs.

Table 2-4

Category	Allocation Level		Program	Allocation Level	LMI Estimate
	Total Amount	Total Estimated LMI Amount			
Homeowner Assistance Programs	\$490,000,000	\$220,000,000	Reconstruction, Rehabilitation, Elevation & Mitigation	\$390,000,000	50%
			Blue Acres Buyout Program	\$100,000,000	25%
Rental Housing and Renter Programs	\$245,000,000	\$230,000,000	Fund for Restoration of Multi-Family Housing	\$200,000,000	95%
			Neighborhood Enhancement Program	\$20,000,000	75%
			Sandy Special Needs Housing Fund	\$25,000,000	100%

Ocean County Long Term Recovery Group

The Ocean County Long Term Recovery Group (OCLTRG) is a network of faith-based, nonprofit, governmental, business, and other organizations that provide a coordinated recovery effort to victims of disasters affecting Ocean County. This group identifies and assists households that were affected by disaster who do not have adequate resources to meet their basic needs. The group's priorities include the following:

- Individuals and families who need assistance to maintain or obtain safe, sanitary and secure housing including:
 - Individuals and families who are not served, or who are underserved, by other existing aid programs, including those who are ineligible for FEMA.
 - Individuals and families who are experiencing economic hardship in pursuing a plan for recovery.
 - Individuals and families who are isolated or have difficulty accessing services.
 - Individuals and families who have begun the recovery process but have encountered a setback and need assistance with their continued recovery.
 - Individuals and families who 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 rental 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.

Ordinance Amendments and Waivers

Ordinance Number 2013-11 amended many subsections of Chapter 114 "Flood Hazard Areas" such as "Terms defined," "Basis for establishing areas of special flood hazard," "Coastal High Hazard Area," and "General Standards." This particular

ordinance adopted FEMA's Flood Hazard Data which incorporated FEMA's Preliminary Work Maps that took effect August 2013. These maps were then replaced by FEMA's Preliminary Flood Insurance Rate Maps (FIRMs) on March 28, 2014. This Ordinance is included within **Appendix B** of this report.

3.3 Economic Impact

Most businesses in Stafford Township suffered a level of interruption by power outages and road closures. In addition, the local and regional tourism industry has been adversely impacted to some extent which has created a more challenging business environment for certain businesses. Should another natural disaster occur, there are several programs available to help small businesses recover.

Small Business Administration

In the months following Hurricane Sandy, the Small Business Administration (SBA) has been issuing loans to homes and businesses in New Jersey to aid in their recovery and reconstruction efforts. NJ.com has compiled data from the SBA and made it available online.

In August, 2013 the SBA held a Recovery and Matchmaking Summit to educate and connect small businesses to commercial buyers from the private sector and federal, state and local governments. The goal of this program is to help small businesses in the region to get back on their feet and compete for opportunities.

Strong NJ Business Grant Program

With a focus on the most impacted communities throughout the state, New Jersey is offering aid through grants and forgivable loans to New Jersey small business or non-profit organization which sustained a minimum of \$5,000 in physical damage from Superstorm Sandy. Eligible small businesses and non-profits may apply for grants and forgivable loans of up to \$50,000 per impacted location. If an entity has multiple locations in New Jersey incorporated under a single federal tax identification or employer identification (EIN) number, it may receive up to \$250,000 per entity and it may use one application to seek funds for all incorporated, impacted locations. 6 Stronger NJ Business Grants have been awarded to Stafford Township businesses for a total of \$145,215.81 under the Community Development Block Grants program.

3.4 Community Impact

The U.S. Department of Housing and Urban Development (HUD) requests that jurisdictions across the nation conduct a bi-annual, statistically reliable and unduplicated count of the homeless over the course of one day in the last ten (10) days in January. The jurisdictions in NJ conduct an annual count of the homeless on a voluntary basis and report findings in the *Point in Time Count*.

In January of 2012, before Superstorm Sandy hit, the *Point in Time Count* reported that 648 men, women, and children in Ocean County were homeless. The largest contributing factor to homelessness in 2012 was alcohol or drug abuse problems, which affected 58.3 percent of the people surveyed with mental illness at a close second with 47.2 percent of the people surveyed. In January of 2013, however, Ocean County saw a small increase in its homeless population, reporting 678 homeless men, women and children. The major contributing factor to homelessness in 2013 was mental illness affecting 48.6 percent of the people surveyed. The 4th highest contributing factor to homelessness was natural disaster at 34.7 percent. This was a drastic increase from the prior year, as the natural disaster factor to homelessness was not found on the 2012 Point in Time Count.

The 2013 Point in Time Count was conducted nearly three months after Superstorm Sandy impacted the area and, as evidenced by these findings, still an overwhelming number of people remained displaced from their homes. Due to the slow implementation of State and Federal funding, the displacement of families, homelessness and other similar issues are still in progress of being remediated.

Stafford Township is beginning involvement with the State demolition program that is looking at homes that were severely damaged during the storm. These homes have either not been touched since the storm or have been gutted. Approximately 378 homes in Stafford Township are currently on the list under the State demolition program.

Recovery for Displaced Families

During the events of Superstorm Sandy, Stafford Township established an emergency shelter at the former Township Building and two additional places in nearby towns. Furthermore, there was the Ocean County Family Success Center and St. Francis Community Center overseeing a wide variety of programs and individualized case management services in coastal areas that were affected by the storm. Limited financial assistance was also available for residents who had exhausted all of their resources.

The New Jersey Department of Human Services provides the Sandy Homeowner/Renter Assistance Program (SHRAP) as a temporary relief program to assist individuals and families experiencing a housing crisis resulting from Superstorm Sandy. The goals of the SHRAP program are to provide housing stability by: Maintaining temporary housing while primary residence is repaired/rebuilt; maintaining a primary residence to return to when repair/reconstruction is completed; and ensuring affected households have items deemed essential for health and safety upon returning to primary residence.

Additionally, the Ocean County Division of Social Services provides a number of services for people suffering from homelessness including: intake/screening, placement services, liaison services to transitional housing sites/shelters and rooming/boarder homes, housing search assistance and Temporary Rental Assistance. The County Division of Social Services also operates a 24-Hour Homeless Emergency Phone Line to provide an after-hours number for homeless housing-related emergencies.

Affordable Housing

Stafford Township continues to implement the policies and goals outlined within the Housing and Fair Share Element of the Master Plan in order to ensure a diverse housing stock for all residents affected by Hurricane Sandy. The programs and initiatives listed within the *Recovery for Displaced Families* section of this Report are available to families of low- and moderate- income as well.

In addition, 'NeighborWorks' is a comprehensive guide of resources and informative tutorials to help hurricane survivors make educated decisions about rebuilding, relocating, and home repairs. There is also NJ Housing Resource Center located online for New Jersey residents to find information regarding available properties for Hurricane survivors from other landlords looking to aid in the disaster. Stafford Township, as well as all of Ocean County, has given residents a lot of resources to find affordable housing after Hurricane Sandy.

4. Vulnerability Assessment

4.1 Vulnerability Analysis

By overlaying social and economic data on the same map with sea level rise, a community can perceive the impending impact that sea level rise can have on vulnerable areas. Numerous parts of New Jersey can be found in hazard-prone areas known as 'vulnerable communities.' Based on the New Jersey Flood Mapper diagrams found online and the CRSSA Resiliency maps, Stafford Township is within this vulnerable category as several of its neighborhoods are proximate to waterways.

A significant problem associated with sea level rise is that many developed areas proximate to tidal water bodies may be compromised. For example, New Jersey State Highway Route 72 runs directly over Barnegat Bay, and through the paved access roads on Cedar Bonnet Island. If a Category 1 Hurricane made landfall, this area would not be suited for residents to evacuate, as both New Jersey State Highway Route 72 and Cedar Bonnet Island's roads would be flooded over.

Stafford Township has no critical facilities within the current floodplain. This includes schools, fire stations, law enforcement, assisting living, and hospitals within the borders of Stafford Township. This allows emergency services to operate during a major storm or flood event. However, if these facilities do not have backup power in the event of power loss, then emergency services would have difficulty operating efficiently. Furthermore, if major evacuation routes within the floodplain are flooded it will hamper emergency services ability to reach citizens within the floodplain for evacuation or other emergency needs. It is important that steps be taken to allow for emergency services to both operate efficiently and quickly during an emergency. The map in Appendix A depicts floodplains, evacuation routes, and critical facilities.

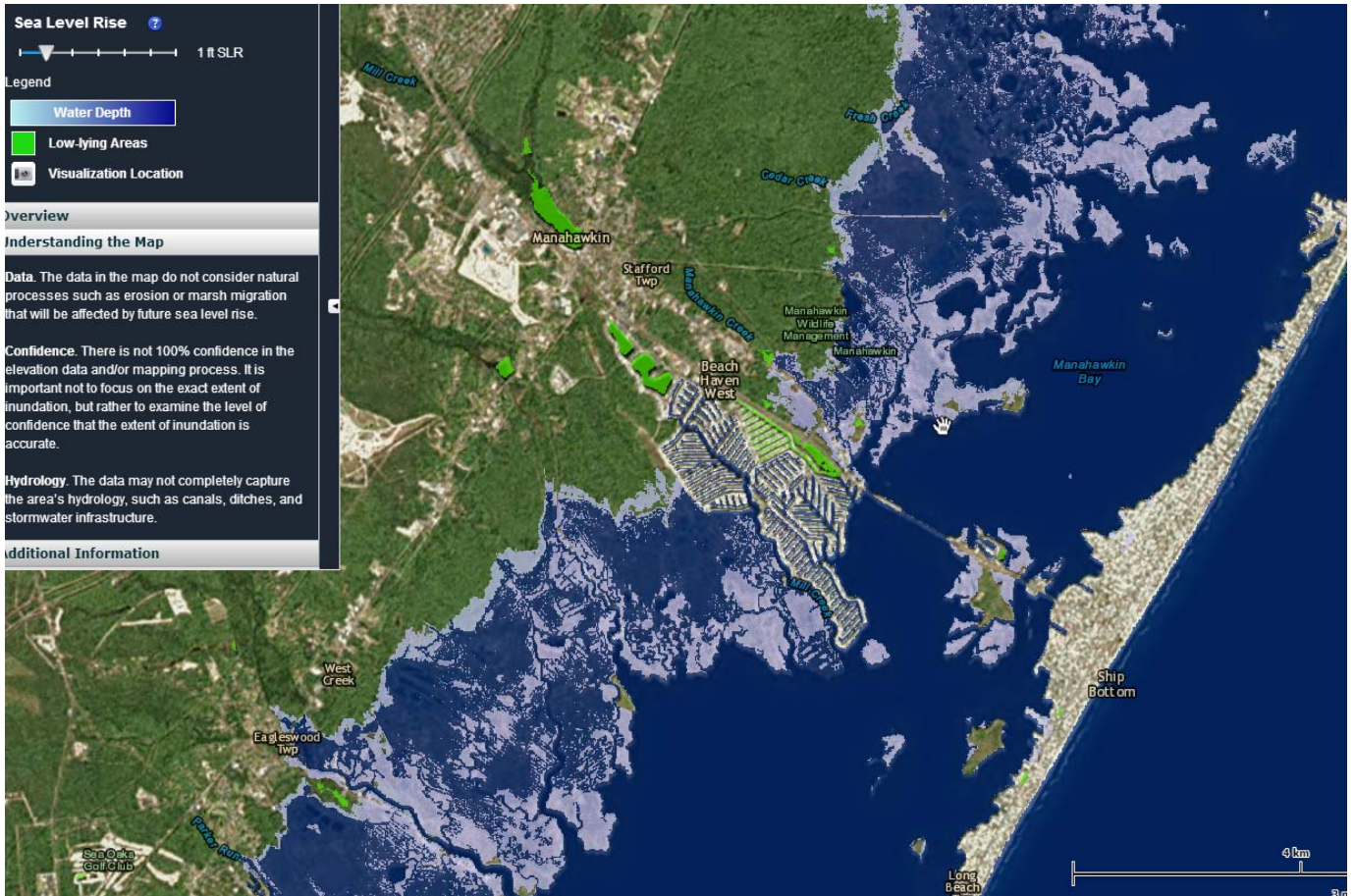
Any sea level rise (SLR) starting from one foot could impact Stafford Township. Areas near Manahawkin Bay are in an area of high vulnerability as sea level rises. Even the relatively low end scenario of one foot of sea level rise will require adaptation as numerous streets and low lying bayside communities will see fairly regular tidal inundation. Jacques Cousteau National Estuarine Research Reserve (JCNRR) best estimates the arrival of one foot of SLR will happen before 2050. As sea level rise is expected to accelerate this century, three feet of sea level rise is likely before 2100 (see table below).

Total sea level rise projections for New Jersey.			
	Total cm	Total inches	Total feet
2050 best	40	16	1.3
2050 low	23	9	0.7
2050 high	60	24	2.0
2100 best	96	38	3.1
2100 low	50	20	1.6
2100 high	147	58	4.8
All values with respect to a year 2000 baseline.			

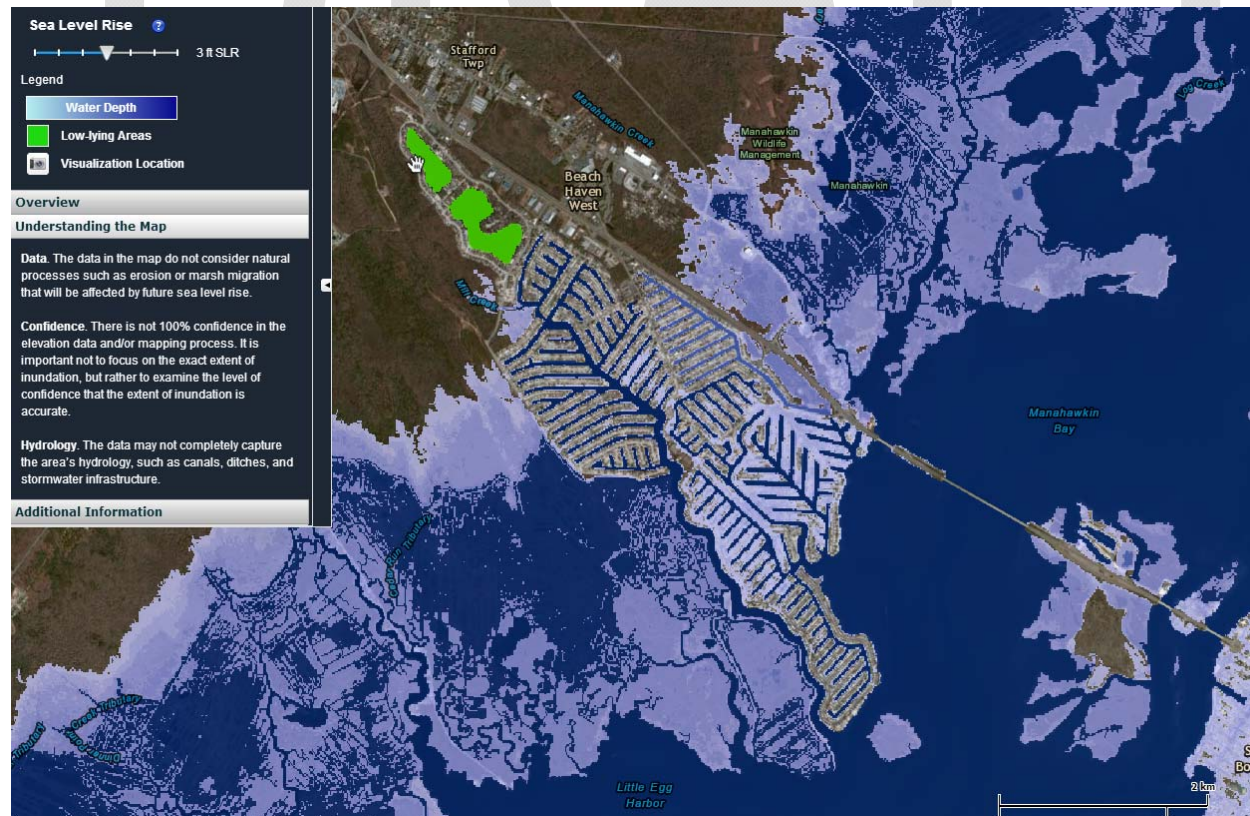
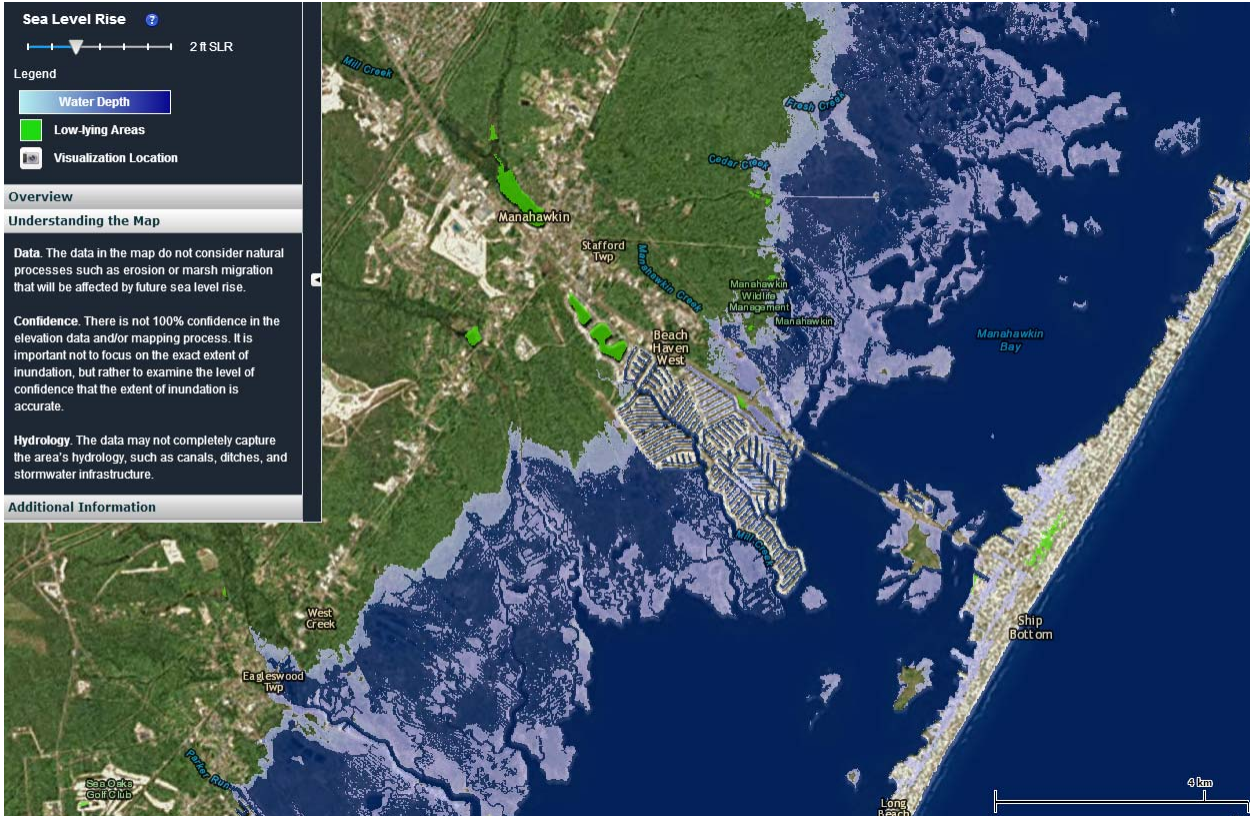
NJ sea level rise projection ranges and best estimates. Miller AK, Kopp RE, Horton BP, Browning JV and Kemp AC. 2013. A geological perspective on sea-level rise and its impacts along the U.S. mid-Atlantic coast. *Earth's Future* 1(1):3-18.

Two feet of sea level rise sees regular tidal flooding slowly impacting more and more of the bayside communities. Three feet of sea level rise will result in regular tidal inundation in almost all waterfront communities.

A significant problem with sea level rise is that developed areas may be compromised. Any sea level rise starting from one foot could impact the Township of Stafford. At one foot sea level rise, significant portions of Cedar Bonnet and Mallard Islands become inundated with water and NJSH Route 72, the only evacuation route from the vulnerable areas, has a higher chance of being flooded during a major storm event. The relatively low end scenario of one foot sea level rise will require adaptation as numerous streets, and low lying bayside communities will see fairly regular tidal inundation. The picture below depicts a one foot sea level rise.



Two feet of sea level rise sees regular tidal flooding slowly impacting more and more bayside communities, including parts of Beach Haven West, all of Mallard Island, and most of Cedar Bonnet Island. Three feet of sea level rise will result in regular tidal inundation in all waterfront communities. The pictures below show two and three feet sea level rise.



4.2 Adapting for Flood and Sea Level Rise

In order to adapt to potential sea level rise, the Township and residents may utilize the following strategies:

- Promote shore protection techniques and open space preservation that allows beach and coastal wetlands to attenuate wave action as sea level rises;
- Identify and improve evacuation routes and evacuation plans for low-lying areas, to prepare for increased storm surge and flooding;
- Protect and restore stream and river banks to ensure good water quality and safe guard water quantity;
- Elevate homes and roadways that fall within floodplain areas;
- Promote elevation, wet flood proofing, dry flood proofing and other storm protection measures for businesses, as appropriate;
- Concentrate development in areas that will not be affected by sea level rise;
- Retreat-The Township or State may buy out homeowners, without the use of eminent domain, in particularly vulnerable locations to turn areas in to parks or rehabilitated ecosystems; and
- Prepare Neighborhood Resiliency Plans to act as guides and planning tools to further educate residents in these areas on emergency preparedness and resiliency towards flooding.

4.3 Land Use Vulnerabilities Exacerbated by Superstorm Sandy

Superstorm Sandy exacerbated the vulnerability of homeowners and business owners located in low-lying areas to the flooded waterway that border and run through the Township. Additionally, extended loss of power stifled the process of returning residents back into their homes.

Additionally, Superstorm Sandy revealed how vulnerable critical components of sewer infrastructure are to storms that cause coastal flooding, carry heavy precipitation, and temporarily cut access to the electricity grid. As a result of sewer overflow, pathogens and bacteria from inadequately treated sewage can impact human health and the health of aquatic ecosystems.

4.4 Community Opportunities Created by Superstorm Sandy

The impacts of Superstorm Sandy have shown which areas of Stafford Township are the most vulnerable to future storm events. The following areas can be improved upon to increase resiliency to these areas for future storm events:

- Promoting public awareness of hazard mitigation and resiliency issues;
- Focusing public agencies on community vulnerabilities to hazards such as flooding;
- Encouraging regional solutions to flood- and storm-related impacts;
- Ensuring that future capital projects are designed and constructed to incorporate features that are resilient to storm- and flood-related impacts;
- Focusing on resiliency when rebuilding damaged facilities;
- Integrating hazard mitigation into Master Plan elements;
- Developing ordinances that are targeted at protecting public and private property from flood hazards; and
- Completing long term hazard mitigation projects for Beach Haven West, Mallard Island, and the Bonnet Islands.

5. Integration of Existing Planning Documents

This SRPR examines the adequacy of the existing municipal and county planning and emergency management documents and describes the changes needed to support and achieve municipal planning goals and address municipal needs related to post storm recovery and to mitigate future storm impacts. The following sections detail the existing policy documents relevant to the Township.

5.1 Township Documents

Stafford Township Comprehensive Master Plan, 2007

The Township of Stafford's Master Plan was prepared by CMX Inc. and was adopted by the Township of Stafford Planning Board in 2007. This Master Plan replaces the last master plan completed on 1994 and the 2001 Master Plan Reexamination. The Goals and Objectives set forth in this plan outline the Township's vision and what it hopes to achieve over the next 10 to 15 years. The Goals and Objectives are below:

GOALS

1. To promote the establishment of appropriate population densities in concentrations that will contribute to the well-being of persons, neighborhoods, and the region, and the preservation of the environment.
2. To provide sufficient space and appropriate locations of a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private, according to the respective environmental requirements in order to meet the needs of all citizens.
3. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities which will result in congestion or blight.
4. To promote the conservation of historic sites and districts, open space, the valuable natural resources, and to prevent sprawl and degradation of the environment through improper use of land.
5. To promote a desirable visual environment through conservation and preservation of valuable natural features.
6. To assure that the development and general welfare of Stafford Township does not conflict with the development and general welfare of neighboring municipalities, Ocean County and the State as a whole.
7. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the costs of such development and to the more efficient use of land.
8. To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.
9. To promote the maximum practicable recovery and recycling of recyclable materials from Stafford Township solid waste through the use of planning practices designed to effectuate the State Recycling Plan goals and compliment municipal recycling programs.
10. To maintain a high quality of jobs and businesses, collaborative partnerships, and enhancement of the local tax base, while respecting the commercial character of the community.
11. To improve range, quality and cost-effectiveness of community services and facilities.

12. To provide for the active and passive recreational needs of residents and visitors to the Township.
13. To provide pedestrian and bicycle linkages among parks, recreation areas, and neighborhoods and between neighborhoods and commercial areas.

OBJECTIVES

Land Use

1. To preserve the rural aesthetic character of the Route 9 corridor in the northern and southern portions of the Township.
2. To encourage integration of commercial uses to limit the number and control the locations of access points to the Township's primary roadway system.
3. To provide commercial and recreational facilities to promote the convenience of residents and to lessen the traffic impacts of existing and future development on Route 72.
4. To limit commercial development, where practical, that impacts established residential neighborhoods.
5. To promote the revitalization and redevelopment of the Bay Avenue Commercial Area.
6. To promote the preservation and conservation of open space and environmentally sensitive areas through coordination of the Township's planning efforts with Federal, State and County and non-profit agencies.
7. To encourage appropriate land uses, land use intensities, and new transportation routes that promote the free flow of traffic on the Township's primary roadway system, particularly Route 72.
8. To encourage "planned residential development" as a means of providing area wide planning and ensuring necessary infrastructure to accommodate such development.
9. To promote the purposes of the State Development and Redevelopment Plan, including limiting sprawl through concentration of development in existing and planned centers.
10. To undertake a comprehensive revision of the Township's Land Use and Development including procedures, definitions, use standards, regulations and design standards.

11. To develop infill design standards for residential development and rehabilitation projects ensuring consistency with the existing fabric and character of the neighborhoods.
12. To ensure environmentally sensitive design and encourage green building such as LEED as part of new development or alteration.
13. To encourage communication and coordination with the school districts and hospitals; incorporate their long- range planning strategies into the Township's revitalization efforts.
14. To manage growth and limit development on environmentally sensitive land through rezoning, buffering, and open space preservation and acquisition.
15. To establish a coordinated design and gateway theme for Route 9 between Hilliard Boulevard and Bay Avenue to include interconnectivity between schools, parks, and neighborhood commercial corridors.
16. To evaluate zoning along Route 9 and Route 72 to ensure compatibility with the State Highway Access Management Code.
17. To encourage zoning that creates a diverse, mixed-use setting with multiple options for housing and retail establishments.

Stafford Township's Master Plan embraces the general purposes regarding the local planning process outlined in the New Jersey Municipal Land Use Law. The following goals and objectives were provided to serve as an overall framework for development and preservation:

1. To advance the purposes of the Municipal Land Use Law as contained within NJSA 40:55D-2.
2. Promote a balanced variety of residential, commercial, industrial, recreational, public and conservation land uses.
3. Preserve and enhance the existing character of the residential neighborhoods in the Township while providing a mix of housing types and uses.
4. Provide a variety of housing opportunities for all income levels in appropriate locations consistent with environmental constraints.
5. Promote aesthetic and site improvements in the Township's major commercial and industrial areas.
6. Provide for the utilization of the Township waterfront for appropriate uses.

7. Guide the redevelopment and development of the remaining large parcels and scattered vacant sites within neighborhoods to ensure proposed uses support existing uses without adverse impact in terms of land use compatibility, traffic, economic, and aesthetic impacts.
8. Maintain a balance between residential and non-residential uses to ensure a stable and sound community tax base and provide local employment opportunities.
9. Provide a circulation network for vehicles, bicycles and pedestrians that permits safe and efficient travel.
10. Provide adequate community facilities and services in order to enhance the quality of life for existing and future Township residents and respond to changing demographics.
11. Promote the preservation of natural resources and environmentally sensitive areas; particularly wetland, woodland, coastal, flood hazard and aquifer recharge areas.
12. Provide for additional open space and maintain and enhance existing parkland.
13. Ensure that the Township's Land Use Plan is compatible with adjacent municipalities, the County and the State of New Jersey.
14. Pursue *Certified Local Government* designation for the Township to assist in the preservation of the Historic District and allow further ability to pursue grants and funding opportunities.

Open Space and Recreation Element

The Stafford Township Open Space and Recreation Element consists of the guiding concepts of the plan, an inventory of existing open space and recreation facilities, a needs analysis to determine the amount of open space required, a resource assessment of the Township's environmental resources and an action plan.

The following guiding concepts were established within the Open Space and Recreation Element.

1. Stafford Township will seek to acquire fee simple ownership or easements major stream corridors for public access and recreation opportunities, such as hiking and biking;

2. Stafford Township will seek to acquire easements to establish pedestrian links and wildlife corridors between existing recreation and open space areas;
3. Stafford Township will seek to acquire, or assist other agencies in acquiring, Environmentally sensitive areas, such as woodlands, flood plain areas, wetlands, and wetlands buffers as a means of protecting water quality in the streams and aquifers of the Township;
4. Stafford Township will seek ways to acquire sites in key locations in imminent danger of development;
5. Stafford Township will seek to establish linear access ways such as trails, bicycle paths and greenways, where feasible and appropriate; and,
6. Stafford Township will seek ways to acquire additional properties to be added to the current recreation and open space inventory with other County or State open space initiatives.

Community Facilities Element

Community facilities and services such as schools, parks, libraries, emergency services and municipal services are the backbone of the community and establish the quality of life available to its residents. Stafford Township's Community Facilities Element lists the following objectives:

1. To provide adequate services to fit the needs of the Township.
2. To continue to share services to the extent possible
3. To continue to evaluate the adequacy of existing facilities.

Utilities Element

The Utilities Element of the Master plan addresses water and sanitary sewer, as well as other Township studies that relate to the overall infrastructure system and planning efforts. The following goals were set forth within the Utilities Element.

1. To determine utilities service areas on the basis of the Master Plan's overall vision of land use and density
2. To re-evaluate sewer service areas in light of the Land Use Plan to manage growth
3. To maintain the adequacy of the existing sewer and water systems.

4. To understand the balance between run-off and groundwater recharge on Township soils and subsurface, particularly in areas with wells and flood-prone areas.
5. To create standards to minimize off-site impacts from run-off and impacts on adjacent wells and water resources and to maximize on-site recharge and filtration.

Floodplain Management Plan

Stafford Township is classified as a repetitive loss community and a Floodplain Management Plan is a mandated component of the Community Rating System (CRS) application of the National Flood Insurance Program (NFIP). The goals of the Floodplain management Plan are to:

1. Encourage and increase municipal flood hazard mitigation policies which will promote the health, safety and welfare of Stafford residents and businesses and prevent future flood losses.
2. Secure safety from floods.
3. Reduce damage to residences and business establishments.
4. Promote awareness of flood insurance.
5. Protect natural and beneficial flood plain management functions.

Additionally, the Floodplain Management Plan set forward short- and long-term actions items to promote these goals. **Figure 1** below shows these action items.

SHORT-TERM ACTIVITIES
Expand the scope of the Floodplain Management Plan.
Expand flood hazard mitigation activities under CRS to increase credits, obtain a higher CRS classification and thereby increase flood insurance premium discounts.
Monitor the progress on the Action Plan items: prepare progress reports for submission to the Township Council.
Obtain grant funding for action plan items.
Promotion of flood insurance protection via outreach efforts (e.g. newsletters, bulletins to local service organizations, Website, mailings, advertisements in local paper, press releases, speaking engagements at local civic group meetings)
Investigate the feasibility of a grant program, using Federal funds, to financially assist homeowners to raise the elevation of their homes.
Promote flood hazard awareness with flood elevation markers (about one dozen) in prominent locations.
Prepare letter to the Ocean County Board of Realtors concerning the disclosure of flood hazard area location to potential buyers.
LONG-TERM ACTIVITIES
Increase flood hazard mitigation to achieve a 20% discount (i.e. Category 6 community).
Expand drainage system maintenance activities by obtaining access easements from private property owners, purchase of adequate equipment and hiring of sufficient personnel.
Training of Township personnel. If municipal staff completes certain FEMA training courses, Stafford Township will receive additional CRS credit. Some courses are tuition-free but require travel to Maryland.
Geographic Information Systems (GIS) since 2005, hardware and software is available at workstations, training of necessary personnel and procurement of map data; mapping system addresses all floodplain data required for credit under the CRS.
Upgrade storm outfalls – increase inlet sizes, install tidal valves. Each street will require an evaluation and outfall modification will require state permits.
Vacant Land study to determine to identify parcels in the floodplain appropriate for preservation.

Source: Floodplain Mitigation Plan, revised January 22, 2007, prepared by Schoor DePalma, Inc.

Figure 1

5.2 County Documents

Ocean County Comprehensive Master Plan, 2011

The Ocean County Comprehensive Master Plan is a policy statement about the future development of the County. The goals and major responsibilities of the Ocean County Planning Board are to prepare and adopt comprehensive objectives embodied in this Plan. These objectives are intended to address issues of regional concern and to provide a regional perspective on land use and other issues in the County. The following are the recommendations from the Master Plan:

Housing

1. Continue to support services targeted to the underserved segments of the housing market, the special needs population and the elderly.

2. Continue to encourage programs that assist in the increased supply of safe, decent, sustainable and affordable housing.
3. Promote mixed-use developments that incorporate design considerations such as transportation, education, employment, recreation and public safety.
4. Continue the Ocean County First Time Homebuyers Program
5. 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.

Land Use

1. Track changes in land use and land cover, as well as areas preserved as permanent open space.
2. Continue to work with the Department of State and other relative agencies on the State Strategic Plan and other State Planning initiatives.
3. Continue to work with the County Planners Association, State agencies and applicable municipalities to encourage realistic planning initiatives that can be adopted and maintained.
4. Encourage municipalities to grow in a fashion that is true to smart growth principals and Town Center design standards, allowing for a mix of land uses in a singular area to increase accessibility by all residents.
5. Work with the Pinelands Commission and applicable towns to preserve and protect the important environs and species located in the Pinelands, while coordinating long range land use and growth management plans.
6. Support the tourism amenities and needs of shore towns and continue to facilitate the protection and replenishment of County's beaches and shoreline areas.
7. Ensure public access is protected and enhanced where appropriate.

Open Space, Parks and Recreation

1. Continue to support the Ocean County Natural Lands Trust Fund Advisory Committee and its mission to identify and acquire natural areas that are environmentally sensitive, ecologically important, and/or contiguous to existing preserved open space.

2. Maintain an ongoing evaluation of the recreational needs of Ocean County residents and assist in identifying new park and open space areas as necessary.
3. Continue to work with all Federal, State, local and non-profit partners to acquire open space and maximize financial resources available for preservation.
4. Continue to seek and support donations to the various open space programs in Ocean County.

Stormwater Management

1. Continue stormwater basin restorations and ongoing partnerships to identify and restore impaired stormwater management facilities to improve infiltration and reduce runoff throughout the watershed.
2. Continue to work with the Barnegat Bay Partnership to target research and assessment efforts.
3. Coordinate County, State and Federal funding to maximize the effectiveness of stormwater protection and rehabilitation efforts.
4. Encourage land use planning strategies such as low impact design to preserve open space and maximize the natural infiltration of stormwater.
5. Explore and assess best management practices used by other areas in the country to address stormwater management.
6. Continue to take a proactive approach to the NJ Soils Health Legislation by working with the Ocean County Soil Conservation District to promote construction practices to maintain soil health and reduce compaction.
7. Encourage and support compliance with the NJ Fertilizer Law.
8. Continue to assess structural and nonstructural options for stormwater management to increase infiltration, remove debris and reduce nutrient and pollution loads.
9. Work with partners to expand public education programs on stormwater management, targeting property owners, engineers, developers and local officials.
10. Encourage compliance with new legislation that requires the NJ Department of Transportation to address stormwater management issues on state highways including Routes 9, 35, 37, 70, 72, 88 and 166.

Ocean County Multi-Jurisdictional Natural Hazard Mitigation Plan

The 2013 Multi-jurisdictional All Hazard Mitigation Plan for Ocean County has been organized to meet the requirements of FEMA and the New Jersey Office of Emergency Management (NJOEM) in order for the County to be eligible for funding and technical assistance from state and federal hazard mitigation programs in the event of a disaster. The purpose of the Hazard Mitigation Plan (HMP) is as follows:

1. Provide a blueprint for saving lives and reducing property damage from the effects of natural and man-made disasters;
2. Qualify the County for pre-disaster and post-disaster grant funding;
3. Comply with state and federal legislative requirements related to local hazard mitigation planning;
4. Demonstrate a firm local commitment to hazard mitigation principles; and
5. Improve community resilience following a disaster.

This Hazard Mitigation Plan was adopted in 2013, and it includes the participation of Ocean County and all of its 33 municipalities. Although all the municipalities and the County have undergone hazard mitigation planning and related activities in the past, this Multi-jurisdictional Natural Hazard Mitigation Plan represents the first approved hazard mitigation plan for Ocean County.

6. Alternative Assessment

This alternative assessment will be used to determine the potential effects on the human and natural environment should a “no-action” alternative be utilized and the Township chooses not to plan for future storm events. This analysis, along with other pertinent information will guide the Township’s decision makers about whether or not to implement the proposed action alternatives. The action alternatives are analyzed in comparison to a no-action alternative in order to determine potential side effects.

6.1 No-Action Alternative

Should a “no-action” alternative be chosen, the Township could see the following potential impacts:

- Stafford Township would lose out on funding at the State and Federal level to complete life- and property- saving hazard mitigation projects;
- Portions of the Township could continue to see severe flooding during major storm events;
- Major roadways and evacuation routes could be compromised during storm events if not redesigned to avoid flooding issues;
- Risk to health, safety and welfare of Township residents;
- Potential loss of tax base due to abandoned and damaged properties;
- Flood Insurance rates under the Biggert-Waters Act will continue to increase for structures that are non-compliant with current flood elevation requirements.

6.2 Action Alternative

Section 7 of this Report outlines implementation strategies to prepare the Township for future natural hazards. These recommendations are the action alternative to avoid the potential impacts as listed above.

7. Implementation Strategy

Based on the analysis of relevant planning documents, reports, and ordinances in addition to recovery work currently underway throughout the Township, the following actions are recommended.

7.1 General

- a. Pursue State and Federal grants and grants from non-government organizations to fund recovery and resiliency projects and initiatives.
- b. Continue to evaluate the Township Code to ensure it reflects the latest requirements for flood prone areas as regulations change over time.
- c. Leverage the Ocean County Long Term Recovery Group and other organizations to assist in the recovery effort. Maintain open communications with these entities in order to facilitate the recovery process.
- d. Pursue Post-Sandy Planning Recovery Assistance Grant funding from the NJDCA. For design standards, ordinances, master plan amendments and related items as described in more detail in the subsections below.
- e. Complete a capital improvement program to prepare shovel ready projects.

7.2 Participation in FEMA's Community Rating System (CRS)

The CRS program was implemented to recognize and encourage community floodplain management activities. Under the CRS program, a municipality receives discounts on flood insurance premium based on its class rating and its implementation of local mitigation, outreach, and educational activities that go well beyond the minimum NFIP requirements. Participation in the CRS provides a multitude of benefits to the community in addition to the premium discounts. These benefits include:

- Money staying in the community instead of being spent on insurance premiums;
- Better organization of local flood programs;
- Enhanced public education which will build a knowledgeable constituency interested in supporting and improving flood protection measures;
- Reduced property damage and public infrastructure, avoidance of economic disruption and losses, reduction of human suffering, and protection of the environment.

Approximately 20% of properties and structures in the Township are located in a “flood zone area” of the area that the National Flood Insurance Program defines as a “special flood hazard area” (SFHA). Each class is determined by the amount of credit points earned through the completion of activities within: Public Information, Mapping and Regulations, Flood Damage Reduction and Flood Preparedness. Stafford Township is seeking Class 6 of FEMA’s CRS, meaning residents will receive a 20% premium reduction within a SFHA and a 10% premium reduction within a non-SFHA.

7.3 Master Plan

Amend existing Master Plan Elements

Open Space and Recreation Element

- a. Based on the findings of the Jacques Cousteau Flood Mapper program, discussed in 4.1 of this report, suitable areas in the Township should be identified for acquisition or preservation, without the use of eminent domain, which may be potentially affected by sea level rise or major storm events.
- b. Include potential projects to acquire lands, without the use of eminent domain, that have been damaged by storms, may be prone to storm damage, are located in the floodplain, or that buffer or protect other lands from storm damage for recreation and conservation purposes.
- c. Open Space Management based on suggestions from the FEMA Community Rating System such as, but not limited to: natural shoreline protection; deed restrictions; natural functions open space; special flood-related hazards open space; and open space incentives.

Stormwater Management Plan

- a. Expand the Best Management Practices (BMP) subsection of the Stormwater Management Plan to emphasize the importance and to include descriptions of green stormwater management techniques such as low impact techniques that reduce run-off.
- b. Supplement the Stormwater Management Plan to include details on drainage system maintenance to ensure that the community keeps channels and storage basins clear of debris so that flood carrying and storage capacity are maintained. The Community Rating System offers points for having a capital improvement program that corrects drainage problems.

Adopt new elements to the Master Plan

- a. It is recommended that the Township look to update the Master Plan to include an updated Community Resiliency Element that reviews the Land Use Plan Element and development standards against the vulnerability issues outlined in this SRPR and adopt as a Master Plan Element. This Element should focus on hazard mitigation and community resiliency both at the local and regional level and be consistent with the County Hazard Mitigation Plan. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for this project.
- b. Prepare a Municipal Public Access Plan (MPAP) and a Community Vulnerability Assessment (CVA) in accordance with NJDEP guidelines to enhance public access to tidal waters in a comprehensive manner. Pursue grants for the preparation of the MPAP and CVA from NJDEP.
- c. Assess Land Use regulations and zoning to place more stringent requirements in flood prone areas.

Neighborhood Plans

- a. Develop specific strategic plans for neighborhoods most severely impacted by Sandy, including Beach Haven West, Mallard Island, and the Bonnet Islands. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for this project.

Streetscape Plans

- a. Develop streetscape plans for Route 9 and Route 72. A streetscape plan for Route 72 would be beneficial by setting standards for flood resiliency at the street level for commercial and mixed use buildings. Flood resiliency for Route 72 is crucial as it is the only evacuation route for waterfront properties in Stafford and oceanfront communities on the barrier island. Additionally a Streetscape Plan can assist in redeveloping storm damaged areas or attracting new development to support the tourism industry or local economy. Pursue PSPAG funding from the NJDCA for this project.

Environmental Resource Inventory

- a. Develop an Environmental Resource Inventory as a tool to avoid future problems such as flooding and degradation of water quality, and the associated mitigation costs. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for this project.

Action Plan – Master Plan					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation*	Estimated Completion*
Amendments to existing Master Plan Elements	Plan preparation, plan adoption	\$10,000.00	PSPAG	2 months	6 months
Community Resiliency Element	Plan preparation, plan adoption	\$20,000.00	Sustainable Jersey/PSPAG	3 months	7 months
Municipal Public Access Plan and Community Vulnerability Assessment	Public input, plan preparation, plan adoption	\$30,000.00	PSPAG	5 months	1 year
Adopt Specific Neighborhood Plans	Public input, plan preparation, plan adoption	\$30,000.00	PSPAG	5 months	1 year
Adopt Route 9 and Route 72 Streetscape Plans	Public input, plan preparation, plan adoption	\$25,000.00	Sustainable Jersey/PSPAG	6 months	1 year
Environmental Resource Inventory	Plan preparation, plan adoption	\$10,000.00	PSPAG	6 months	1 year

*All implementation and completion estimates begin after the adoption of this SRPR as part of the Master Plan

7.4 Ordinance Development

Develop ordinances requiring securing of floating docks, gangways, etc.

- a. Supplement Flood Prevention Ordinance or add regulations to Borough Code requiring removal or securing of boats, floating docks, gangways, etc. from the Marina on Cedar Bonnet Island within a specified period from the issuance of an order from Emergency Management personnel. Establish penalties for owners of floating objects removed by the Borough due to compliance issues in order to prevent property damage during storm events.
- b. Amend Flood Prevention Ordinance or add regulations to Township Code prohibiting the construction of occupied structures seaward of the mean high water line or on piers or platforms except for essential structures for “functionally dependent uses” such as marinas or boatyards.

Design Standards (integrating elevated structures into community design character)

- a. Develop design standards to address the visual impact of mitigation measures such as elevating bulkheads, elevating buildings on foundations or pilings, etc. Such design standards might include requirements for skirting

exposed pilings, façade treatments on foundations, parking under the lowest habitable floor, using exterior decking to stagger stairways to elevated first floor levels, etc. Pursue PSPAG funding for this project.

Action Plan- Ordinance Development					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation*	Estimated Completion*
Ordinance Development	Prepare and adopt ordinances	\$20,000.00	PSPAG	After Amendments to Master Plan completed (6 months)	9 months

*All implementation and completion estimates begin after the adoption of this SRPR as part of the Master Plan

7.5 Capital Improvement

Develop a Capital Improvement Plan focused on Recovery and Mitigation

- a. Develop a five year plan for capital projects that will focus municipal capital investment on public facilities, fleets and equipment to build community recovery and resiliency. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for this project. Representative Capital Improvement projects are shown below:
 1. Roadway elevation projects in low-lying areas;
 2. Improvements and retrofits to stormwater facilities;
 3. Improvements to wastewater management and sanitary sewer system;
 4. Flood mitigation and resiliency projects;
 5. Land restoration projects;
 6. Community facilities and neighborhood revitalization projects;
 7. Purchase of emergency water vehicles; and
 8. Purchase of municipal back-up generators.
- b. Complete a Repetitive Loss Area Analysis including a detailed mitigation plan for areas identified from the analysis.

Action Plan- Capital Improvement					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation*	Estimated Completion*
Capital Improvement Plan	Plan preparation and adoption	\$30,000.00	PSPAG	6 months	1 year
Repetitive Loss Area Analysis (CRS)	Identify and analyze properties, prepare report	\$50,000.00	PSPAG	6 months	1 year

*All implementation and completion estimates begin after the adoption of this SRPR as part of the Master Plan

7.6 Communication and Preparedness

Stafford Township implemented a Community Outreach Committee to enhance and coordinate the delivery of social service programs. Their main goal is to assess the various social service programs that are available in the community through state and local governments, churches and civic organizations and to help formulate and coordinate a delivery plan for these services. The committees' role will be advisory and will offer technical support and information in addition to the programs currently run through the Township.

Also included within the Public Outreach Program is important emergency contact information, National Flood Insurance Program details, flood mitigation funding sources and flood protection assistance information. The Township's public outreach programs will earn points towards FEMA's Community Rating System. Lastly, Stafford Township has put into place an emergency notification system within the township. This system allows for all residents to receive a call within seconds of an emergency that range from evacuations to weather advisories.

Outreach and Education

- a. Continue to monitor recovery and resiliency education and training opportunities for Township residents, business owners and municipal staff.
- b. Remain up to date on disaster preparedness protocol and policies.
- c. Maintain open communication with residents and business owners regarding aforementioned information via Township website, periodic emailing, social media, hand-outs, etc.
- d. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for these projects.

Action Plan- Communication and Preparedness					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation Dates	Estimated Completion Dates *
Flood Warning and Response (CRS)	Prepare pre-flood plan, develop flood protection website	\$10,000.00	FEMA, NJOEM	Ongoing	Ongoing

7.7 Resiliency and Sustainability

Sustainability should provide for, encourage, and promote the efficient use of natural resources and the installation and usage of renewable energy systems; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and reuse water; treat storm water on-site; and optimize climatic conditions through site orientation and design.

Sustainable practice and design has the ability to promote resiliency by securing safety from fire, flood, panic, and other natural man-made disasters. The Township has been proactive in determining ways to increase the resiliency of its shore through techniques such as “living shorelines.”

Seek alternate “green” methods of infrastructure

- a. Encourage the implementation of Best Management Practices (BMP) such as grassed swales, riparian buffers and infiltration trenches where appropriate to reduce stormwater run-off during large flooding events.
- b. Maintain strategic acquisition of open space to enable coastal wetlands migration.

Improve Resiliency

- a. Encourage critical businesses such as supermarkets, gas stations and medical centers, to obtain emergency power building systems that can continue to operate should the power grid fail. This may include alternative energy such as solar, micro-grid and geothermal.
- b. Update the Floodplain Management Plan to address updated FIRM maps and revise the goals of the plan to further prevent future flood losses.
- c. Actively pursue Federal funding on behalf of residents through a Municipal Hazard Mitigation Grant Program.

Acquire Property through Alternate Methods

- a. The New Jersey Department of Environmental Protection Coastal Blue Acres (CBA) program is currently not accepting applications and NJDEP may not reopen the program. However, alternative methods may be used to acquire properties, where appropriate. It may be in Stafford’s interest to acquire lands in coastal areas that have been damaged by storms, that may be prone to storm damage, or that buffer or protect other lands from storm damage, for recreation and conservation purposes through alternative methods.
- b. Identify areas within the Township that could potentially support concentrated, higher density planning projects to offset the possible loss of ratables due to property acquisition.

Action Plan- Resiliency and Sustainability					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation Dates	Estimated Completion Dates *
Open Space Preservation (CRS)	Acquire properties without eminent domain	TBD	NJDEP	Ongoing	Ongoing
Coastal Erosion Protection Maintenance (CRS)	Determine areas of improvement, determine protection measures and maintenance	TBD	National Fish and Wildlife Foundation, NJDEP	Ongoing	Ongoing
Retrofit traditional Stormwater Basins to reflect Best Management Practices	Design and implementation	TBD	HMGP, NJDEP	Ongoing	Ongoing
Update Floodplain Management Plan	Plan preparation, plan adoption	TBD	NJOEM, PSPAG	Ongoing	Ongoing
Property Acquisition through Alternate Methods	Acquire land without eminent domain	TBD	NJDEP	Ongoing	Ongoing

7.8 Community Development

Affordable Housing

- a. Continue to implement the Housing Element/Fair Share Plan and maintain compliance with current and future Affordable Housing regulations.
- b. Continue to promote a variety of high quality housing to meet the needs of all Township residents and property owners.

Housing Displacement

- a. Encourage residents to take advantage of Federal, State, County and Local programs that aid in home rebuilding and supporting distressed households. Make this information readily available to residents.
- b. Work with Federal, State and County to improve and streamline the process of returning residents to their homes following major natural disasters.
- c. Identify emergency housing capacity.
- d. Actively pursue Federal funding on behalf of residents through a Municipal Hazard Mitigation Grant Program.

Action Plan- Community Development					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation Dates	Estimated Completion Dates *
Affordable Housing	Maintain compliancy with COAH rules and regulations	-	Affordable Housing Trust Fund	Ongoing	Ongoing
Housing Displacement	Continue to work with government and other entities to address housing needs	-	-	Ongoing	Ongoing
Hazard Mitigation Grant Program	Continue applying for funding	-	HMGP	Ongoing	Ongoing

7.9 Economic Development

Create a small business incubator and assistance program

- a. Attract new businesses to the Township in order to offset the potential loss of residential ratables along the coast.
- b. Continue to monitor recovery and resiliency opportunities for Township businesses.
- c. Provide extensive information and administrative support relative to existing small business assistance programs.

- d. Study the need for supplemental, locally administered programs of direct assistance to support the unique needs of emerging small businesses.
- e. Amend the Township’s Economic Development Element to include post-disaster recovery plans and recommendations for small businesses.
- f. Pursue Post-Sandy Planning Recovery Assistance Grant from the NJDCA for these projects.
- g. Pursue CRS certification and continue to strive for a lower rating to reduce flood interest rates for the community.
- h. Actively pursue Federal funding on behalf of residents through a Municipal Hazard Mitigation Grant Program.

Action Plan- Economic Development					
Project	Major Tasks	Estimated Cost	Potential Funding Sources	Estimated Implementation Dates	Estimated Completion Dates *
Create small business assistance programs	Determine the needs of small businesses	TBD	NJ Economic Development Authority	Ongoing	Ongoing
Amend Economic Development Element	Plan Preparation and Adoption	\$6,000.00	NJ Economic Development Authority	Ongoing	Ongoing

* Timeframe dependent on funding through PSPAG program from either first or second tranche of funding.

7.10 Wildfire Community Approach

Stafford Township, along with Barnegat Township, is located entirely within the Pinelands National Reserve, a 1.1 million-acre region that is home to sandy soil and expansive pine and oak forests, where more than 600 wildfires occur every year. The Township has an extensive history of wildfires and have high-risk “wildland urban interfaces,” which has been defined as a zone where structures and development meet with undeveloped wildland or vegetative fuels.

Stafford Township Bureau of Fire Prevention is now responsible to enforce the New Jersey Uniform Fire Code as Local Enforcing Agency. Fire Inspections are conducted annually on all commercial, retail, educational, and health care

facilities. There is also fire safety education for all ages that provides fire extinguisher training for businesses and groups.

Additionally, the Township has coordinated the “East Plains Fire shed Management Plan” with the United States Air Force, NJ Air National Guard, NJ Pinelands Commission, NJ Park Service, NJ Forest Management, NJ Division of Fish & Wildlife, Garden State Parkway, Ocean and Burlington Counties to reduce the amount of fires in the area based on previous experiences with wild land fires.

Landscape

- a. Firebreaks are gaps in vegetation that act as a barrier to slow the progress of wildfires. This would help reduce the spreading of large wildfires before the emergency response units arrive.
- b. A fire safe landscape uses fire resistant plants that are strategically planted to resist the spreading of forest fires.
- c. It is recommended that houses in fire prone areas should create fire-safe zones with stone walls, patios, or decks, use rock, mulch or flower beds in gardens to cover the ground, and use fire resistant shrubs and vegetation. Although there are no actual “fire-proof” plants, these suggestions would lessen the spreading of fires and damage they cause.

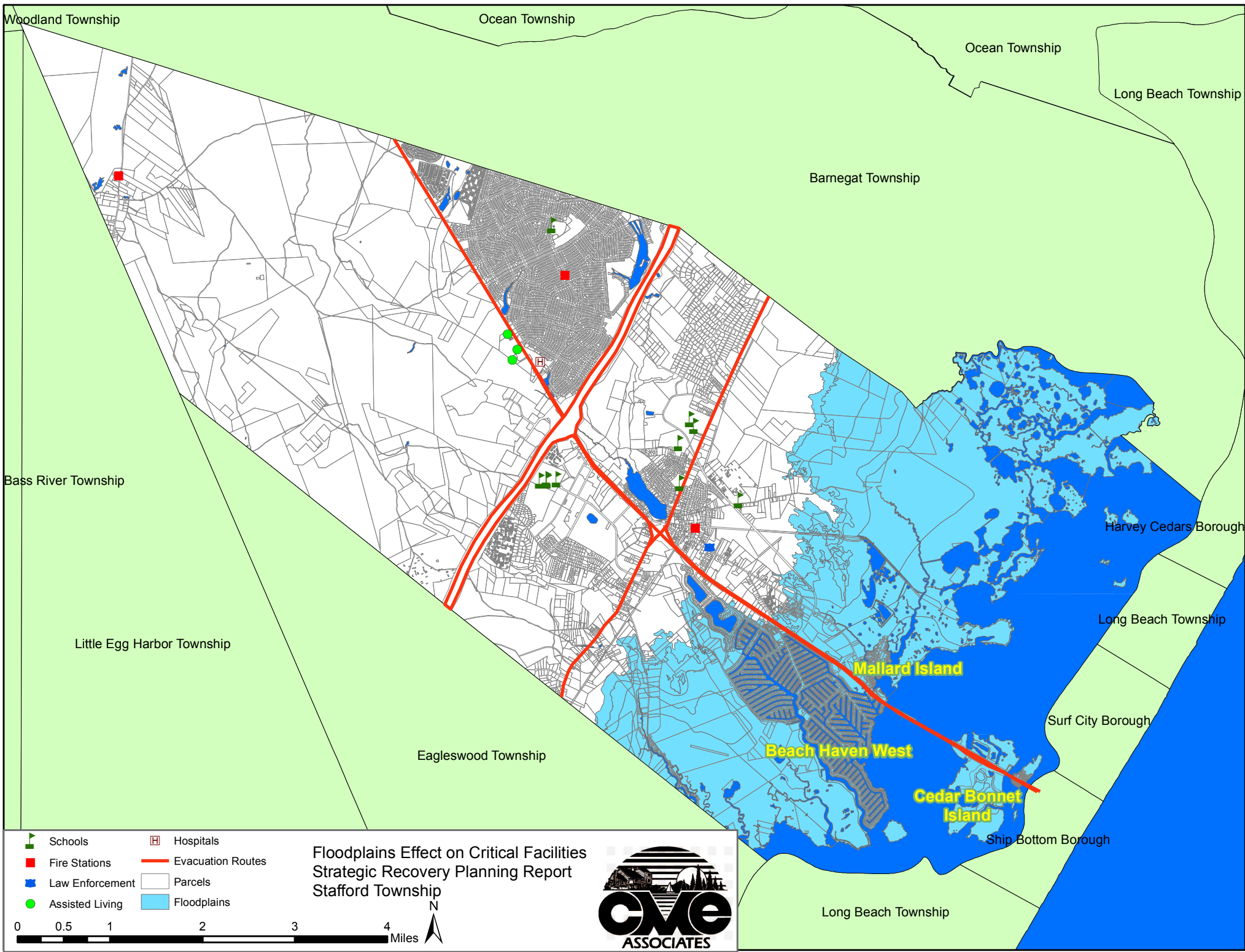
8. CONCLUSION

As Stafford Township recovers and rebuilds after Superstorm Sandy, steps must be taken to ensure that impacts of future disasters will be alleviated. Through the help of available Federal, State and County programs, Stafford Township has many viable resources to continue moving forward. The recommendations outlined in this Strategic Recovery Planning Report will aid the Township in becoming more resilient to future natural disasters and to expedite recovery.

DRAFT

Appendix A: Critical Facilities Map

DRAFT



Appendix B: Ordinance Number 2013-11 “Flood Hazard Areas”

DRAFT

*Township of Stafford, NJ
Tuesday, January 13, 2015*

Chapter 114. FLOOD HAZARD AREAS

[HISTORY: Adopted by the Township Council of the Township of Stafford 4-2-1985 by Ord. No. 85-38; amended in its entirety 7-9-2013 by Ord. No. 2013-11. Subsequent amendments noted where applicable.]

GENERAL REFERENCES

Grading and drainage — See Ch. **118**.
Land use and development — See Ch. **130**.
Mobile home parks — See Ch. **140**.
Soil removal, excavations and mining — See Ch. **181**.
Stormwater system — See Ch. **185**.
Zoning — See Ch. **211**.

Article I. Authorization, Findings and Purpose

§ 114-1. Statutory authorization.

The Legislature of the State of New Jersey has in N.J.S.A. 40:48-1 et seq. delegated the responsibility to local governmental units to adopt regulations designed to promote public health, safety, and general welfare of its citizenry. Therefore, the Township of Stafford, Ocean County, New Jersey does ordain as follows.

§ 114-2. Findings of fact.

- A. The flood hazard areas of the Township of Stafford are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- B. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazard which increase flood heights and velocities and, when inadequately anchored, cause damage in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

§ 114-3. Statement of purpose.

It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- A. Protect human life and health;
- B. Minimize expenditure of public money for costly flood-control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at

the expense of the general public;

- D. Minimize prolonged business interruptions;
- E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;
- F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;
- G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and
- H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

§ 114-4. Methods of reducing flood losses.

In order to accomplish its purposes, this chapter includes methods and provisions for:

- A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- D. Controlling filling, grading, dredging, and other development which may increase flood damage; and
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Article II. Definitions

§ 114-5. Terms defined.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

ADVISORY BASE FLOOD ELEVATION (ABFE)

The elevation shown on a community's Advisory Flood Hazard Area Map that indicates the advisory Stillwater elevation plus wave effect (ABFE = SWEL + wave effect) resulting from a flood that has a one-percent or greater chance of being equaled or exceeded in any given year.

ADVISORY FLOOD HAZARD AREA (AFHA)

The land in the floodplain within a community subject to flooding from the one-percent-annual-chance event depicted on the Advisory Flood Hazard Area Map.

ADVISORY FLOOD HAZARD AREA MAP

The official map on which the Federal Emergency Management Administration has delineated the areas of advisory flood hazards applicable to the community.

APPEAL

A request for a review of the Zoning Officer's interpretation of any provision of this chapter or a

request for a variance.

AREA OF SHALLOW FLOODING

A designated AO, AH, or VO Zone on a community's Digital Flood Insurance Rate Map (DFIRM) with a one-percent annual or greater chance of flooding to an average depth of one foot to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

AREA OF SPECIAL FLOOD HAZARD

The land in the floodplain within a community subject to a one-percent or greater chance of flooding in any given year. It is shown on the FIRM as Zone V, VE, V1-30, A, AO, A1-A30, AE, A99 or AH.

BASE FLOOD

The flood having a one-percent chance of being equaled or exceeded in any given year.

BASE FLOOD ELEVATION (BFE)

The flood elevation shown on a published Flood Insurance Study (FIS) including the Flood Insurance Rate Map (FIRM). For Zones AE, AH, AO, and A1-30 the elevation represents the water surface elevation resulting from a flood that has a one-percent or greater chance of being equaled or exceeded in any given year. For Zones VE and V1-30 the elevation represents the stillwater elevation (SWEL) plus wave effect (BFE = SWEL + wave effect) resulting from a flood that has a one-percent or greater chance of being equaled or exceeded in any given year.

BASEMENT

Any area of the building having its floor subgrade (below ground level) on all sides.

BEST AVAILABLE FLOOD HAZARD DATA

The most recent available flood risk guidance FEMA has provided. The best available flood hazard data may be depicted on but not limited to Advisory Flood Hazard Area Maps, Work Maps or preliminary FIS and FIRM.

BEST AVAILABLE FLOOD HAZARD DATA ELEVATION

The most recent available flood elevation FEMA has provided. The best available flood hazard data elevation may be depicted on an Advisory Flood Hazard Area Map, Work Map, or preliminary FIS and FIRM.

BREAKAWAY WALL

A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or supporting foundation system.

COASTAL HIGH-HAZARD AREA

An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave action from storms or seismic sources.

DEVELOPMENT

Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials located within the area of special flood hazard.

DIGITAL FLOOD INSURANCE RATE MAP (DFIRM)

The official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

ELEVATED BUILDING

A nonbasement building i) built, in the case of a building in an area of special flood hazard, to have the top of the elevated floor or, in the case of a building in a coastal high-hazard area, to have the bottom of the lowest horizontal structural member of the elevated floor elevated above the base flood elevation by means of piling, columns (posts and piers), or shear walls parallel to the flow of the water, and ii) adequately anchored so as not to impair the structural integrity of the building during a flood up to the magnitude of the base flood, or any acceptable design solution compliant with UCC and FEMA guidelines or regulations. In an area of special flood hazard, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of floodwaters. In areas of coastal high hazard, "elevated building" also includes a building otherwise meeting the definition of "elevated building" even though the lower area is enclosed by means of breakaway walls.

EROSION

The process of the gradual wearing away of land masses.

EXISTING MANUFACTURED HOME PARK or SUBDIVISION

A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

FLOOD INSURANCE RATE MAP (FIRM)

The official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

FLOOD INSURANCE STUDY (FIS)

The official report in which the Federal Insurance Administration has provided flood profiles, as well as the Flood Insurance Rate Map(s) and the water surface elevation of the base flood.

FLOOD or FLOODING

A general and temporary condition of partial or complete inundation of normally dry land areas from:

- A. The overflow of inland or tidal waters; and/or
- B. The unusual and rapid accumulation or runoff of surface waters from any source.

FLOODPLAIN MANAGEMENT REGULATIONS

Zoning ordinances, subdivision regulations, building codes, health regulations, special-purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

FLOODPROOFING

Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

FLOODWAY

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than 0.2 foot.

HIGHEST ADJACENT GRADE

The highest natural elevation of the ground surface prior to construction next to the proposed walls

of a structure.

HISTORIC STRUCTURE

Any structure that is:

- A. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- B. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- C. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
- D. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
 - (1) By an approved state program as determined by the Secretary of the Interior; or
 - (2) Directly by the Secretary of the Interior in states without approved programs.

LOWEST FLOOR

The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for the parking of vehicles, building access or storage in an area other than a basement, is not considered a building's lowest floor, provided that such enclosure is not built so to render the structure in violation of other applicable nonelevation design requirements of 44 CFR 60.3.

MANUFACTURED HOME

A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a recreational vehicle.

MANUFACTURED HOME PARK or MANUFACTURED HOME SUBDIVISION

A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

NEW CONSTRUCTION

Structures for which the start of construction commenced on or after the effective date of a floodplain regulation adopted by a community and includes any subsequent improvements to such structures.

NEW MANUFACTURED HOME PARK OR SUBDIVISION

A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the floodplain management regulations adopted by the municipality.

PRELIMINARY FLOOD INSURANCE RATE MAP (PFIRM)

The draft version of the FIRM released for public comment before finalization and adoption.

PRIMARY FRONTAL DUNE

A continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves from coastal storms. The inland limit of the primary frontal dune occurs at the

point where there is a distinct change from the relatively steep slope to a relatively mild slope.

RECREATIONAL VEHICLE

A vehicle which is:

- A. Built on a single chassis;
- B. Four hundred square feet or less when measured at the longest horizontal projections;
- C. Designed to be self-propelled or permanently towable by a light-duty truck; and
- D. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

SAND DUNES

Naturally occurring or man-made accumulations of sand in ridges or mounds landward of the beach.

START OF CONSTRUCTION

For other than new construction or substantial improvements under the Coastal Barrier Resources Act (P.L. No. 97-348), includes substantial improvements and means the date the building permit was issued, provided that the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The "actual start" means either the first placement of permanent construction of a structure on a site, such as the pouring of a slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation, or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling, nor does it include the installation of streets and/or walkways, nor does it include excavation for a basement, footings or piers, or foundations or the erection of temporary forms, nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the "actual start of construction" means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

STRUCTURE

A walled and roofed building, a manufactured home, or a gas or liquid storage tank that is principally above the ground.

SUBSTANTIAL DAMAGE

Damage of any origin sustained by a structure whereby the cost of restoring the structure to its condition before damage would equal or exceed 50% of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT

Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either:

- A. Any project for improvement of a structure to correct existing violations of state or local health, sanitary or safety code specifications which have been identified by the local code enforcement officer and which are the minimum necessary to assure safe living conditions; or
- B. Any alteration of an historic structure, provided that the alteration will not preclude the structure's continued designation as an historic structure.

VARIANCE

A grant of relief from the requirements of this chapter that permits construction in a manner that would otherwise be prohibited by this chapter.

VIOLATION

The failure of a structure or other development to be fully compliant with this chapter. A new or substantially improved structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in 44 CFR 60.3(b)(5), (c)(4), (c)(10), (e)(2), (e)(4) or (e)(5) is presumed to be in violation until such time as that documentation is provided.

Article III. General Provisions

§ 114-6. Applicability.

This chapter shall apply to all areas of special flood hazards within the jurisdiction of the Township of Stafford, Ocean County, New Jersey.

§ 114-7. Basis for establishing areas of special flood hazard.

- A. The areas of special flood hazard for the Township of Stafford, Community No. 340393, are identified and defined on the following documents prepared by the Federal Emergency Management Agency:
- (1) A scientific and engineering report "Flood Insurance Study, Ocean County, New Jersey (All Jurisdictions)" dated September 26, 2006;
 - (2) Flood Insurance Rate Map for Ocean County, New Jersey (All Jurisdictions), as shown on Index and panels 0370, 0390, 0395, 0460, 0480, 0485, 0491, 0492, 0494, 0501, 0502, 0503, 0504, 0506, 0508, 0509, 0511, 0512, 0513, 0514, 0516, and 0518, whose effective date is September 26, 2006.
 - (3) Best available flood hazard data. These documents shall take precedence over effective panels and FIS in construction and development regulations only. Where the effective mapping or base flood elevation conflict or overlap with the best available flood hazard data, whichever imposes the more stringent requirement shall prevail.
- B. The above documents are hereby adopted and declared to be a part of this chapter. The Flood Insurance Study, maps and advisory documents are on file at 260 East Bay Avenue, Manahawkin, New Jersey.

§ 114-8. Violations and penalties.

No structure or land shall hereafter be constructed, relocated to, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the provisions of this chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than \$1,250 or imprisoned for not more than 90 days, or both, for each violation and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the Township of Stafford from taking such other lawful action as is necessary to prevent or remedy any violation.

§ 114-9. Abrogation and greater restrictions.

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and other ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

§ 114-10. Interpretation.

In the interpretation and application of this chapter, all provisions shall be:

- A. Considered as minimum requirements;
- B. Liberally construed in favor of the governing body; and
- C. Deemed neither to limit nor to repeal any other powers granted under state statutes.

§ 114-11. Warning and disclaimer of liability.

- A. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the area of special flood hazards or uses permitted within such areas will be free from flooding or flood damages.
- B. This chapter shall not create liability on the part of the Township of Stafford, any officer or employee thereof or the Federal Insurance Administration for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

Article IV. Administration

§ 114-12. Establishment of development permit.

A development permit shall be obtained before construction or development begins, including placement of manufactured homes, within any area of special flood hazard established in § 114-7. Application for a development permit shall be made on forms furnished by the local administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

- A. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
- B. Elevation in relation to mean sea level to which any structure has been floodproofed.
- C. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in § 114-17;
- D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development; and
- E. A permit issued under Chapter 118 for grading and drainage, if applicable.

§ 114-12.1. Development permit required for construction and development adjacent to special flood hazard areas.

A development permit shall be obtained before construction or development begins on any property immediately adjacent to any area of special flood hazard established in § **114-7**. Application for a development permit shall be made on forms furnished by the Zoning Officer and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. If FEMA has not conducted a detailed study of the adjacent special flood hazard area in question, the applicant must perform a detailed study of the special flood hazard area based on FEMA-approved techniques or specifically approved by FEMA Region II.

§ 114-13. Designation of local administrator.

The Zoning Officer is hereby appointed to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions.

§ 114-14. Duties and responsibilities of Zoning Officer and Construction Official.

Duties of the Zoning Officer and Construction Official shall include, but not be limited to:

A. Permit review.

- (1) Review all development permits to determine that the permit requirements of this chapter have been satisfied.
- (2) Review all development permits to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required.
- (3) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of § **114-19A** are met.
- (4) Review all development permits in the coastal high-hazard area of the area of special flood hazard to determine if the proposed development alters sand dunes so as to increase potential flood damage.
- (5) Review plans for walls to be used to enclose space below the base flood level in accordance with § **114-18B(4)**.

B. Use of other base flood and floodway data. When base flood elevation and floodway data has not been provided in accordance with § **114-7**, the local administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer § **114-17A** and **B**.

C. Information to be obtained and maintained.

- (1) Obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures and whether or not the structure contains a basement.
- (2) For all new or substantially improved floodproofed structures:
 - (a) Verify and record the actual elevation (in relation to mean sea level); and
 - (b) Maintain the floodproofing certifications required in § **114-12C**.

- (3) In coastal high hazard areas, certification shall be obtained from a registered professional engineer or architect that the provisions of § 114-18B(1) and (2)(a) and (b) are met.
 - (4) Maintain for public inspection all records pertaining to the provisions of this chapter.
- D. Alteration of watercourses.
- (1) Notify adjacent communities and the New Jersey Department of Environmental Protection, Dam Safety and Flood Control Section, and the Land Use Regulation Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
 - (2) Require that maintenance is provided within the altered or relocated portion of said watercourse so the flood-carrying capacity is not diminished.
- E. Interpretation of FIRM boundaries. Make interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in § 114-15.

§ 114-15. Variance procedure.

- A. Appeal Board.
- (1) The Zoning Board of Adjustment as established by the Township of Stafford shall hear and decide appeals and requests for variances from the requirements of this chapter.
 - (2) The Zoning Board of Adjustment shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Zoning Officer in the enforcement or administration of this chapter.
 - (3) Those aggrieved by the decision of the Zoning Board of Adjustment, or any taxpayer, may appeal such decision as provided by law.
 - (4) In passing upon such applications, the Zoning Board of Adjustment shall consider all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and:
 - (a) The danger that materials may be swept onto other lands to the injury of others;
 - (b) The danger to life and property due to flooding or erosion damage;
 - (c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (d) The importance of the services provided by the proposed facility to the community;
 - (e) The necessity to the facility of a waterfront location, where applicable;
 - (f) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (g) The compatibility of the proposed use with existing and anticipated development;
 - (h) The relationship of the proposed use to the Comprehensive Plan and floodplain management program of that area;
 - (i) The safety of access to the property in times of flood for ordinary and emergency vehicles;

- (j) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and
 - (k) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems and streets and bridges.
- (5) Upon consideration of the factors of § 114-15A(4) and the purposes of this chapter, the Zoning Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.
- (6) The Zoning Officer shall maintain the records of all appeal actions, including technical information, and report any variances to the Federal Insurance Administration upon request.
- B. Conditions for variances.
- (1) Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of 1/2 acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items in § 114-15A(4) have been fully considered. As the lot size increases beyond the 1/2 acre, the technical justification required for issuing the variance increases.
 - (2) Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as an historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
 - (3) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
 - (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 - (5) Variances shall only be issued upon:
 - (a) A showing of good and sufficient cause;
 - (b) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - (c) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in § 114-15A(4), or conflict with existing local laws or ordinances.
 - (6) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

Article V. Provisions for Flood Hazard Reduction

§ 114-16. General standards.

In all areas of special flood hazards, compliance with the applicable requirements of the Uniform Construction Code (N.J.A.C. 5:23) and the following standards, whichever is more restrictive, is required:

- A. Anchoring.
- (1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
 - (2) All manufactured homes to be placed or substantially improved shall be anchored to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.
- B. Construction materials and methods.
- (1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 - (2) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
- C. Utilities.
- (1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;
 - (2) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters;
 - (3) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding; and
 - (4) For all new construction and substantial improvements, the electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - (5) All utility connections other than state-regulated utilities shall be at or above the base flood elevation.
- D. Subdivision proposals.
- (1) All subdivision proposals and other proposed new development shall be consistent with the need to minimize flood damage;
 - (2) All subdivision proposals and other proposed new development shall have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize flood damage;
 - (3) All subdivision proposals and other proposed new development shall have adequate drainage provided to reduce exposure to flood damage; and
 - (4) Base flood elevation data shall be provided for subdivision proposals and other proposed new development which contains at least 50 lots or five acres, whichever is less.
- E. Enclosure openings. All new construction and substantial improvements having fully enclosed areas below the lowest floor that are usable solely for the parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

- (1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
- (2) The bottom of all openings shall be no higher than one foot above grade.
- (3) Openings may be equipped with screens, louvers, or other covering or devices, provided that they permit the automatic entry and exit of floodwaters.

§ 114-17. Specific standards.

In all areas of special flood hazards where base flood elevation data have been provided as set forth in § 114-7 or 114-14B, the following standards are required:

A. Residential construction.

- (1) New construction and substantial improvement of any residential structure located in an A or AE Zone shall have the lowest floor, including basement, elevated at or above the base flood elevation (published FIS/FIRM) or the best available flood hazard data elevation, whichever is more restrictive, plus one foot;
- (2) Within any AO Zone on the Township's FIRM, require that all new construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated above the highest adjacent grade one foot above the depth number specified in feet (at least three feet if no depth number is specified) or at or above the best available flood hazard data elevation plus one foot, whichever is more restrictive; and require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

B. Nonresidential construction. In an area of special flood hazard, all new construction and substantial improvement of any commercial, industrial or other nonresidential structure located in an A or AE Zone shall have the lowest floor:

- (1) Either:
 - (a) Elevated to or above the base flood elevation (published FIS/FIRM) or the best available flood hazard data elevation, whichever is more restrictive, plus one foot; and
 - (b) Require within any AO Zone on the municipality's DFIRM that all new construction and substantial improvement of any commercial, industrial or other nonresidential structure shall have the lowest floor, including basement, elevated above the highest adjacent grade one foot above the depth number specified in feet (at least three feet if no depth number is specified) or at or above the best available flood hazard data elevation plus one foot, whichever is more restrictive; and require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
- (2) Or:
 - (a) Be floodproofed so that below the base flood level plus one foot, or the best available flood hazard data elevation plus one foot (whichever is more restrictive), the structure is watertight with walls substantially impermeable to the passage of water;
 - (b) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
 - (c) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the applicable provisions of this subsection. Such certification shall be provided to the official as

set forth in § **114-14C(2)(b)**.

C. Manufactured homes.

- (1) Manufactured homes shall be anchored in accordance with § **114-16A(2)**; and
- (2) All manufactured homes to be placed or substantially improved within an area of special flood hazard shall be elevated on a permanent foundation such that the top of the lowest floor is at or above the base flood elevation (published FIS/FIRM) or the best available flood hazard data elevation, plus one foot (whichever is more restrictive).

§ 114-18. Coastal high-hazard area.

Coastal high-hazard areas (V or VE Zones) are located within the areas of special flood hazard established in § **114-7**. These areas have special flood hazards associated with high-velocity waters from tidal surges and hurricane wave wash; therefore, the following provisions shall apply:

A. Location of structures.

- (1) All buildings or structures shall be located landward of the reach of the mean high tide.
- (2) The placement of manufactured homes shall be prohibited, except in an existing manufactured home park or subdivision.

B. Construction methods.

- (1) Elevation. All new construction and substantial improvements shall be elevated on piling or columns so that:
 - (a) The bottom of the lowest horizontal structural member of the lowest floor (excluding the piling or columns) is elevated to or above the base flood elevation (published FIS/FIRM), the best available flood hazard data elevation or as required by the Uniform Construction Code (N.J.A.C. 5:23), whichever is more restrictive; and
 - (b) With all space below the lowest floor's supporting member open so as not to impede the flow of water, except for breakaway walls as provided or in § **114-18B(4)**.
- (2) Structural support.
 - (a) All new construction and substantial improvements shall be securely anchored on piling or columns.
 - (b) The pile or column foundation and structure attached thereto shall be anchored to resist flotation, collapse or lateral movement due to the effects of wind and water loading values each of which shall have a one-percent chance of being equaled or exceeded in any given year (one-hundred-year mean recurrence interval).
 - (c) There shall be no fill used for structural support.
- (3) Certification. A registered professional engineer or architect shall develop or review the structural design specifications and plans for the construction and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for compliance with the provisions of § **114-18B(1)** and **(2)(a)** and **(b)**.
- (4) Space below the lowest floor.
 - (a) Any alteration, repair, reconstruction or improvement to a structure started after the

enactment of this chapter shall not enclose the space below the lowest floor unless breakaway walls, open wood latticework or insect screening are used as provided for in this section.

- (b) Breakaway walls, open wood latticework or insect screening shall be allowed below the base flood elevation, provided that they are intended to collapse under wind and water loads without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Breakaway walls shall be designed for a safe loading resistance of not less than 10 pounds per square foot and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:
 - [1] Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and
 - [2] The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement or other structural damage due to the effects of wind and water load acting simultaneously on all building components (structural and nonstructural). Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable state or local building standards.
- (c) If breakaway walls are utilized, such enclosed space shall be used solely for the parking of vehicles, building access, or storage and not for human habitation.
- (d) Prior to construction, plans for any breakaway wall must be submitted to the Construction Code Official or Building Subcode Official for approval.

§ 114-19. Floodways.

Located within areas of special flood hazard established in § 114-7 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- A. Prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless a technical evaluation demonstrates that encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- B. If § 114-19A is satisfied, all new construction and substantial improvements must comply with Article V.
- C. In all areas of special flood hazard in which base flood elevation data has been provided and no floodway has been designated, the cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than 0.2 foot at any point.