



## 9.11 Borough of Stone Harbor

This section presents the jurisdictional annex for the Borough of Stone Harbor.

### 9.11.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Roger Stanford, Chief Deputy - OEM 9508 Second Avenue, Stone Harbor, NJ 08247 (609) 368-5102 x109 <a href="mailto:FireOffical@shnj.org">FireOffical@shnj.org</a>	Jill Gougher, Borough Administrator 9508 Second Avenue, Stone Harbor, NJ 08247 (609)368-6800 <a href="mailto:gougherj@shnj.org">gougherj@shnj.org</a>

### 9.11.2 Municipal Profile

The Borough of Stone Harbor is located on the northern side of the barrier island, Seven Mile Island, in Cape May County, New Jersey. It is bounded on the north-northeast by the Township of Middle and the Borough of Avalon, on the east by the Atlantic Ocean, on the south-southwest by the Wildwoods and the west by the Township of Middle. It is part of the Ocean City Metropolitan Statistical Area.

The Borough of Stone Harbor is well known for its environmental institutes and a sanctuary, including the Stone Harbor Bird Sanctuary established in 1947, and is registered as a National Landmark by the National Park Service. The Stone Harbor Water Tower pumping station, built in 1924, is the oldest municipal building still in use in Stone Harbor. The tower, at 132 feet high, can be seen from almost anywhere on the island. It holds 500,000 gallons of water and is supplied by four individual fresh water wells 890 feet deep that tap the Kirkwood Aquifer. Stone Harbor attractions include the nearby Cape May County Park and Zoo, The Wetlands Institute, the Stone Harbor Bird Sanctuary, and the Stone Harbor Museum.

According to the U.S. Census Bureau, the borough has a total area of 2.0 square miles, with 1.4 square miles of it land and 0.6 square miles of it (28.8-percent) water. As of July 1, 2014 there were estimated to be 844 people residing in the Borough.

### Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in Section 9.11.8 of this annex, which illustrates the hazard areas along with the location of potential new development.

**Table 9.11-1. Growth and Development**

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address	Block / Lot	Known Hazard Zone(s)	Description/Status of Development
<b>Recent Development from 2010 to Present</b>						
Stone Harbor Recreation	Comm.	1	8100 Second Avenue	81.02/1	NFIP Special Flood Hazard Area (A Zone)	Completed
SH Library	Comm.	1	9516 Second Avenue	95.02/67	NFIP Special Flood Hazard	Under Construction



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address	Block / Lot	Known Hazard Zone(s)	Description/Status of Development
					Area (A Zone)	
<b>Known or Anticipated Development in the Next Five (5) Years</b>						
SH Police	Comm.	1	9508 Second Avenue	95.02/60	NFIP Special Flood Hazard Area (A Zone)	Under design

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.11.3 Natural Hazard Event History Specific to the Municipality

Cape May County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2010 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

**Table 9.11-2. Hazard Event History**

Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
November 12-13, 2009	Severe Weather and Flooding associated with Tropical Depression Ida and a Nor'Easter	DR-1867	Yes	<p>Life Safety: Voluntary evacuation of low lying areas. A Red Cross shelter was opened at Goshen Sports Complex.</p> <p>Loss of Service: Third avenue and all streets west were closed.</p> <p>Public Facility Damage: Crossovers and handicap beach access (\$236K); 92nd Storm Water Outfall (\$8.5K); 83rd Street Fishing Pier (\$46.7K) Sailboat Moorings (\$6.5K)</p> <p>Other Loss Information: Debris removal (\$8.8K)</p>
February 5-6, 2010	Severe Winter Weather and Snowstorm (blizzard)	DR-1889	Yes	<p>Life Safety: Shelters activated due to the loss of power to homes. Shelter transportation costs and police overtime (\$4K)</p> <p>Loss of Service: Loss of electric power for the entire Borough for three days. Generators (\$22.6)</p> <p>Private Facility Damage: Many pipes were frozen due to power outages.</p> <p>Other Loss Information: Fire Department (\$11.2K) and Snow Removal (\$47.2)</p>
December 26-27, 2010	Severe Winter Weather and Snowstorm	DR-1954	Yes	<p>Loss of Service: Roads closed by snow</p> <p>Other Loss Information: Snow removal (\$82.2K)</p>
August 27-28, 2011	Hurricane Irene	DR-4021	Yes	<p>Life Safety: Evacuation ordered by State of Emergency 8/25/2011 &amp; 8/26/2011</p>



Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
				Shelters run by County off-shore, 23,000 evacuated.  Loss of Service: All roads closed to the public  Infrastructure Damage: Road systems (\$8.3K) and utility systems (\$1.5)  Public Facility Damage: Public building (\$8K)  Private Facility Damage: Estimated at \$100K  Other Loss Information: Debris removal (\$4.5K) and Protective measures (\$34.9)
October 28, 2012	Hurricane Sandy	DR-4086	Yes	Life Safety: State of Emergency evacuation of all residents and visitors. Alarms (\$1.3K)  Loss of Service: All roads were closed  Infrastructure Damage: 92nd Street Lift Station (\$221K) Street Lights (\$7K) Boat Ramp (\$43K)  Public Facility Damage: U.S. Army Corp of Engineers beach  Other Loss Information: Emergency protective measures (\$49.7 – cat B) and debris removal (\$195K)

### 9.11.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The risk ranking methodology is presented in Section 5.3. However, each municipality had the opportunity to adjust the final ranking based on municipal feedback. The following summarizes the hazard vulnerabilities and their ranking in the Borough of Stone Harbor. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

#### Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Borough of Stone Harbor.

**Table 9.11-3. Hazard Risk/Vulnerability Risk Ranking**

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Climate Change & Sea Level Rise	RCV in +3 feet: \$454,301,534	Frequent	42	High
Coastal Erosion	RCV in CEHA: \$3,301,687	Frequent	18	Medium
Flood	1% Annual Chance: \$1,535,945,320	Frequent	54	High
Hurricanes & Tropical Storms	Category 1 SLOSH: \$1,998,486,263 Category 2 SLOSH: \$1,998,486,263 Category 3 SLOSH: \$1,998,486,263	Frequent	54	High



**Table 9.11-3. Hazard Risk/Vulnerability Risk Ranking**

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
	Category 4 SLOSH: \$1,998,486,263			
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Weather	100-Year MRP: \$9,308,338 500-year MRP: \$60,853,625 Annualized: \$690,540	Frequent	48	High
Severe Winter Weather	1% GBS: \$13,068,258 5% GBS: \$65,341,292	Frequent	51	High
Tsunami	Damage estimate not available	Rare	6	Low
Wildfire	Estimated Value Exposed to Extreme, Very High and High: \$0	Frequent	18	Medium

Notes: GBS = General building stock; MRP = Mean return period.

- a. The general building stock valuation is based on the custom inventory generated for the County utilizing improved value.
- b. High = Total hazard priority risk ranking score of 31 and above  
Medium = Total hazard priority risk ranking of 20-30+  
Low = Total hazard risk ranking below 20
- c. Refer to Section 5.1 for further details on the loss methodology. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using Hazus-MH and the 2015 FEMA DFIRM for the 1-percent annual chance event. For the wildfire hazard, the improved value and estimated contents of buildings located within the identified hazard zones is provided.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Borough of Stone Harbor.

**Table 9.11-4. NFIP Summary**

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% Flood Boundary (3)
Stone Harbor Borough	2,174	1,127	\$19,765,555	60	30	1,730

Source: FEMA Region 2, 2015

- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of July 31, 2015 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 7/31/2015.
- (2) Total building and content losses from the claims file provided by FEMA Region 2.
- (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.



**Critical Facilities**

**Table 9.11-5. Number of Critical Facilities Located in the 1-Percent Annual Chance Flood Zone**

Municipality	Facility Types																	
	Airport	Communication	County Office	EMS	Emergency Operation Center	Ferry	Fire Station	Library	Marina	Military	Municipal Hall	Place of Interest	Police Station	School	Senior Facility	Wastewater Pump	Wastewater Treatment	Well
Stone Harbor Borough	-	2	-	-	-	-	-	1	2	-	1	1	1	1	-	1	-	-

Source: Cape May County

Note: EMS – Emergency Medical Services

**Other Vulnerabilities Identified by Municipality**

None identified at this time.

**9.11.5 Capability Assessment**

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education/Outreach and Community classification
- Self-Assessment of Capability
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

**Planning and Regulatory Capability**

The table below summarizes the regulatory tools that are available to the Borough of Stone Harbor.

**Table 9.11-6. Planning and Regulatory Tools**

Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No)	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
<b>Planning Capability</b>				
Master Plan	Yes	State, Local	Council/Planning Board	Master Plan (2009)
Capital Improvements Plan	Yes	Local	Administration/Finance	Annual Budget and Capital Plan
Floodplain Management/Basin Plan	Yes	Federal, State, Local	Zoning/Construction	Chapter 300-General Ordinances Flood Damage Protection
Stormwater Management Plan	Yes	Federal, State, Local	Public Works	Chapter 470-General Ordinances Stormwater Management
Open Space Plan	Yes	Local	Zoning	Chapter 560-General Ordinances Zoning
Stream Corridor Management Plan	No	State	Tidelands	



**Table 9.11-6. Planning and Regulatory Tools**

Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No)	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Watershed Management or Protection Plan	No	N/A	N/A	
Economic Development Plan	No	N/A	N/A	
Comprehensive Emergency Management Plan	Yes	Local/County/State	Emergency Mgt	Emergency Operation Plan adopted October 2012 and certified by State on June 28, 2013.
Emergency Operations Plan	Yes	State, Local, County	Emergency Mgt	Emergency Operation Plan adopted October 2012 and certified by State on June 28, 2013.
Post-Disaster Recovery Plan	Yes	State, Local, County	Emergency Mgt	Emergency Operation Plan adopted October 2012 and certified by State on June 28, 2013.
Transportation Plan	Yes	State, Local, County	Emergency Mgt	Emergency Operation Plan adopted October 2012 and certified by State on June 28, 2013.
Strategic Recovery Planning Report	Yes	State, Local, County	Emergency Mgt	Emergency Operation Plan adopted October 2012 and certified by State on June 28, 2013.
Other Plans:	Yes	Local		Dredged Material Management Plan
<b>Regulatory Capability</b>				
Building Code	Yes	State & Local	Construction	State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Local	Planning/Zoning Board	Chapter 560: Zoning
Subdivision Ordinance	Yes	Local	Planning/Zoning Board	Chapter 345: Land Development Procedures; Chapter 560: Zoning
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Construction/Zoning	Chapter 300: Flood Damage Protection
NFIP: Cumulative Substantial Damages	Yes	State, Local	Construction	Chapter 300: Flood Damage Protection
NFIP: Freeboard	Yes	State, Local	Construction	Chapter 300: Flood Damage Protection
Growth Management Ordinances	Yes	Local	Planning Board	Chapter 300: Flood Damage Protection, Chapter 560: Zoning, Master Plan
Site Plan Review Requirements	Yes	Local	Planning/Zoning Board	Chapter 345: Land Development Procedures
Stormwater Management Ordinance	Yes	Local	Public Works	Chapter 470: Stormwater Management
Municipal Separate Storm Sewer System (MS4)	Yes	Federal, State, Local	Public Works	Chapter 542: Water and Sewers
Natural Hazard Ordinance	No	N/A	N/A	
Post-Disaster Recovery Ordinance	No	N/A	N/A	



**Table 9.11-6. Planning and Regulatory Tools**

Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No)	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Real Estate Disclosure Requirement	Yes	State	Division of Consumer Affairs	N.J.A.C. 13:45A-29.1
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	Local, State	CAFRA	Chapter 470: Stormwater Management

**Administrative and Technical Capability**

The table below summarizes potential staff and personnel resources available to the Borough of Stone Harbor.

**Table 9.11-7. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Zoning Officer
Mitigation Planning Committee	No	
Environmental Board/Commission	No	
Open Space Board/Committee	Yes	County
Economic Development Commission/Committee	Yes	Council/ Business Advisory Board
Maintenance Programs to Reduce Risk	Yes	Public Works
Mutual Aid Agreements	Yes	Police/Fire/Public Works
<b>Technical/Staffing Capability</b>		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Planning Board, Heyer & Gruel, Planner, Remington & Vernick Engineer
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Construction Official and Borough Engineer
Planners or engineers with an understanding of natural hazards	Yes	Remington & Vernick Engineers, Heyer & Gruel, Planner
NFIP Floodplain Administrator	Yes	Michael Koochembere, Construction Official
Surveyor(s)	Yes	Remington & Vernick Engineers
Personnel skilled or trained in GIS and/or Hazus-MH applications	Yes	Remington & Vernick Engineers
Scientist familiar with natural hazards	Yes	Dr. Stewart Farrell, Coast Research Center
Emergency Manager	Yes	Kenneth Hawk, Director, Roger Stanford, Deputy
Grant Writer(s)	Yes	Remington & Vernick Engineers
Staff with expertise or training in benefit/cost analysis	No	
Professionals trained in conducting damage assessments	No	

**Fiscal Capability**

The table below summarizes financial resources available to the Borough of Stone Harbor.



**Table 9.11-8. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact Fees for homebuyers or developers of new development/homes	No
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes
Other	Cape County Open Space Program

**Education/Outreach and Community Classifications**

The table below summarizes education/outreach programs the community participates in and the classifications for community program available to the Borough of Stone Harbor.

**Table 9.11-9. Education/Outreach and Community Classifications**

Program	Do you have/participate in this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	5	May 1, 2014
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	3	July 5, 2012
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	2014
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Disaster/Safety Programs in/for Schools	No	N/A	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No	N/A	N/A
Public Education Program/Outreach (through website, social media)	Yes	N/A	N/A
Public-Private Partnerships	Yes	N/A	N/A

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery, and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The Community Rating System (CRS) class applies to flood insurance while the Building Code Effectiveness Grading Schedule (BCEGS) and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification





benefit. Firewise classifications include a higher classification when the subject property is located beyond 1,000 feet of a creditable fire hydrant and is within five road miles of a recognized fire station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

### Self-Assessment of Capability

The table below provides an approximate measure of the Borough of Stone Harbor’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.11-10. Self-Assessment of Capability

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability			X
Administrative and Technical Capability		X	
Fiscal Capability			X
Community Political Capability		X	
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities			X

### National Flood Insurance Program

#### NFIP Floodplain Administrator (FPA)

Michael Koochembere, Construction Official

#### Flood Vulnerability Summary

The Borough maintains a list of properties that have been flood damaged. This inventory identifies property owners interested in mitigating their properties. Seven structures were damaged during Hurricane Sandy. All seven of these structures were determined to be substantially damaged and all property owners are interested in mitigation. Four properties are currently undergoing mitigation. Funding for mitigation efforts is being provided by the property owner, flood insurance and ICC, and grant funding.

#### Resources

The Flood Damage Prevention Ordinance (FDPO) identifies the Construction Official as the NFIP Floodplain Administrator. The floodplain administrator is the sole person assuming responsibilities for floodplain



administration including, permit review, inspections, damage assessments, record-keeping, education and outreach. Brochures regarding flood hazards and risk reduction are provided to the community.

There are no identified barriers to running an effective floodplain management program in the borough. The floodplain administrator is adequately trained and supported for floodplain management responsibilities, although additional training would be welcome.

### Compliance History

The Borough is currently in good standing with the NFIP. The most recent Community Assistance Visit occurred in 2013 when the Borough received a Class 5 designation in the Community Rating System.

As of August 31, 2015 there are 2,758 policies in force, insuring over \$724.3 million of property with total annual insurance premiums of \$2,322,691. Since 1978, 1,124 claims have been paid totaling \$19,755,996 (1,391 claims total have been submitted; however, 263 claims were closed without pay and 4 claims are still open).

### Regulatory

The Borough of Stone Harbor's floodplain regulations exceed the minimum State and FEMA requirements. Other local plans and programs in the Borough that support floodplain management include the Planning Board and Zoning Board of Appeals, the stormwater management program and the emergency operation plan, among others.

### Community Rating System

The Borough of Stone Harbor is a Class 5 community in the Community Rating System (CRS) program.

### Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

### Planning

**Land Use Planning:** The Borough of Stone Harbor has a Master Plan that was most recently revised in 2009. The Plan does not specifically reference the hazard mitigation, but does discuss some natural hazard related concerns, especially pertaining to flood-related hazards.

**Dredged Materials Management Plan:** Flood Protection has been identified in the alternative analysis section of the Plan. According to Section 4.23 Flood Protection consists of increasing elevations to remove upland areas from the flood zone. Along coastal communities, this type of project is typically conducted through beach and dune restorations and enhancements. For this beneficial use, dredged material can be used as fill. Typically, the material would need to be greater than 90% sand to receive authorization to be placed on the beach however fine grained material may be contained within a geotextile tube and used to reinforce a dune core or as back beach fill.

**Stormwater Management:** Included in the goals of the Stormwater Management Plan are to reduce flood damage, including damage to life and property, minimize, to the extent practical, any increases in stormwater runoff from any new development and protect public safety through the proper design and operation of stormwater basins. To achieve these goals, the plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address



impacts from existing development. Preventative and corrective maintenance strategies are included to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

**Dune Vegetation Management Plan:** The Borough adopted a Dune Vegetation Management Program in June of 2015. Integrated throughout the Plan is the importance of a well-planned and maintained dune system that provides a protective barrier from coastal storms.

**Re-Development Plan:** Any Re-development plan is incorporated into Chapters 300 (Flood Damage Protection) and 560 (Zoning)

**Continuity of Operations:** The continuity of Government and Continuity of Operations Plan is included in the Comprehensive Emergency Management Plan which was approved by the State of NJ in June of 2014.

**Comprehensive Emergency Management Plan:** The Borough of Stone Harbor has prepared the Emergency Operations Plan, which sets forth the general policies and procedures to be carried out by county and allied entities using the NIMS and the principles of ICS, in order to provide the citizens of the Borough of Stone Harbor with an effective integrated emergency response plan designed to minimize the loss of life and property during an emergency event.

### Regulatory and Enforcement (Ordinances)

The Township has multiple chapters pertaining to the mitigation of hazards. These ordinances include the Flood Damage Prevention Chapter, Stormwater Management, Building Code and others.

### Operational and Administration

**Stone Harbor Go Green Committee:** The Go Green Community Committee was established by the Borough of Stone Harbor with the primary goal of establishing common practice of conservation. In addition, the Go Green Committee is a constant source of information that is presented to homeowners in an effort to educate everyone on the importance of preserving our natural resources. The Committee also provides information related to natural hazards, such as encouraging winterization efforts in homes and businesses to reduce the risk of flooding from broken water pipes.

### Funding

**Operating Budget:** The Borough of Stone Harbor provides annual funding for Stormwater Management and Beach/Dune management activities.

**Capital Improvements Plan:** Funding is included in the Capital Improvement plan for Hazard Mitigation projects.

**Grants:** The Borough received a NJDEP Flood Hazard Risk Reduction and Resiliency Grant to install an emergency generator on our 92<sup>nd</sup> Street Well.

**Other Funds:** The Borough is eligible for the Cape May County Open Space and Farmland Preservation Program, which generates approximately \$5 annually.

### Education and Outreach

The Borough website includes important news and announcements including emergency weather updates. Additionally, the Borough Newsletter provides residents and visitors with information on the Borough and local events.



### **9.11.6 Mitigation Strategy and Prioritization**

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This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

#### **Past Mitigation Initiative Status**

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The following table indicates progress on the community’s mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.11-11. Past Mitigation Initiative Status

Initiative Number	2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Step (Include in 2016 HMP Update? or Discontinue)	Describe Next Step 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
SH-1a	Where appropriate, support retrofitting of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for retrofitting based on cost-effectiveness versus relocation. Where retrofitting is determined to be a viable option, consider implementation of that action based on available funding.	Borough (likely through NFIP Floodplain Administrator)	In Progress	1. On annual basis supply property owners with information on possible grant funding to initiate flood proofing initiatives including but not limited to elevating structure. Continue to seek out possible grant funding sources for this initiative.	Include in 2016 HMP Update	1. 2.
SH-1b	Where appropriate, support purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for relocation based on cost-effectiveness versus retrofitting. Where relocation is determined to be a viable option, consider implementation of that action based on available funding.	Borough	No Progress	1. This initiative is not cost effective. Will continue to support however into the future in case circumstance change and this becomes a more viable solution.	Include in 2016 HMP Update	1. 2.



<u>Initiative Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP Update? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
SH-2	Continue active participation in incentive-based program CRS.	Borough	In Progress	1. The Boroughs participation in the CRS program has resulted in significant savings to its residents. Residents in the program can receive up to 25% discount on their flood insurance. Continued participation in the program only strengthens the success of the hazard mitigation plan as a whole.	Include in 2016 HMP Update	1. 2.
SH-3	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	Borough (through mitigation planning point of contacts)	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-4	Strive to maintain compliance with, and good-standing in the National Flood Insurance program.	Municipality (likely through NFIP Floodplain Administrator)	In Progress	1. This is an ongoing yearly initiative. CRS Coordinator completes all required initiatives 2. 3.	Include in 2016 HMP Update	1. 2.
SH-5	Continue to develop, enhance, and implement existing emergency plans.	Municipal Emergency Manager with support from County OEM and NJ OEM	In Progress	1. This is an ongoing yearly initiative. Borough OEM works closely with the County and State OEM offices. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-6	Create/enhance/ maintain mutual aid agreements with neighboring communities.	Borough	In Progress	1. This is an ongoing yearly initiative. Resolutions authorized each year. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-7	Support County-wide initiatives identified in Section 9.1 of the County Annex.	Local departments (as applicable for specific initiative)	In Progress	1. Continue to support County-wide initiatives 2. 3.	Include in 2016 HMP Update	1. 2.
SH-8	Continue dune and beach replenishment efforts – 98 <sup>th</sup>	NJDEP with City support	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.



<u>Initiative Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP Update? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
	Street to 111 <sup>th</sup> Street are currently underway (4Q09)					
SH-9	Continue stormwater drainage improvements throughout the Borough to increase capacity.	Borough	In Progress	1. This is a yearly initiative through our annual infrastructure upgrades. Included in our yearly and long range capital plan. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-10	105 <sup>th</sup> Street stormwater drainage improvement project.	Borough	Complete	1. Stormwater upgrades increasing storage capacity and drainage rates have been completed eliminating flooding issues. 2. 3.	Discontinue	1. 2. Specific project completed
SH-10a (CMC-26, BA-8)	Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. Seven stormwater pump stations were installed along CR-619 from Avalon Boulevard to 19 <sup>th</sup> Street (Avalon business district) to address flooding in this area.	County Engineering with municipalities	No Progress	1. 2. .County Roadway. Borough has no jurisdiction, however will continue to support and encourage the County to make improvements. 3.	Include in 2016 HMP Update	1. 2.
SH-11	Back-up generator at the school	Local	No Progress	1. 2. Not a Borough Project. This is a School Board initiative, but the Borough will still support accordingly. 3.	Include in 2016 HMP Update	1. Support installation of back-up generator at SH School. Assist in obtaining grants when available. 2.
SH-12	Remote tide-gages with cameras	Borough	In Progress	1. Using tide gauges at CMC Bridge Comm. and 80 <sup>th</sup> Street Marina. Need to tie camera into system. 50% complete 2. 3.	Include in 2016 HMP Update	1. 2.
SH-13	Purchase weather stations	OEM	Complete	1. Borough has purchased a weather subscription service that provides daily weather predictions and alters. 2. 3.	Discontinue	1. 2.



<u>Initiative Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP Update? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
SH-14	Elevate the commercial property – The Market	Borough	No Progress	1. 2. Privately owned property. 3.	Discontinue	1. 2.
SH-15	Establish and maintain a local alert AM emergency advisory radio station	Borough	Complete	1. Borough continue to maintain the local Alert AM emergency advisory radio station. 2. 3.	Include in 2016 HMP Update	1. Maintain local alert AM emergency advisory radio station 2.
SH-16 (CMC-14)	Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor proper. This will require elevating one residential property on 96th Street (part of CR-657) and potentially others. 96th Street was elevated in 2008 to the extent possible in consideration of existing home elevations.	County Engineering, with local support	No Progress	1. 2. County Roadway. Borough has no jurisdiction, however will continue to support and encourage the County to elevate the Boulevard. 3.	Include in 2016 HMP Update	1. 2.
SH-17	Maintain relationship with Army Corps and NJDEP for dune maintenance along the oceanfront via planting dune grass and installing sand fencing.	Borough	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-18	Continue annual review of ordinances and appropriate laws with regard to planning, zoning and code enforcement within the Borough.	Borough	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-19	Maintain the 12 outfall pipes along the beachfront of the Borough by regularly cleaning and adding	Borough	In Progress	1. 80% complete. Working on removing final 2 pipes in future capital plan. 2. 3.	Include in 2016 HMP Update	1. Maintain and eventually remove 2 outfall pipes along beachfront of the borough 2.





<u>Initiative Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP Update? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
	replacement sands to the area for Emergency Access.					
SH-20	Continue to work with property owners to bring all applicable properties within the Borough up to code within the NFIP.	Borough	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-21	Maintain flood siren warning systems throughout the Borough to alert residents in the event of an emergency.	Borough	In Progress	1. This is an ongoing yearly initiative. 2. 3.	Include in 2016 HMP Update	1. 2.
SH-22	Continue to support beach replenishment activities from 98 <sup>th</sup> to 111 <sup>th</sup> Streets	NJDEP with Borough support	In Progress	1 Borough received a ACOE Beach Replenishment in 2013 and is scheduled to receive another in fall of 2016. 2. 3.	Include in 2016 HMP Update	1. 2.



### **Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy**

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The Borough has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

### **Proposed Hazard Mitigation Initiatives for the Plan Update**

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Table 9.11-12 summarizes the comprehensive-range of specific mitigation initiatives the Borough would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, fourteen evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High,’ ‘Medium,’ or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.11-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



**Table 9.11-12. Proposed Hazard Mitigation Initiatives**

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures (1)	Hazard(s) Mitigated (2)	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
SH-1a (former SH-1a)	<p>Property Mitigation Support – Retrofit: Where appropriate, support retrofitting (e.g. elevation) of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for retrofitting based on cost-effectiveness versus relocation. Where retrofitting is determined to be a viable option, consider implementation of that action based on available funding.</p> <p>The City has done extensive public education and outreach regarding available mitigation opportunities, including informing Stone Harbor RL/SRL property owners of workshops on April 9, 2016 (in Ocean City) and again on April 16, 2016 (in Wildwood) to learn more about current and future opportunities to mitigate their flood-prone properties. The City has formally been an active participant in the “Enhanced RL/SRL Initiative” within this plan update process, as described further in Section 6.</p> <p>On annual basis supply property owners with information on possible grant funding to initiate flood proofing initiatives including but not limited to elevating structure. Continue to seek out possible grant funding sources for this initiative. See also SH-14: Elevate “The Market” (Commercial Property).</p> <p>Funding sources: FEMA Mitigation Grant Programs (primarily HMGP and FMA); local property owner for match as supported by ICC and other non-Federal match sources as available.</p>											
	See above.	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 4, 6	Borough (likely through NFIP Floodplain Administrator)	High	High	See above.	Long-term DOF	Medium-High*	EAP, SIP	PI, PP
SH-1b (former SH-1b)	<p>Property Mitigation Support – Acquisition/Relocation: Where appropriate, support acquisition and/or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for acquisition/relocation based on cost-effectiveness versus retrofitting. Where acquisition/relocation is determined to be a viable option, consider implementation of that action based on available funding.</p> <p>While the Borough has found that this initiative is not cost-effective, they will continue to support into the future in the case circumstances change and this becomes a more viable solution.</p> <p>The City has done extensive public education and outreach regarding available mitigation opportunities, including informing Stone Harbor RL/SRL property owners of workshops on April 9, 2016 (in Ocean City) and again on April 16, 2016 (in Wildwood) to learn more about current and future opportunities to mitigate their flood-prone properties. The City has formally been an active participant in the “Enhanced RL/SRL Initiative” within this plan update process, as described further in Section 6.</p> <p>Funding sources: FEMA Mitigation Grant Programs (primarily HMGP and FMA); local property owner for match as supported by ICC and other non-Federal match sources as available.</p>											
	See above.	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 4, 6	Borough (likely through NFIP Floodplain Administrator)	High	High	See above.	Long-term DOF	Medium-High*	EAP, SIP	PI, PP
SH-1c	Retrofit or relocate critical facilities in the 100-year floodplain	Existing	Coastal Storm, Flood,	1, 2, 4, 6	Borough (likely through NFIP Floodplain	High	High	See SH-1b above.	Long-term DOF	High	SIP	PP



Table 9.11-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures (1)	Hazard(s) Mitigated (2)	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
			Severe Weather		Administrator) ; working with facility manager/operator							
SH-2 (former SH-2, -4)	Strive to maintain compliance with, and good-standing in the National Flood Insurance program, including continued active participation in incentive-based program.	New & Existing	Coastal Storm, Flood, Severe Weather	1, 2, 6	Borough (primarily through NFIP Floodplain Administrator)	Medium - High	Low - Medium	Local Budget	Ongoing	High	All	All
SH-3 (former SH-3)	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	New & Existing	All Hazards	1 through 6	Borough (through mitigation planning point of contacts)	Medium - High	Low – High (for 5-year update)	Local Budget, possibly FEMA Mitigation Grant Funding for 5-year update	Ongoing	Medium	LPR, EAP	PR, PI
SH-4	Train staff or acquire contract support for benefit-cost analysis	N/A	All Hazards	1	Borough (primarily through NFIP Floodplain Administrator and Engineering)	Medium	Low	Local Budget	As training sessions are available locally	Medium - High	EAP	PI
SH-5 (former SH-5)	Continue to develop, enhance, and implement existing emergency plans.	New & Existing	All Hazards	1, 3, 4, 6	Municipal Emergency Manager with support from County OEM and NJ OEM	Low - Medium	Low - Medium	Local Budget	Ongoing	Medium	LPR, EM	PR, EM
SH-6 (former SH-6)	Create/enhance/ maintain mutual aid agreements with neighboring communities.	New & Existing	All Hazards	1, 3, 4, 6	Borough	Low - Medium	Low - Medium	Local Budget	Ongoing	Medium	LPR, EM	PR, EM
SH-7 (former SH-7)	Support County-wide initiatives identified in Section 9.1 of the County Annex.	New & Existing	All Hazards	1 through 6	Local departments (as applicable)	Medium	Low - High	Existing programs and grant funding	Ongoing – Long-term depending on initiative	M-H (dependent )	All	All



Table 9.11-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures (1)	Hazard(s) Mitigated (2)	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
					for specific initiative)			where applicable				
SH-8 (former SH-8 and SH-22)	Continue to support beach replenishment activities from and 98 <sup>th</sup> to 111 <sup>th</sup> Streets. This is an ongoing yearly initiative	Existing	Coastal Storms, Coastal Erosion, Flooding, Severe Weather, Tsunami	1, 3, 5	NJDEP with Borough support	High	High	NJDEP – 75%; Borough – 25%	Borough received a USACE Beach Replenishment in 2013 and is scheduled to receive another in fall of 2016.	High	NSP, SIP	NR, PP
SH-9 (former SH-9)	Continue stormwater drainage improvements throughout the Borough to increase capacity.	Existing	Coastal Storm, Flood, Severe Weather	1, 4	Borough	High	High	This is a yearly initiative through our annual infrastructure upgrades, included in our yearly and long range capital plan.		High	SIP	PP
SH-10 (former SH-10a (CMC-26, BA-8)	Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. Seven stormwater pump stations were installed along CR-619 from Avalon Boulevard to 19 <sup>th</sup> Street (Avalon business district) to address flooding in this area.	Existing	Coastal Storms, Severe Weather, Flooding	1, 3, 4, 6	County Engineering with municipalities	High	High	FEMA HMA grant programs, local match	Long-term DOF	Medium	SIP	PP
SH-11 (former SH-11)	Support installation of back-up generator at SH School. Assist in obtaining grants when available.	Existing	All Hazards, except wildfire and coastal erosion	1, 3, 4	School Board; with Borough support as appropriate	High	High	FEMA HMA grant programs, local match	Long-term DOF	M-H (DOF)	SIP, EM	PP, ES
SH-12 (former SH-12)	Remote tide-gages with cameras, using tide gauges at CMC Bridge Comm. and 80 <sup>th</sup> Street Marina.	N/A	Coastal Storms, Flooding	1, 4	Borough	Medium	Medium	Local, Grant funding	Need to tie camera into system - 50% complete	Medium	EAP, EM	ES, PI
SH-13 (former SH-14)	Support private property owner with elevation of The	Existing	Coastal Storms, Severe	1, 3	Borough	High	High	FEMA HMA grant	Long-term DOF	Medium	SIP	PP



Table 9.11-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures (1)	Hazard(s) Mitigated (2)	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	Market (commercial property).		Weather, Flooding					programs, local match				
SH-14 (CMC-14)	Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor proper. This will require elevating one residential property on 96th Street (part of CR-657) and potentially others. 96th Street was elevated in 2008 to the extent possible in consideration of existing home elevations.											
	County Roadway. Borough has no jurisdiction, however will continue to support and encourage the County to elevate the Boulevard.											
	See above.	Existing	Coastal Storms, Flooding	1, 4	1-1, 1-9, 4-1, 4-2, 4-11	County Engineering, with local support	High	TBD	Longterm DOF	Medium	SIP	PP
SH-15	Maintain relationship with Army Corps and NJDEP for dune maintenance along the oceanfront via planting dune grass and installing sand fencing.	N/A	Coastal Erosion, Coastal Storm, Severe Weather	3, 5, 6	Borough	Borough; working with NJDEP and USACE	Low	Local	Short-term	High	NSP	NR, PP
SH-16	Continue annual review of ordinances and appropriate laws with regard to planning, zoning and code enforcement within the Borough.	N/A	Coastal Storm, Flood, Severe Weather	1, 4	Borough	Medium - High	Low	Local	Short-term	High	LPR	PR
SH-17	Maintain the 12 outfall pipes along the beachfront of the Borough by regularly cleaning and adding replacement sands to the area for Emergency Access.	Existing	Coastal Storm, Flood, Severe Weather	1, 3, 4	Borough	High	Medium	80% complete. Working on removing final 2 pipes in future capital plans.		Medium	SIP	PP
SH-18	Continue to work with property owners to bring all applicable properties within the Borough up to code within the NFIP.	Existing	Flood	1, 2, 4	Borough	Medium - High	Low	Local	Short-term	High	EAP, SIP	PI, PP
SH-19	Maintain flood siren warning systems throughout the Borough to alert residents in the event of an emergency.	N/A	Coastal Storm, Flood, Severe Weather	1, 3, 4	Borough	Medium - High	Low	Local	Short-term	High	EM, EAP	ES, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

(1) Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.





(2) While Climate Change and Sea Level rise are not specifically identified as “hazards mitigated” in this table, it is recognized that climate change and sea level rise may exacerbate/amplify the risk of the following identified hazards: Climate Change – Coastal Erosion, Flood Coastal Storms (hurricane, tropical storms, Nor’Easters), Severe Weather, Severe Winter Weather, Wildfire; Sea Level Rise – Coastal Erosion, Flood Coastal Storms (hurricane, tropical storms, Nor’Easters), Tsunami.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program (discontinued)
SRL	Severe Repetitive Loss Grant Program (discontinued)

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA’s benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)- These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities
- Emergency Management (EM) – These actions are identified as an emergency management activity; however, they are not necessarily “mitigation”

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.





- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities*

**Table 9.11-13. Summary of Prioritization of Actions**

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
SH-1a (former SH-1a)	Property Mitigation Support – Retrofit	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	M-H*
SH-1b (former SH-1b)	Property Mitigation Support – Acquisition/Relocation	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	M-H*
SH-1c	Retrofit or relocate critical facilities in the 100-year floodplain	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	High
SH-2 (former SH-2, -4)	Strive to maintain compliance with, and good-standing in the National Flood Insurance program, including continued active participation in incentive-based program.	1	1	1	1	1	0	0	1	1	0	1	1	1	1	11	High
SH-3 (former SH-3)	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	0	1	1	1	1	1	0	0	1	1	1	1	1	1	11	Medium
SH-4	Train staff or acquire contract support for benefit-cost analysis	1	1	1	1	0	0	1	0	1	1	1	1	0	0	9	Medium - High
SH-5 (former SH-5)	Continue to develop, enhance, and implement existing emergency plans.	1	1	1	1	1	1	0	0	1	0	1	1	1	1	11	Medium
SH-6 (former SH-6)	Create/enhance/ maintain mutual aid agreements with neighboring communities.	1	1	1	1	1	1	0	0	1	0	1	1	1	1	11	Medium
SH-7 (former SH-7)	Support County-wide initiatives identified in Section 9.1 of the County Annex.	1	1	0	1	0	1	0	0	1	0	1	1	1	1	9	M-H (dependent)
SH-8 (former SH-8 and SH-22)	Continue to support beach replenishment activities from 98 <sup>th</sup> to 111 <sup>th</sup> Streets. This is an ongoing yearly initiative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	High
SH-9 (former SH-9)	Continue stormwater drainage improvements throughout the Borough to increase capacity.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	High
SH-10 (former SH-10a (CMC-26, BA-8)	Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. Seven stormwater pump stations were installed along CR-619 from Avalon Boulevard to 19 <sup>th</sup> Street (Avalon business district) to address flooding in this area.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium





Table 9.11-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
SH-11 (former SH-11)	Support installation of back-up generator at SH School. Assist in obtaining grants when available.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M-H (DOF)
SH-12 (former SH-12)	Remote tide-gages with cameras, using tide gauges at CMC Bridge Comm. and 80 <sup>th</sup> Street Marina.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
SH-13 (former SH-14)	Support private property owner with elevation of The Market (commercial property).	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
SH-14 (CMC-14)	Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor proper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
SH-15	Maintain relationship with Army Corps and NJDEP for dune maintenance along the oceanfront via planting dune grass and installing sand fencing.	1	1	1	1	0	1	1	0	0	1	1	0	0	0	8	High
SH-16	Continue annual review of ordinances and appropriate laws with regard to planning, zoning and code enforcement within the Borough.	1	1	1	1	0	1	1	0	0	1	1	0	0	0	8	High
SH-17	Maintain the 12 outfall pipes along the beachfront of the Borough by regularly cleaning and adding replacement sands to the area for Emergency Access.	1	1	1	1	0	0	0	0	1	1	1	0	0	0	7	Medium
SH-18	Continue to work with property owners to bring all applicable properties within the Borough up to code within the NFIP.	1	1	1	1	0	1	1	0	0	1	1	0	0	0	8	High
SH-19	Maintain flood siren warning systems throughout the Borough to alert residents in the event of an emergency.	1	1	1	1	0	1	1	0	0	1	1	0	0	0	8	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions. Where the community has determined that the original priority ranking for “carry forward” initiatives remains valid, the earlier priority ranking is indicated on the prioritization table, however the 2016 criteria ratings are indicated with a null “-” marking.

\* The municipality recognizes that the mitigation of RL/SRL priorities is a Federal and State priority despite the fact that limited local resources and authority limit the municipality’s ability to implement this project.



### **9.11.7 Future Needs To Better Understand Risk/Vulnerability**

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The Borough has authorized the Borough Engineer to prepare a flood reduction master plan which will provide an update on risks/vulnerabilities as it relates to flooding. Master Plan will be completed in 2016.

### **9.11.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Borough of Stone Harbor that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Borough of Stone Harbor has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

### **9.11.9 Additional Comments**

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None at this time



Figure 9.11-1. Borough of Stone Harbor Hazard Area Extent and Location Map 1

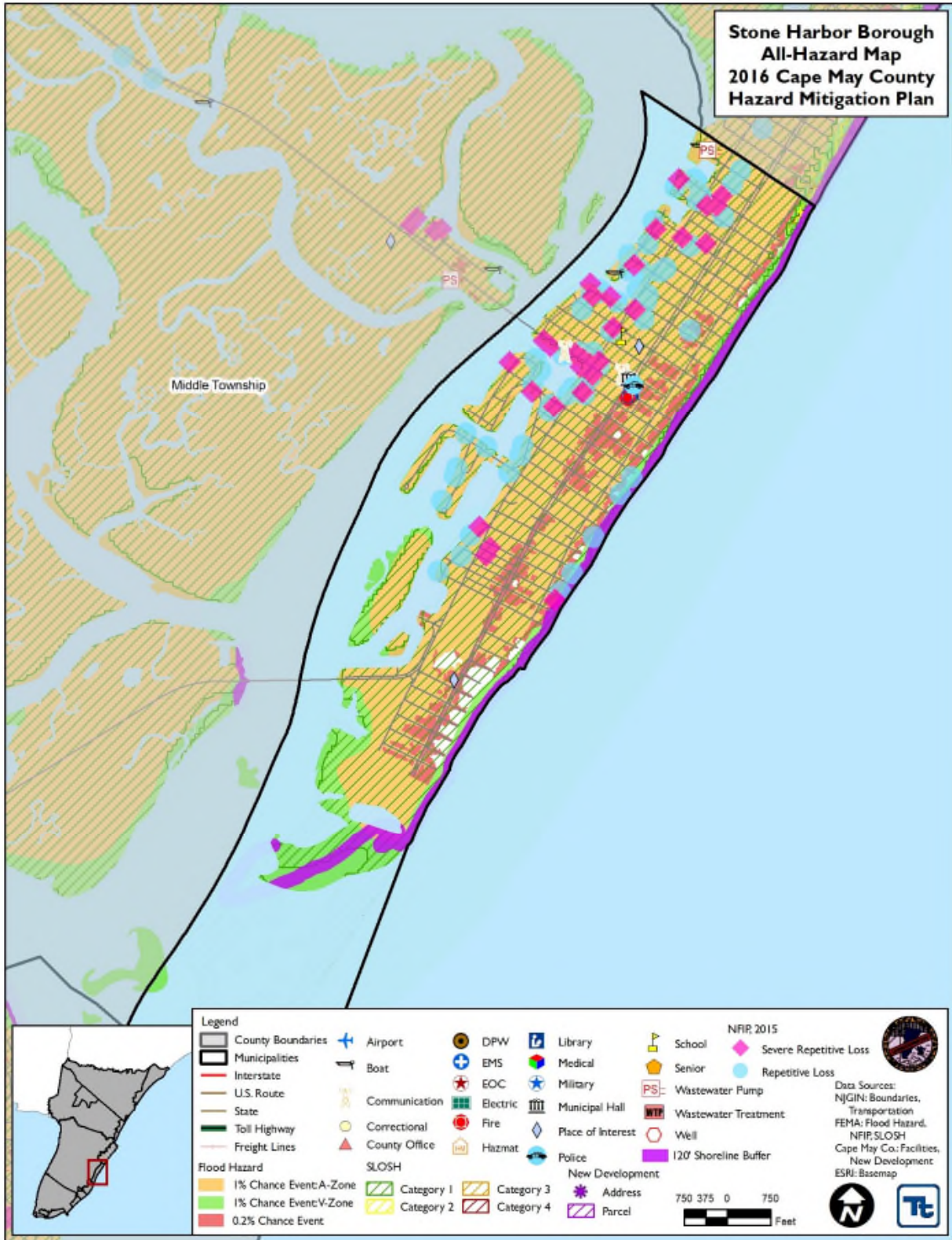




Figure 9.11-2. Borough of Stone Harbor Hazard Area Extent and Location Map 2

