12. BOROUGH OF STONE HARBOR

This jurisdictional annex to the Cape May County Hazard Mitigation Plan (HMP) provides information to assist public and private sectors in the Borough of Stone Harbor with reducing losses from future hazard events. This annex is not guidance of what to do when a disaster occurs; its focus is on actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex presents a general overview of Stone Harbor, describes who participated in the planning process, assesses Stone Harbor's risk, vulnerability, and capabilities, and outlines a strategy for achieving a more resilient community.

12.1 HAZARD MITIGATION PLANNING TEAM

The Borough of Stone Harbor identified primary and alternate HMP points of contact and developed this plan over the course of several months, with input from many Borough departments. The Office of Emergency Management represented the community on the Cape May County HMP Planning Partnership and supported the local planning process by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

Table 12-1 summarizes Borough officials who participated in the development of the annex and in what capacity. Additional documentation of the Borough's planning activities through Planning Partnership meetings is included in Volume I.

Table 12-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name/Title: Frank Vaul, OEM Coordinator Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone Number: 609-892-3816 Email: VaulF@shnj.org	Name/Title: Rick Allen, Construction Official, Zoning Official, and Floodplain Administrator Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone Number: **609-368-6814** Email: AllenR@shnj.org
National Flood Insurance Program Floodplain Administrator	
Name/Title: Rick Allen, Construction Official, Zoning Official, and Floodplain Administrator Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone Number: **609-368-6814** Email: AllenR@shnj.org	
Additional Contributors	
Name/Title: Marc DeBlasio, Borough Engineer Method of Participation: Assisted with providing information on previous mitigation actions and the development of new Borough mitigation actions.	

12.2 COMMUNITY PROFILE

Stone Harbor is a barrier island resort and residential community located on the southern portion of Seven Mile Island in Cape May County, New Jersey. Stone Harbor consists of 1,256 acres of land and is lined by more than 3.5 miles of pristine beachfront and miles of back bay shoreline, including marsh and private waterfront. The Borough was incorporated in 1914 and has grown through the years to be both a residential year-round community as well as a seasonal resort community.

12.2.1 GOVERNING BODY FORMAT

The Borough of Stone Harbor, New Jersey, is governed by a Mayor and Borough Council. The Mayor oversees the executive functions of the borough, ensuring that municipal operations run smoothly and efficiently. This includes managing borough departments, implementing policies, and representing the borough in various capacities.

The Borough Council is responsible for the legislative functions. This body passes ordinances, approves the budget, and makes decisions on various local matters. The Council consists of members elected by the residents to represent their interests and ensure the smooth functioning of the borough.

12.2.2 POPULATION AND SOCIAL VULNERABILITY

According to the U.S. Census, the 2020 population for Stone Harbor was 796, a 0.8 percent of the County population.

Research has shown that some populations are at greater risk from hazard events because of decreased resources or physical abilities. These populations can be more susceptible to hazard events based on a number of factors including their physical and financial ability to react or respond during a hazard, and the location and construction quality of their housing. Data from the 2020 U.S. Census indicates that 2.4 percent of the population is 5 years of age or younger, 57.2 percent is 65 years of age or older, 0.0 percent is non-English speaking, 7.2 percent is below the poverty threshold, and 10.4 percent is considered disabled.

12.2.2.1 ALICE IN CAPE MAY COUNTY

ALICE is an acronym for Asset Limited, Income Constrained, Employed – households that earn more than the Federal Poverty Level, but less than the basic cost of living for the County. While conditions have improved for some households, many continue to struggle, especially as wages fail to keep pace with the rising cost of household essentials (housing, child care, food, transportation, health care, and a basic smartphone plan). Households below the ALICE Threshold – ALICE households plus those in poverty – can't afford the essentials.

According to 2021 Point-in-Time-Data from ALICE, 26% of the 48,860 households in Cape May County are ALICE households (on par with the state average of 26%). The median household income in Cape May is $78,657, and the County sees a labor force participation rate of 57%. Cape May County faces low household income compared to the state average of $89,296, along with a low labor participation rate of 57% compared to the state average of 66%. 8% of Cape May households live in poverty, which falls below the state average of 10%.

12.3 JURISDICTIONAL CAPABILITY ASSESSMENT AND INTEGRATION

Stone Harbor performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume I describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment for this annex includes analyses of the following:

- Planning and regulatory capabilities
- Development and permitting capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Classification under various community mitigation programs
- Adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into day-to-day local government operations. As part of the hazard mitigation analysis, planning and /policy documents were reviewed and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. Development of an updated mitigation strategy provided an opportunity for Stone Harbor to identify opportunities for integrating mitigation concepts into ongoing Borough procedures.

12.3.1 PLANNING AND REGULATORY CAPABILITY AND INTEGRATION

Table 12-2 summarizes the planning and regulatory tools that are available to Stone Harbor.

Table 12-2. Planning and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
CODES, ORDINANCES, & REGULATIONS				
Building Code	Yes	Construction Codes, Uniform, Chapter 230, adopted by Borough Council in 1982 and amended through 2019	State and Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? There is hereby established in the Borough of Stone Harbor a state uniform construction code enforcing agency, to be known as the "Department of Construction Inspection," consisting of a construction official, building subcode official, plumbing subcode official, electrical subcode official, fire protection subcode official. The Construction Official and the Subcode Officials shall be determined from time to time by resolution of Borough Council.				
Zoning/Land Use Code	Yes	Zoning, Chapter 560, adopted by Borough Council on 12-06-11 and amended through 2019.	Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? This Chapter addresses flooding in basic terms by making exceptions to normal standards for height and setbacks to allow for building elevations.				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Subdivision Code	Yes	Land Development Procedures, Chapter 345, adopted by Borough Council in 1982, amended through 2019	Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? The purpose of this chapter shall be to establish the functions of the Planning Board and Zoning Board of Adjustment and to provide rules, regulations and standards to guide land subdivision and site development in the Borough of Stone Harbor. It is further the purpose to promote the purposes of the New Jersey Municipal Land Use Law, as amended (N.J.S.A. 40:55D-2), including but not limited to public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure orderly growth and development or redevelopment, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.				
Site Plan Code	Yes	Land Development Procedures, Chapter 345, adopted by Borough Council in 1982, amended through 2019	Local and County	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? The purpose of this chapter shall be to establish the functions of the Planning Board and Zoning Board of Adjustment and to provide rules, regulations and standards to guide land subdivision and site development in the Borough of Stone Harbor. It is further the purpose to promote the purposes of the New Jersey Municipal Land Use Law, as amended (N.J.S.A. 40:55D-2), including but not limited to public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure orderly growth and development or redevelopment, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.				
Stormwater Management Code	Yes	Storm Sewer System, Chapter 468, adopted by Borough Council on June 1, 2010	Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? This article requires dumpsters and other refuse containers that are outdoors or exposed to stormwater to be covered at all times and prohibits the spilling, dumping, leaking, or otherwise discharging of liquids, semi-liquids or solids from the containers to the municipal separate storm sewer system(s); and the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Borough of Stone Harbor.				
Post-Disaster Recovery/ Reconstruction Code	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Real Estate Disclosure Requirements	Yes	Senate Bill 3110; P. L. 2023, c. 93, July 3, 2023	State	Sellers and Landlords of commercial or residential property

How has or will this be integrated with the HMP and how does this reduce risk?

For leases, the law amends the New Jersey Truth-in-Renting Act, N.J.S.A. 46:8-43 et seq., to require every landlord to notify in writing each of the landlord's tenants, prior to lease signing or renewal, whether the property is located in the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area ("100-year floodplain") or Moderate Risk Flood Hazard Area ("500-year floodplain") and if the landlord has actual knowledge that the rental premises or any portion of the parking areas of the real property containing the rental premises has been subjected to flooding. The law does not apply to (1) landlords who lease commercial space or residential dwellings for less than one month, (2) residential dwellings in a premises containing not more than two units, (3) owner-occupied premises containing not more than three units, or (4) hotels, motels, or other guest houses serving transient or seasonal guests for a period of less than 120 days.

The model notice is to contain the heading "Flood Risk" and questions for the landlord to answer regarding the landlord's actual knowledge of past flooding of the property. The questions regarding the property being in a FEMA Special or Moderate Risk Flood Hazard Area shall not contain the option for "unknown." To determine how the questions are to be answered, FEMA's current flood insurance rate maps for the leased premises area must be consulted. The landlord will be required to answer whether the rental premises or any portions of the parking areas of the real property containing the rental premises ever experienced any flood damage, water seepage, or pooled water due to a natural flood event and, if so, the number of times that has occurred.

The notice to residential tenants must also indicate that flood insurance may be available to renters through FEMA's National Flood Insurance Program to cover their personal property and contents in the event of a flood and that standard renter's insurance does not typically cover flood damage.

For sales, the law also amends the New Jersey Consumer Fraud Act, N.J.S.A. 56:8-1 et seq., to require sellers of real property to disclose, on the property condition disclosure statement, whether the property is located in the FEMA Special or Moderate Risk Flood Hazard Area and any actual knowledge of the seller concerning flood risks of the property to the purchaser before the purchaser becomes obligated under any contract for the purchase of the property.

The disclosure statement must contain the heading "Flood Risk" and ask the seller the following questions:

- Is any or all of the property in the Special Flood Hazard Area ("100-year floodplain") or a Moderate Risk Flood Hazard Area ("500-year floodplain") according to FEMA's current flood insurance rate maps?
- Is the property subject to any requirement under federal law to obtain and maintain flood insurance on the property? Properties in the Special Flood Hazard Area with mortgages from federally regulated or insured lenders are required to obtain and maintain flood insurance.
- Have you ever received assistance from, or are you aware of any previous owners receiving assistance from FEMA, the U.S. Small Business Administration, or any other federal disaster flood assistance for flood damage on the property? For properties that have received flood disaster assistance, the requirement to obtain flood insurance passes down to all future owners.
- Is there flood insurance on the property? A standard homeowner's insurance policy typically does not cover flood damage.
- Is there a FEMA elevation certificate available for the property? If so, it must be shared with the buyer. An elevation certificate is a FEMA form, completed by a licensed surveyor or engineer, that provides critical information about the flood risk of the property and is used by flood insurance providers to determine the appropriate insurance rating for the property.
- Have you ever filed a claim for flood damage to the property with any insurance provider? If the claim was approved, what was the amount received?
- Has the property experienced any flood damage, water seepage, or pooled water due to a natural flood event, such as heavy rainfall, coastal storm surge, tidal inundation, or river overflow? If so, how many times?

Not all provisions of this law have become effective at the time of the writing of this plan.

Growth Management	No	-	-	-

How has or will this be integrated with the HMP and how does this reduce risk?

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Environmental Protection Ordinance(s)	Yes	Chapter 560-24 Conservation District and Chapter 466-19 – Single Use Plastics Ban, May 5, 2009	Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? Although not a comprehensive Environment Protection regulation, the Bird Sanctuary provides for the protection of Borough property between 111th and 117th Streets and between 2nd and 3rd Avenues, referred to as Stone Harbor Bird Sanctuary or Bird Sanctuary, is approximately 21+ acres of wetlands and maritime forest dedicated to being a bird sanctuary.				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention, Chapter 300, adopted by Borough Council on September 19, 2017 and amended April 17, 2018	Federal, State, County and Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? 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: Protect human life and health; Minimize expenditure of public money for costly flood control projects; Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; Minimize prolonged business interruptions; Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; Ensure that potential buyers are notified that property is in an area of special flood hazard; and Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.				
Wellhead Protection	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Other	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
PLANNING DOCUMENTS				
General/Comprehensive Plan	Yes	Master Plan, Land Use Plan Element, adopted by the Planning Board on June 22, 2009	Local	City Council
How has or will this be integrated with the HMP and how does this reduce risk? The Plan recognizes that the continued impact of hurricanes, storms and other natural consequences has eroded beaches, damaged dunes and infrastructure and destroyed natural habitats. The beaches are important for protecting the dunes and habitats, because they deflect the impact of the force of the water and minimize the size and strength of waves before they reach the dunes and lands further ashore. Beach replenishment returns the sands to the beaches so that they can continue to serve these functions. The Land Use Element also includes a Stone Harbor Action Plan that identifies tasks involving Ordinances, Master Plans and Specialty Plans & Public and Private Initiatives. Some of these tasks have been completed while others may be considered for actions in the HMP.				
Capital Improvement Plan	Yes	Annual Budget, 2025	Local	Borough Council
How has or will this be integrated with the HMP and how does this reduce risk? The municipal budget, which acts as the Borough's Capital Improvement Plan, includes various potential projects which may assist in hazard mitigation efforts.				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Disaster Debris Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Floodplain Management or Watershed Plan	Yes	The Stone Harbor Watershed Plan, November 2019	Local	City Council
How has or will this be integrated with the HMP and how does this reduce risk? The goals of the Stormwater Management Plan are to: • Evaluate future conditions and long-duration storms • Evaluate the impact of sea level rise and climate change • Identify wetlands and natural areas • Address the protection of natural channels Provide a dedicated funding source for implementing the plan				
Stormwater Management Plan	Yes	Stormwater Plan	Local	City Council
How has or will this be integrated with the HMP and how does this reduce risk? The Borough's Stormwater Master Plan addresses the two major causes of Borough-wide flooding and presents a comprehensive plan of stormwater management and flood hazard mitigation techniques to mitigate the repetitive losses to properties throughout the Borough. The main causes of flooding include: Above Normal Tide Levels; and Inadequacy of the existing stormwater conveyance system.				
Open Space Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Habitat Conservation Plan	Yes	Dune Vegetation Management Plan, dated June 2015	Local	City Council
How has or will this be integrated with the HMP and how does this reduce risk? Goals of the Plan include; • Establish a science-based approach to evaluating and managing/restoring dune vegetation, in a manner ensuring that the Borough receives the critical safety and ecological services that its dunes can provide. • Develop a Dune Vegetation Management Plan that addresses control of Japanese black pine and other damaging invasive plants, as appropriate, by its removal and replacement with native vegetation Provide management standards, techniques and recommended native plants that can be used for the vegetation restoration and enhancement component of the dune ecosystem				
Economic Development Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Community Forest Management Plan	Yes	Community Forest Management Plan, 2016-2020	Local	Shade Tree Committee
How has or will this be integrated with the HMP and how does this reduce risk? The CFMP establishes programs that recognize the unique nature of its tree resources and to plan future programs that will continue to enhance these resources. The Borough established goals and objectives compatible with its forestry planning process vision to protect forest and tree streetscapes.				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Transportation Plan	Yes	Master Plan, Land Use Plan Element, adopted by the Planning Board on June 22, 2009; Re-examined June 2019	Local	Planning Board
How has or will this be integrated with the HMP and how does this reduce risk? he circulation section of the Master Plan outlines the flow paths in and around the Borough. The primary issue in the Borough is traffic congestion.				
Agriculture Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Climate Action/ Resilience/Sustainability Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Tourism Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Other	Yes	Stormwater Pollution Prevention Plan (SPPP), dated May 25, 2011 & revised December 26, 2019	Local	City Council
How has or will this be integrated with the HMP and how does this reduce risk? The Plan addressed the Borough's ongoing compliance efforts with the MS4 regulations in the areas of Storm Drain Inlet Labeling; Outfall Mapping; Illicit Connections; Yard Waste Collection; Street Sweeping; Stormwater Facility Maintenance; Outfall Pipe Remediation; De-icing material storage; and Employee Training Requirements.				
RESPONSE/RECOVERY PLANNING				
Emergency Operations Plan	Yes	Emergency Operations Plan, 2025	Local	Emergency Management
How has or will this be integrated with the HMP and how does this reduce risk? The Emergency Operations Plan aims to assess the Township's ability to respond to emergency and identifies recommendations to improve its capacity to prepare and respond to future events. The plan address both short- and long-term recovery.				
Continuity of Operations Plan	Yes	Emergency Operations Plan, 2025	Local	Emergency Management
How has or will this be integrated with the HMP and how does this reduce risk? The Borough's COOP is located within its EOP. The COOP ensures essential functions continue during emergencies or disruptions by establishing policies to ensure that essential functions are sustained despite manmade, natural, or technological threats.				
Substantial Damage Response Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Threat and Hazard Identification and Risk Assessment	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Post-Disaster Recovery Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Public Health Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Other	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

12.3.2 DEVELOPMENT AND PERMITTING CAPABILITY

Table 12-3 summarizes the capabilities of Stone Harbor to oversee and track development.

Table 12-3. Development and Permitting Capability

	Yes/No	Comment
Do you issue development permits? • If you issue development permits, what department is responsible? • If you do not issue development permits, what is your process for tracking new development?	Yes	Zoning Board Construction Office
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain
Do you have a buildable land inventory? • If you have a buildable land inventory, please describe	No	-
Describe the level of buildout in your jurisdiction.	N/A	Borough is built-out and all new development is redevelopment

12.3.3 ADMINISTRATIVE AND TECHNICAL CAPABILITY

Table 12-4 summarizes potential staff and personnel resources available to Stone Harbor and their current responsibilities that contribute to hazard mitigation.

Table 12-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
ADMINISTRATIVE CAPABILITY		
Planning Board	Yes	The Planning Board consists of 7 members who are responsible to make and adopt and from time to time amend a Master Plan; administer the provisions of the Land Subdivision Ordinance and Site

Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
		Plan Review Ordinance; approve conditional use applications in accordance with the provisions of Chapter 560, Zoning; and participate in the preparation and review of programs or plans.
Zoning Board of Adjustment	Yes	The Zoning Board hears and decides appeals related to the enforcement of the Zoning Code. The Board has the power to grant variances.
Planning Department	No	-
Mitigation Planning Committee	Yes	Flood Mitigation Committee
Environmental Board/Commission	No	-
Open Space Board/Committee	Yes	County
Economic Development Commission/Committee	Yes	Council
Public Works/Highway Department	Yes	Public Works is responsible for waste collection, maintenance of Borough roads, stormwater management, and Borough buildings and grounds.
Construction/Building/Code Enforcement Department	Yes	The Stone Harbor Office of Code Enforcement reviews all applications and plans for compliance with the Borough Ordinances, the Uniform Construction Code Regulations, State of New Jersey International Building Code and the International Residential Code, the National Standard Plumbing Code, the National Electrical Code, NFPA 72, the International Mechanical Code, as adopted by New Jersey Department of Community Affairs, Codes and Standards, CAFRA and Department of Environmental Protection (DEP) Permits, Rules and Regulations.
Emergency Management/Public Safety Department	Yes	The OEM shares information related to emergency preparedness, response, mitigation, prevention, and recovery. Their job is to assist in assuring the community remains safe in the event of a disaster.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works. There is a continued maintenance of the 12 outfall pipes along the beachfront of the Borough by regularly cleaning and adding replacement sands to the area for Emergency Access.
Mutual aid agreements	Yes	Police/Fire/Public Works. The Borough is creating, enhancing, and maintaining mutual aid agreements with neighboring communities.
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
TECHNICAL/STAFFING CAPABILITY		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning Board, Kates Schneider Engineering, LLC – Planner & DeBlasio & Associates, - Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Construction Official and Borough Engineer
Planners or engineers with an understanding of natural hazards	Yes	Kates Schneider Engineering, LLC – Planner & DeBlasio & Associates, - Engineer

Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
Staff with expertise or training in benefit/cost analysis	Yes	CFO, Borough Engineer
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazus applications	Yes	Deblasio & Associates
Staff that work with socially vulnerable populations or underserved communities	No	-
Environmental scientists familiar with natural hazards	Yes	Dr Lenore Tedesco, The Wetlands Institute
Surveyors	Yes	Deblasio & Associates
Emergency manager	Yes	Jonathan Lakose, OEM Director, Roger Stanford, Deputy
Grant writers	Yes	DeBlasio & Associates
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

12.3.4 FISCAL CAPABILITY

Table 12-5 summarizes financial resources available to Stone Harbor.

Table 12-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvement 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	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

12.3.5 EDUCATION AND OUTREACH CAPABILITY

Table 12-6 summarizes the education and outreach resources available to Stone Harbor.

Table 12-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment
Public information officer or communications office	Yes	Jenny Olson, Tourism Director/PIO
Personnel skilled or trained in website development	Yes	Joyce Media/Jenny Olson, Tourism Director
Hazard mitigation information available on your website	Yes	Flood Information Tab that provides all aspects within CRS
Social media for hazard mitigation education and outreach	Yes	Storm Notification, Hurricane Awareness and Preparedness, Links to FEMA Funding
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Flood Mitigation Committee - Council, Environmental Specialists, Engineers, Public Works, Construction, OEM and Private Citizens
Warning systems for hazard events	Yes	Fire Department & OEM. The Borough is maintaining flood siren warning systems throughout the Borough to alert residents in the event of an emergency.
Natural disaster/safety programs in place for schools	No	Left to schools' discretion
Organizations that conduct outreach to socially vulnerable populations and underserved populations	Yes	American Legion
Public outreach mechanisms / programs to inform citizens on natural hazards, risk, and ways to protect themselves during such events	Yes	Stone Harbor Emergency Website – CODE RED Notification

12.3.6 COMMUNITY CLASSIFICATIONS

Table 12-7 summarizes classifications for community programs available to Stone Harbor.

Table 12-7. Community Classifications

Program	Participating? (Yes/No)	Classification	Date Classified
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	3	2019
National Weather Service StormReady Certification	No	-	-
Firewise Communities classification	No	-	-
New Jersey Sustainable Jersey Community	Yes	Silver	December 13, 2017
Other: Organizations with mitigation focus (advocacy group, non-government)	No	-	-

N/A = Not applicable

— = Unavailable

12.3.7 ADAPTIVE CAPACITY

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2022). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. Table 12-8 summarizes the adaptive capacity for each identified hazard of concern and the Borough's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement

Table 12-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak
Dam Failure	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Strong - Borough is familiar with areas which may experience flooding and how to mitigate these risks
Severe Weather	Strong – Borough DPW is familiar with preparedness actions to take prior to storms. Utility companies trim back trees on scheduled basis.
Severe Winter Weather	Strong – Borough DPW has plans in place and are familiar with preparedness action to take prior to a storm.
Wildfire	Moderate

12.4 NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the National Flood Insurance Program (NFIP). The floodplain administrator listed in Table 12-1 is responsible for maintaining this information.

12.4.1 NFIP STATISTICS

Table 12-9 summarizes the NFIP policy and claim statistics for Stone Harbor.

Table 12-9. Stone Harbor NFIP Summary of Policy and Claim Statistics

# Policies	2,086
# Claims (Losses)	1,492
Total Loss Payments	$21,670,607.96
# Repetitive Loss Properties (NFIP definition)	124
# Repetitive Loss Properties (FMA definition)	2
# Severe Repetitive Loss Properties (NFIP definition)	24
# Severe Repetitive Loss Properties (FMA definition)	40

NFIP Definition of Repetitive Loss: The NFIP defines a repetitive loss property as any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period since 1978.

FMA Definition of Repetitive Loss: FEMA's Flood Mitigation Assistance (FMA) program defines a repetitive loss property as any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

Definition of Severe Repetitive Loss: A residential property covered under an NFIP flood insurance policy and: (a) That has at least four NFIP claim payments over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or (b) For which at least two separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. At least two of the claims must have occurred within any 10-year period, more than 10 days apart.

Source: FEMA, 2024

12.4.2 FLOOD VULNERABILITY SUMMARY

Table 12-10 provides a summary of the NFIP program in Stone Harbor.

Table 12-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction.	A major portion of the developed area of the community is in the Special Flood Hazard Area with the areas most prone to flooding along the back bay and most specifically the Northern end of town.
Do you maintain a list of properties that have been damaged by flooding?	Yes, the Borough maintains a list of properties that have been damaged by flooding.
Do you maintain a list of property owners interested in flood mitigation?	No, not at this time.
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown, at this time.
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what projects are underway.	Yes, The Planning Board and Engineer are drafting an Ordinance addressing the areas mentioned above to establish an Overlay Zone and Borough Engineer's Office is currently assessing a Storm Water/ Nuisance Flooding, mitigation plan to help control storm water in these areas.
How do you make Substantial Damage determinations?	By comparing the estimated costs to repair the damage to the estimated market value of the structure. The Borough's SD Threshold is 40%.

NFIP Topic	Comments
How many Substantial Damage determinations were declared for recent flood events in your jurisdiction?	There haven't been any recent declared flood events since Winter Storm Jonas and before that Superstorm Sandy.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? If there are mitigation properties, how were the projects funded?	There are roughly an average of 30 homes demolished and new homes rebuilt each year in the Borough. All these homes are constructed to the Borough's current Flood Damage Prevention Ordinance through private funding.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes, the flood hazard maps adequately address flood risk within the Borough.
NFIP Compliance	
What local department is responsible for floodplain management?	Construction/Zoning
Are any certified floodplain managers on staff in your jurisdiction?	Yes, three are certified floodplain managers on staff at the Borough.
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes, the Borough has access to resources to determine future flooding conditions.
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Not at this time, however, the current Flood Plain Administrator will be retiring this year in a few months, and the replacements may need assistance and/or training.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	We provide community outreach through education, site visit inspections, permitting review, internet mapping assistance, emergency management warning systems, etc.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Much the same as discussed above regarding Substantial Damage assessments, by comparing the cost of improvements to the market value. If the improvements equal or exceed 40% the market value over the previous ten year period, it is then a substantial improvement.
What are the barriers to running an effective NFIP program in the community, if any?	The only barrier in my opinion is the age and importance of the downtown Business District. This area has the highest percentage of RL structures but with the existing infrastructure, it is the hardest area to mitigate.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No, not at this time.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	We are currently in the process of completing a CAC.
What is the local law number or municipal code of your flood damage prevention ordinance?	Chapter 300.
What is the date that your flood damage prevention ordinance was last amended?	Effective Date, May 30, 2023
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Chapter 300 exceeds minimum requirements in that the SD/SI Threshold is 40% with a ten year look back. Additionally, freeboard is the Higher of 12' or BFE +3 to name a couple. There is also Flood Plain Inspection requirements for all construction regardless of scale of work and resale of properties.

NFIP Topic	Comments
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Both the Planning and Zoning Boards take the requirements of the Borough's Flood Prevention Ordinance very seriously when reviewing applications before either Board. Additionally, the Zoning Ordinance, Chapter 560 references the Flood Plain Ordinance Chapter 300 for various site and structure conditions.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Absolutely, The Borough is a Class 5 looking to increase this to a Class 4 or better in the future.

12.5 GROWTH/DEVELOPMENT TRENDS

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Recent and expected future development trends, including major residential/commercial development and major infrastructure development, are summarized in Table 12-11 through Table 12-13.

Table 12-11. Number of Building Permits for New Construction Issued Since the Previous HMP

	New Construction Permits Issued			
	Single Family	Multi-Family	Other (commercial, mixed-use, etc.)	Total
2020				
Total Permits	37	0	0	37
Permits within SFHA	37	0	0	37
2021				
Total Permits	35	0	1	36
Permits within SFHA	35	0	1	36
2022				
Total Permits	36	0	0	36
Permits within SFHA	36	0	0	36
2023				
Total Permits	33	0	0	33
Permits within SFHA	33	0	0	33
2024				
Total Permits	40	0	0	40
Permits within SFHA	40	0	0	40

SFHA = Special Flood Hazard Area (1% flood event)

Table 12-12. Recent Major Development and Infrastructure from 2017 to Present

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
No recent major development.					

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

Table 12-13. Known or Anticipated Major Development and Infrastructure in the Next Five Years

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
No known or anticipated major development.					

12.6 JURISDICTIONAL RISK ASSESSMENT

The hazard profiles in Volume I provide detailed information regarding each planning partner's vulnerability to the identified hazards, including summaries of Stone Harbor's risk assessment results and data used to determine the hazard ranking. Key local risk assessment information is presented below.

12.6.1 HAZARD AREA

Hazard area maps provided below illustrate the probable hazard areas impacted within the Borough are shown in Figure 12-1 through Figure 12-2 These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps are provided only for hazards that can be identified clearly using mapping techniques and technologies and for which Stone Harbor has significant exposure. The maps show the location of potential new development, where available.

Figure 12-1. Stone Harbor Sea Level Rise and Flood Hazard Area Extent and Location Map

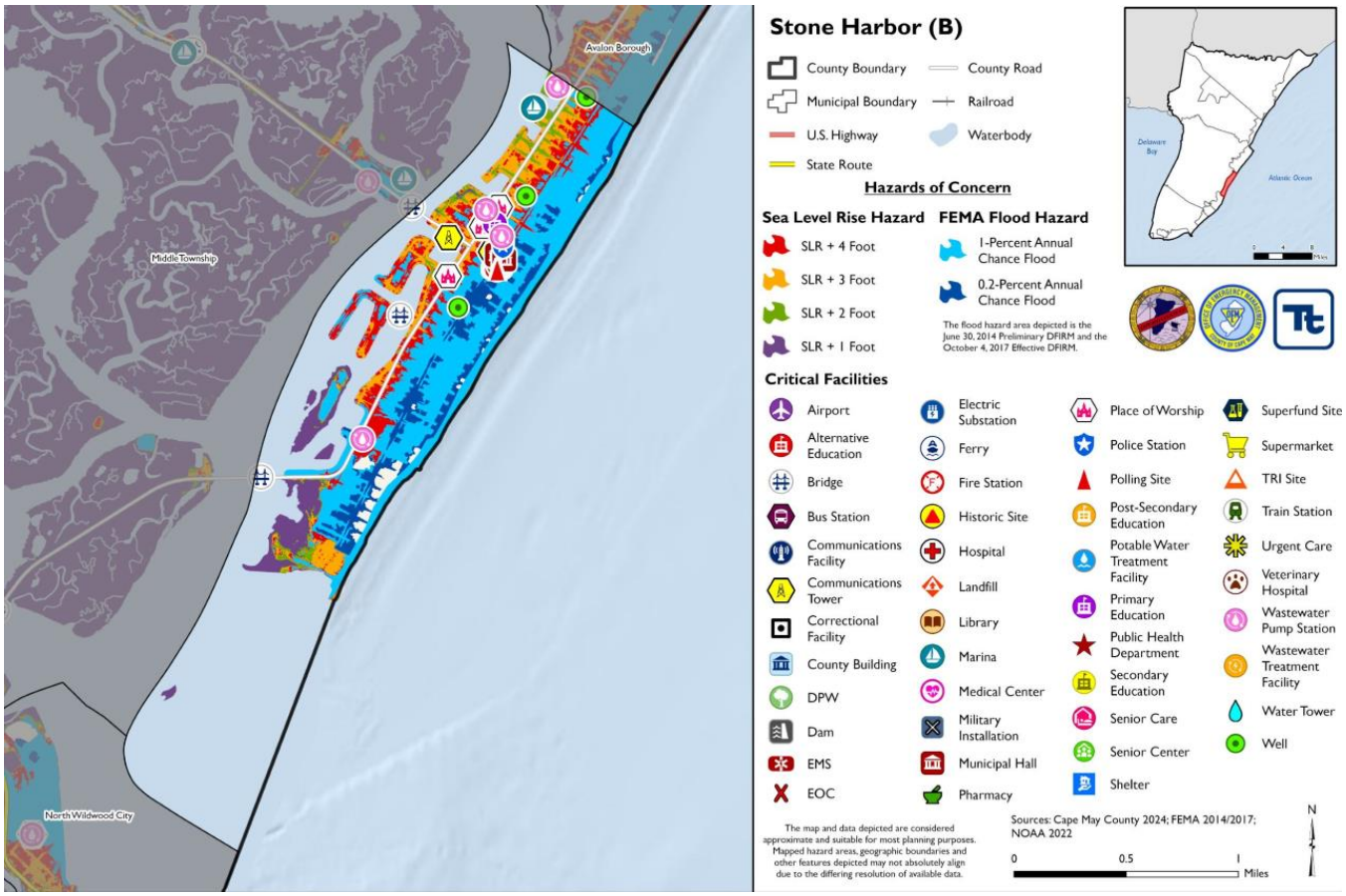


Figure 12-2. Stone Harbor SLOSH Hazard Area Extent and Location Map

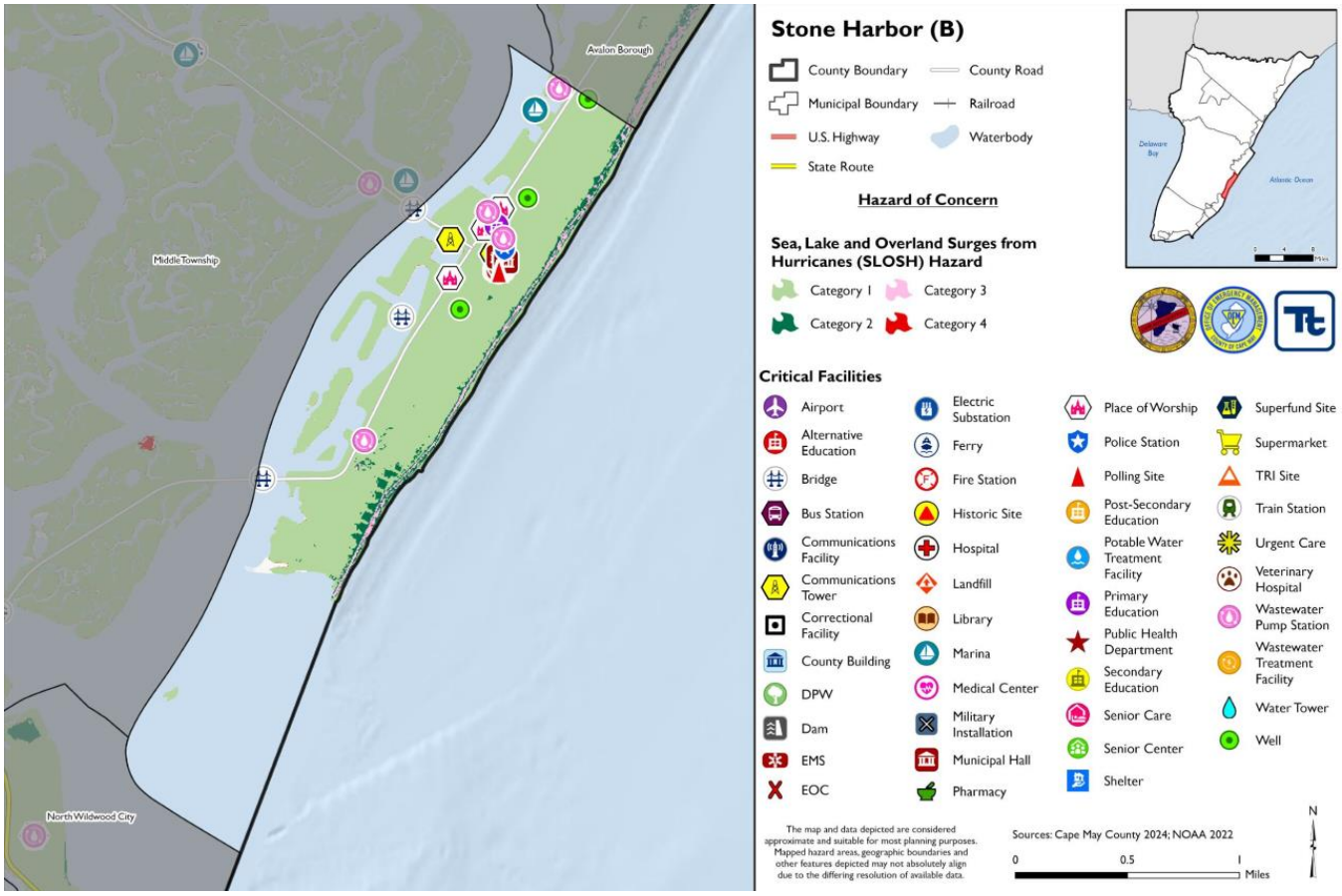
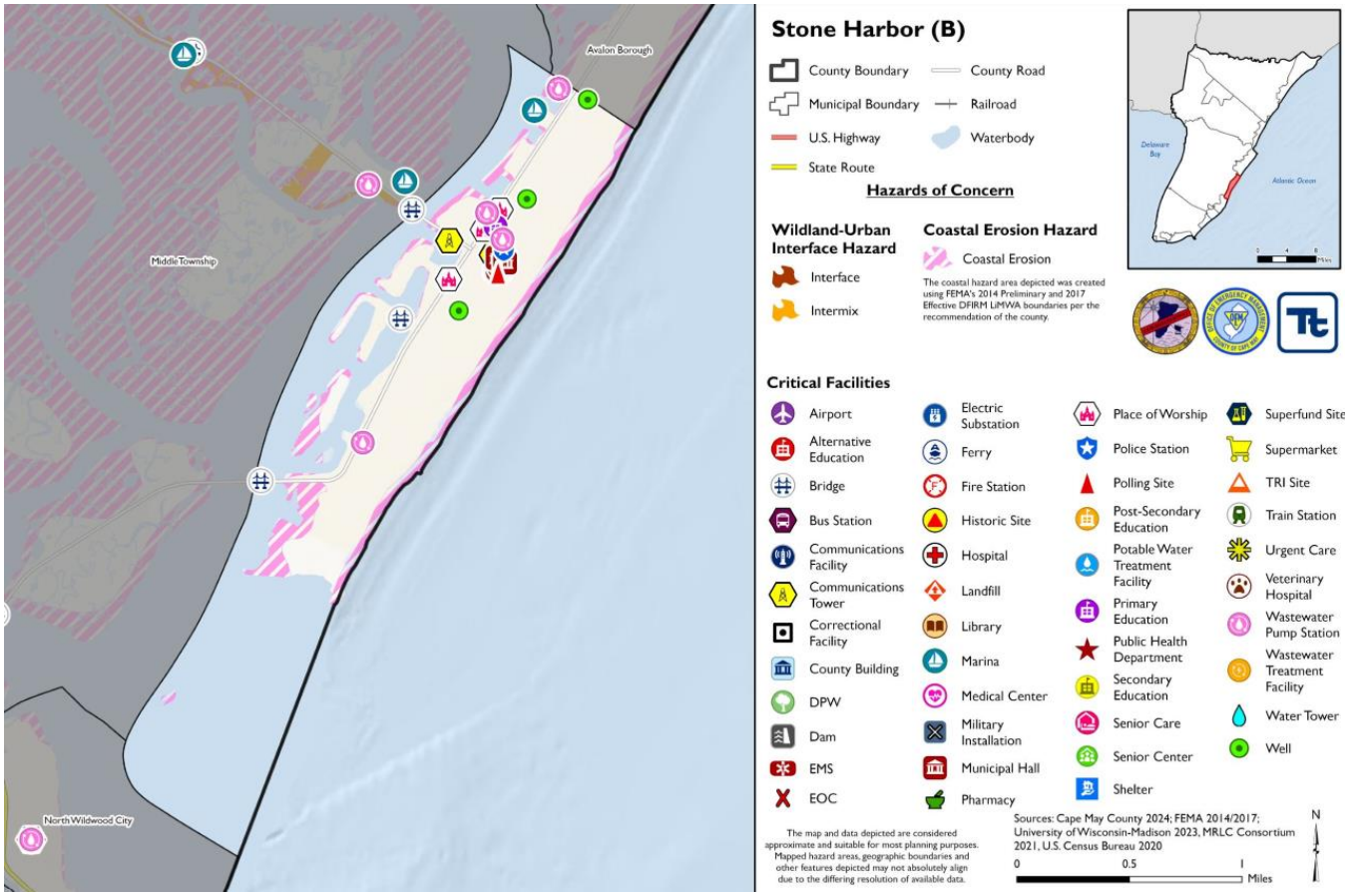


Figure 12-3. Stone Harbor WUI and Coastal Erosion Hazard Area Extent and Location Map



12.6.2 HAZARD EVENT HISTORY

The history of natural and non-natural hazard events in Stone Harbor is detailed in Volume I, where each hazard profile includes a chronology of historical events that have affected the County and its municipalities. Table 12-14 provides details on loss and damage in Stone Harbor during hazard events since the last hazard mitigation plan update.

Table 12-14. Hazard Event History in Stone Harbor

Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses in Stone Harbor
February 11, 2021	Severe Winter Weather (4597-DR-NJ)	Yes	Widespread snow fell and accumulate between 3 to 5 inches across the County, with some amounts locally a little higher. The County was eligible for Public Assistance through Federal Declaration.	Councilmember Parzych brought up the loss of beach between 104th and 111th streets during the last storm. Administrator has had inquiries about plans for readjusting sand and on-site replenishment

Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses in Stone Harbor
September 1-3, 2021	Remnants of Hurricane Ida (EM-3573-NJ, DR-4614-NJ)	Yes	The remnants of Hurricane Ida produced heavy rainfall through the County. The County was eligible for Public Assistance through Federal Declaration.	No damages reported, did require SHFD to declare a severe weather standby and call-in volunteers
January 3, 2022	Severe Winter Weather, Flood	No	A quick moving winter storm impacted Cape May County where a widespread 6 to 12 inches of snow fell. Moderate coastal flooding in the tidal areas of Cape May County occurred around the time of the morning high tide causing numerous road closures.	SHFD declared a severe weather standby and called in volunteers. Plowing and snow removal by Public Works.
April 1, 2023	Severe Weather	No	Thunderstorms produced damaging winds and small to medium-sized hail. Multiple trees downed on Corson Tavern Road and Route 9 in Dennis Township. A structure fire was caused by lightning in Rio Grande.	No damages or losses included.
September 23, 2023	Severe Weather	No	Tropical Storm Ophelia resulted in a steady onshore flow along the coast, causing widespread tidal flooding. There were numerous road closures. Many homes and other buildings were surrounded by flood waters with some minor property damage occurring.	Beaches experienced moderate sand loss.
January 19, 2024	Severe Winter Weather	No	A winter storm brought widespread light to moderate snowfall accumulations across the region. Snowfall totals ranged largely from around 3 to 4 across much of the zone. The highest snowfall report was from Dennis Township with 4.9.	No damages or losses included.

EM = Emergency Declaration (FEMA)
FEMA = Federal Emergency Management Agency
DR = Major Disaster Declaration (FEMA)
N/A = Not applicable

12.6.3 HAZARD RANKING AND VULNERABILITIES

The hazard profiles in Volume I have detailed information regarding each planning partner's vulnerability to the identified hazards. The following presents key risk assessment results for Stone Harbor .

12.6.3.1 HAZARD RANKING

The participating jurisdictions have differing degrees of vulnerability to the hazards of concern, so each jurisdiction ranked its own degree of risk to each hazard. The community-specific hazard ranking is based on problems and impacts identified by the risk assessment presented in Volume I. The ranking process involves an assessment of the likelihood

of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; community capabilities to address the hazard; and changing future climate conditions. Stone Harbor reviewed the County hazard ranking and individual results to assess the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Borough indicated the following:

- There is no risk to dam failure for the Borough as there are no dams in the vicinity.
- There is little to no risk to drought hazard for the Borough as there is little impact to the economy.

Table 12-15 shows Stone Harbor's final hazard rankings for identified hazards of concern. Mitigation action development uses the ranking to target hazards with the highest risk.

Table 12-15. Hazard Ranking

Hazard	Rank
Dam Failure	Low
Drought	Low
Earthquake	Low
Extreme Temperature	Medium
Flood	High
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

Note: The scale is based on the hazard rankings established in Volume I, modified as appropriate based on review by the jurisdiction

12.6.3.2 CRITICAL FACILITIES

Table 12-16 identifies critical facilities in the community located in the 1 percent and 0.2 percent annual chance floodplains.

Table 12-16. Critical Facilities Flood Vulnerability

Name	Type	Vulnerability	
		1% Annual Chance Event	0.2% Annual Chance Event
No Name	Communications Tower	Y	Y
No Name	Communications Tower	Y	Y
104th. Street Bridge	Bridge	Y	Y
Stone Harbor Branch Library	Library	Y	Y
STONE HARBOR VOLUNTEER FIRE DEPARTMENT	Fire Station	N	Y
Stone Harbor Public Marina	Marina	Y	Y

Name	Type	Vulnerability	
		1% Annual Chance Event	0.2% Annual Chance Event
81St St Pump Station	Wastewater Pump Station	Y	Y
Stone Harbor Communications Tower	Communications Tower	Y	Y
Stone Harbor Well 1	Well	Y	Y
Stone Harbor Well 2	Well	Y	Y
Stone Harbor Well 3	Well	N	Y
Stone Harbor Wastewater Pump Station 1	Wastewater Pump Station	Y	Y
Stone Harbor Wastewater Pump Station 2	Wastewater Pump Station	Y	Y
Stone Harbor Police Department	Police Station	N	Y
STONE HARBOR RESCUE SQUAD	EMS	N	Y
Stone Harbor	Municipal Hall	Y	Y
BORO OF STONE HARBOR Municipal Hall	Municipal Hall	N	Y
Stone Harbor Wastewater Pump Station 3	Wastewater Pump Station	Y	Y
No Name	Communications Tower	Y	Y
No Name	Communications Tower	Y	Y
Our Savior Lutheran Church	Place of Worship	Y	Y
St Mary's Episcopal Church	Place of Worship	Y	Y
St Paul's Roman Catholic Church	Place of Worship	Y	Y
Stone Harbor Library	Library	N	Y
Stone Harbor Elementary School	Primary Education	Y	Y
STONE HARBOR FIRE HOUSE	Polling Site	N	Y

Source: Cape May County 2022, 2024; HIFLD 2024; USACE 2024

In addition to critical facilities that are exposed to flooding, there are no dams or high hazard dams located in the Borough of Stone Harbor.

12.6.4 IDENTIFIED ISSUES

After review of Stone Harbor's hazard event history, hazard rankings, hazard location, and current capabilities, Stone Harbor identified the following vulnerabilities within the community:

- In 2020, Borough representatives joined the NJ Office of Planning Advocacy, NJ Department of Environmental Protection, and FEMA Region II in the development of land use strategies to mitigate natural hazards in the Borough. The initiative examined the Borough's land development regulations and collaboratively developed recommendations to mitigate flood risk. While Stone Harbor's flood development regulations exceed NFIP requirements, further improvements were acknowledged as critical for fostering resiliency.

- The bayfront areas of Stone Harbor are the Borough's lowest developed areas. Flooding is evident in these areas with water levels as little as one foot above typical high tide. During rain events in conjunction with high tides, runoff cannot discharge through back bay outfalls.
- The Borough's Boat Ramp at 81st Street is located at elevation 4.0 NAVD88 datum. Floodwaters enter through a boat ramp resulting in flooding of marina parking lot and surrounding area.
- Tidal water floods roadways by entering bayside outfalls. Tidal water then backs up through stormwater pipes and inlets and onto streets, causing nuisance flooding. Duck bill valves are currently in place on outfalls to prevent backflow, but do not close during storm events.
- Stone Harbor has a number of repetitive loss, severe repetitive loss, and substantially damaged properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. Progress has been made on elevating buildings and reconstructing new buildings that are more resistant to flooding.
- Numerous critical facilities and lifelines in Stone Harbor are located in the Special Flood Hazard Area. The facilities provide crucial services to Stone Harbor and require elevation and floodproofing to continue providing service during future flooding events.
- Benefit cost analyses help identify and prioritize projects that protect people and property. With climate change and sea level rise posing increasing risks to the Borough, benefit cost analysis training has been identified as a need to assist Borough officials with determining what kinds of infrastructure projects should be pursued.
- The Borough has US Army Corps of Engineers-replenished beaches and receives periodic maintenance refurbishments funded by the Borough and NJDEP. Given existing inefficiencies and the maintenance need, alternatives and innovations to existing replenishment projects are desired to help the Borough retain sand for its beaches and dunes.
- Stone Harbor is low-lying and continually experiences nuisance flooding aggravated by stormwater conditions. Drainage improvements have been undertaken throughout the Borough though new and proposed improvements continue to be identified per the Watershed Management Plan and capital improvement plan.
- Ocean Drive/Third Avenue in Avalon and Stone Harbor is a major thoroughfare connecting the communities and is the longest and busiest roadway in Avalon and Stone Harbor that is most vulnerable to flooding. Flooding impacts begin with a flood event bringing water levels just one foot above high tide. The removal of outfalls is currently in the design phase. The Borough is currently at 60% Design of new Stormwater Pump Station at 93rd & Third Ave.
- The Stone Harbor Elementary School lacks a back-up generator. The School is a designated critical facility.
- The Borough lacks a debris management plan.

12.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses the status of mitigation actions from the previous HMP, describes proposed hazard mitigation actions, and prioritizes actions to address over the next five years.

12.7.1 PAST MITIGATION ACTION STATUS

Table 12-17 indicates progress on the Borough's mitigation strategy identified in the 2017 HMP. Actions that are still recommended but not completed or that are in progress are carried forward and combined with new actions as part of the mitigation strategy for this plan update. Previous actions that are now ongoing programs and capabilities are indicated as such and are presented in the capability assessment earlier in this annex.

12.7.2 ADDITIONAL MITIGATION EFFORTS

In addition to the mitigation actions completed in Table 12-17, Stone Harbor identified the following mitigation efforts completed since the last HMP:

- Installation of flood cameras on 96th Street Bridge and on 81st Street Boat Ramp.

Since the adoption of the County's first HMP, Stone Harbor has made significant mitigation progress in the following areas:

- Grant writing
- Stormwater maintenance
- Planning and engineering

Table 12-17. Status of Previous Mitigation Actions

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-001	Stone Harbor Hazard Mitigation Initiatives for Land Development	All Natural Hazards	Stone Harbor Administration; NJDEP; NJOPA; FEMA Region II	Problem: In 2020, Borough representatives joined the NJ Office of Planning Advocacy, NJ Department of Environmental Protection, and FEMA Region II in the development of land use strategies to mitigate natural hazards in the Borough. The initiative examined the Borough's land development regulations and collaboratively developed recommendations to mitigate flood risk. While Stone Harbor's flood development regulations exceed NFIP requirements, further improvements were acknowledged as critical for fostering resiliency. Solution: The Borough proposes to implement three land use practices: overlay zoning, critical infrastructure protection, and modifying required development application submittals to consider hazards.	1. In Progress 2. Council, Planning Board and Borough Engineer are working to complete recommendations outlined in "Solution" below.	1. Included 2. TBD based on progress of Action Review 3. N/A
2021-StoneHarbor-002	Bayside Stormwater Pump Station	Flood, Severe Weather	Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works	Problem: The bayfront areas of Stone Harbor the Borough's lowest lying developed areas. Flooding is evident in these areas with water levels as little as one foot above typical high tide. During rain events in conjunction with high tides, runoff cannot discharge through back bay outfalls. Solution: The Borough proposes to construct a bayside stormwater pump station to pump runoff out of flooded streets. Outfalls will also be re-routed to facilitate drainage.	1. Progress 2. Completed schematic design for locations selected	1. Included 2. Funding request will be made to FEMA in Spring of 2025 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-003	Boat Ramp Marina Raising	Flood, Severe Weather	Borough Engineer/Borough Floodplain Manager/Director of Public Works	Problem: The Borough's Boat Ramp at 81st Street is located at elevation 4.0 NAVD88 datum. Floodwaters enter through boat ramp resulting in flooding of marina parking lot and surrounding area. Solution: The Borough proposes to remove and elevate boat ramp to 6.0 feet and add a flood gate to allow functional use of the ramp and enabling closures during surge events.	1. Progress 2. Ramp schematic design is complete	1. Included 2.Funding request will be made to FEMA in Spring of 2025 3. N/A
2021-StoneHarbor-004	Bayside Outfall Tide Closure Valves	Flood, Severe Weather	Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works	Problem: Tidal water floods roadways by entering bayside outfalls. Tidal water then backs up through stormwater pipes and inlets and onto streets, causing nuisance flooding. Duck bill valves are currently in place on outfalls to prevent backflow, but do not close during storm events. Solution: Install automated (mechanical) tide valves that close during high tides.	1. Progress 2. Outfall valves have been located and designed	1. included 2. Funding request will be made to FEMA in Spring of 2025 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-005	Property Mitigation Support – Retrofit	Flood, Severe Weather	Floodplain Administrator, Homeowners	Problem: Stone Harbor has a number of repetitive loss, severe repetitive loss, and substantially damaged properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. Progress has been made on elevating buildings and reconstructing new buildings that are more resistant to flooding. Solution: Where appropriate, support retrofitting (e.g. elevation) of structures located in hazard-prone areas to protect structures from future damage, with substantial damages, 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.	1. Progress 2. Focus on reconstructing new buildings continues to move forward. Progress hindered by staffing and financial resources	1. Include 2. Current wording is still applicable 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-006	Critical Facilities Retrofit	Flood, Severe Weather	Borough (likely through NFIP Floodplain Administrator); working with facility manager/operator	Problem: Numerous critical facilities and lifelines in Stone Harbor are located in the Special Flood Hazard Area. The facilities provide crucial services to Stone Harbor and require elevation and floodproofing to continue providing service during future flooding events. Solution: Design and construct improvements to critical facilities or construct new critical facilities that are floodproofed to the 500-year base flood elevation and higher.	1. No Progress 2. Lack of financial resources and manpower	1. Include 2. No change to wording 3. N/A
2021-StoneHarbor-007	Benefit Cost Analysis Training	All Natura l Hazards	Borough (primarily through NFIP Floodplain Administrator and Engineering); FEMA	Problem: Benefit cost analyses help identify and prioritize projects that protect people and property. With climate change and sea level rise posing increasing risks to the Borough, benefit cost analysis training has been identified as a need to assist Borough officials with determining what kinds of infrastructure projects should be pursued. Solution: Train staff or acquire contract support for benefit-cost analysis.	1. No Progress 2. Lack of financial resources and manpower	1. Include 2. No change to wording 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-008	Beach Replenishment Innovations	Coastal Erosion	NJDEP with Borough support	Problem: The Borough has US Army Corps of Engineers-replenished beaches and receives periodic maintenance refurbishments funded by the Borough and NJDEP. Given existing inefficiencies and the maintenance need, alternatives and innovations to existing replenishment projects are desired to help the Borough retain sand for its beaches and dunes. Solution: Continue to support beach replenishment activities from 98th to 111th Streets and explore innovative options for replenishment.	1. In Progress 2. Herford Inlet dredging is now permitted should aid in reducing cost of future replenishment projects	1. Included 2. no change in wording 3. N/A
2021-StoneHarbor-009	Stormwater Management Enhancements	Flood, Severe Weather	Borough Engineer	Problem: Stone Harbor is low-lying and continually experiences nuisance flooding aggravated by stormwater conditions. Drainage improvements have been undertaken throughout the Borough though new and proposed improvements continue to be identified per the Watershed Management Plan and capital improvement plan. Solution: Continue stormwater drainage improvements throughout the Borough to increase capacity.	1. Progress 2. ongoing, roads have been raised where and when possible. Completed schematic design for selected areas	1. Included 2. Continue to improve as capital project are planned and implemented. Funding request will be made to FEMA in Spring 2025 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-010	Seven Mile Island CR-619 Stormwater Improvements (See 2021-CapeMayCounty-018)	Flood, Severe Weather	County Engineering with municipalities	Problem: Ocean Drive/Third Avenue in Avalon and Stone Harbor is a major thoroughfare connecting the communities and is the longest and busiest roadway in Avalon and Stone Harbor that is most vulnerable to flooding. Flooding impacts begin with a flood event bringing water levels just one foot above high tide. The removal of outfalls is currently in the design phase. The Borough is currently at 60% Design of new Stormwater Pump Station at 93rd & Third Ave. Solution: Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. Seven stormwater pump stations were installed along CR-619 from Avalon Boulevard to 19th Street (Avalon business district) to address flooding in this area.	1. Progress 2. CMC has completed all of the storm infrastructure. In SH the 93rd Street pump station schematic design are completed.	1. Include 2. Funding request for 93rd street is included in the FEMA Spring 2025 request 3. N/A
2021-StoneHarbor-011	SHES Generator	All Natural Hazards	School Board; with Borough support as appropriate	Problem: The Stone Harbor Elementary School lacks a back-up generator. The School is a designated critical facility. Solution: Support installation of back-up generator at SH School.	1. No Progress 2. Financial obstacle	1. Include 2. same wording 3. N/A

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-StoneHarbor-012	Flood Cameras	Flood, Severe Weather	Borough Administration	Problem: The Borough carefully tracks flooding owing to its vulnerability. Several problem areas in the Borough are bellwethers for flooding in the Borough and region as a whole. The ability to remotely sense and view flooding would support life safety and emergency management efforts. Solution: The Borough seeks to install flood cameras at the 96th Street bridge and at the 81st Street boat ramp.	1. Complete 2. Cameras were installed	1. Discontinue 2. cameras installed 3. Completed
2021-StoneHarbor-013	Stone Harbor Boulevard Elevation	Flood, Severe Weather	County Engineering, with local support	Problem: Stone Harbor Boulevard (CR-657) is the principal access point into the Borough and stretches from Exit 10 into Stone Harbor proper. The roadway is vulnerable to tidal flooding at levels that exceed two feet above typical high tide. The roadway sees between 5,000 and 6,000 vehicles on average each day and is an evacuation route. Solution: Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor up to the base flood elevation.	1. No progress 2. N/A	1. Include 2. Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor up to the base flood elevation. 3. N/A
2021-StoneHarbor-014	Disaster Debris Management Plan	All Natural Hazards	Borough Administration	Problem: The Borough lacks a debris management plan. Solution: The Borough will develop and adopt a Disaster Debris Management Plan.	1. No Progress 2. Plan will be developed by the Director of Public Works	1. Include 2. No wording change 3. N/A

12.7.3 PROPOSED HAZARD MITIGATION ACTIONS FOR THE HMP UPDATE

Stone Harbor participated in the mitigation strategy workshop for this HMP to identify appropriate actions to include in a local hazard mitigation strategy. Its comprehensive consideration of all possible activities to address hazards of concern included review of the following FEMA documents:

- FEMA 551 "Selecting Appropriate Mitigation Measures for Floodprone Structures" (March 2007)
- FEMA "Mitigation Ideas—A Resource for Reducing Risk to Natural Hazards" (January 2013).

The action worksheets included at the end of this annex list the mitigation actions that Stone Harbor would like to pursue in the future to reduce the effects of hazards. The actions 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 Borough priorities.

Table 12-18 indicates the range of proposed mitigation action categories. The four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Volume I identifies 14 evaluation criteria for prioritizing the mitigation actions. To assist with rating each mitigation action as high, medium, or low priority, a numeric rank is assigned (-1, 0, or 1) for each of the evaluation criteria. Table 12-19 provides a summary of the prioritization of all proposed mitigation actions for the HMP update.

Table 12-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Actions That Address the Hazard, by Action Category									
	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Drought	X	X		X		X	X			X
Earthquake	X	X		X		X	X			X
Extreme Temperature	X	X		X		X	X			X
Flood	X	X		X		X	X		X	X
Severe Weather	X	X		X		X	X		X	X
Severe Winter Weather	X	X		X		X	X			X
Wildfire	X	X		X		X	X			X

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 structures to reduce the impact of hazards.

Natural Systems Protection (NSP)—These are actions that minimize damage and losses and 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

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 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 12-19. Summary of Prioritization of Actions

Project Number	Project Name	Scores for Evaluation Criteria															High / Medium / Low
		Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Local Objectives	Total	
2025-Stone Harbor-01	Stone Harbor Hazard Mitigation Initiatives for Land Development	1	1	1	1	1	1	0	1	1	1	1	1	1	1	**13**	High
2025-Stone Harbor-02	Bayside Stormwater Pump Station	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-03	Boat Ramp Marina Raising	0	1	1	1	1	0	0	0	0	1	1	1	0	1	**8**	Medium
2025-Stone Harbor-04	Bayside Outfall Tide Closure Valves	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-05	Property Mitigation Support – Retrofit	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-06	Critical Facilities Retrofit	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-07	Benefit Cost Analysis Training	1	1	1	1	1	1	0	0	1	1	0	0	0	1	**9**	Medium
2025-Stone Harbor-08	Beach Replenishment Innovations	0	1	1	1	1	0	1	0	0	1	1	1	0	1	**9**	Medium
2025-Stone Harbor-09	Stormwater Management Enhancements	1	1	1	1	1	0	1	1	1	1	1	1	1	1	**13**	High
2025-Stone Harbor-10	Seven Mile Island CR-619 Stormwater Improvements	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-11	SHES Generator	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High
2025-Stone Harbor-12	Stone Harbor Boulevard Elevation	1	1	1	1	1	0	0	1	1	1	1	1	1	1	**12**	High

Project Number	Project Name	Scores for Evaluation Criteria															High / Medium / Low
		Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Local Objectives	Total	
2025-Stone Harbor-13	Disaster Debris Management Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	1	**13**	High

Note: Volume I, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

Action 2025-Stone Harbor-01. Stone Harbor Hazard Mitigation Initiatives for Land Development

Lead Agency:	Stone Harbor Administration	
Supporting Agencies:	NJDEP; NJOPA; FEMA Region II	
Hazards of Concern:	All Natural Hazards	
Description of the Problem:	In 2020, Borough representatives joined the NJ Office of Planning Advocacy, NJ Department of Environmental Protection, and FEMA Region II in the development of land use strategies to mitigate natural hazards in the Borough. The initiative examined the Borough's land development regulations and collaboratively developed recommendations to mitigate flood risk. While Stone Harbor's flood development regulations exceed NFIP requirements, further improvements were acknowledged as critical for fostering resiliency.	
Description of the Solution:	The Borough Council, Planning Board, and Engineer will continue to work on implementing three land use practices: overlay zoning, critical infrastructure protection, and modifying required development application submittals to consider hazards.	
Estimated Cost:	Low	
Potential Funding Sources:	Staff time	
Implementation Timeline:	Medium (1-5 years)	
Goals Met:	1, 2, 3, 4, 5	
Benefits:	High ($100,000)	
Impact on Socially Vulnerable Populations:	These land use practices will help uniformly all residents within the Borough and will lower risk to flood hazards.	
Impact on Future Development:	This action will help to mitigate flooding on future development which will adhere to higher land use regulatory practices.	
Impact on Critical Facilities/Lifelines:	Critical facilities which were previously vulnerable to flooding will have the potential to mitigate against flood impacts through new land use regulations and planning.	
Impact on Capabilities:	This action will increase the regulatory capabilities of the Borough to lessen risk of flooding impacts to infrastructure and people.	
Climate Change Considerations:	As climate continues to change, the severity and frequency of flooding and severe weather events will increase. This action will work towards mitigating future risk by adopting higher regulatory practices and standards.	
Mitigation Category	Local Plans and Regulations	
CRS Category	Property Protection	
Priority	High	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Remove Critical Infrastructure	Not an option, loss of critical services for residents.
	Do not allow development application submittal modifications	Then additional hazards cannot be addressed, such as flooding concerns. Problem persists.

Action 2025-Stone Harbor-02. Bayside Stormwater Pump Station

Lead Agency:	Borough Engineer
Supporting Agencies:	Borough Certified Floodplain Manager/Director of Public Works
Hazards of Concern:	Flooding, Severe Weather
Description of the Problem:	The bayfront areas of Stone Harbor are the Borough's lowest developed areas. Flooding is evident in these areas with water levels as little as one foot above typical high tide. During rain events in conjunction with high tides, runoff cannot discharge through back bay outfalls.
Description of the Solution:	The Borough proposes to construct a bayside stormwater pump station to pump runoff out of flooded streets. Outfalls will also be re-routed to facilitate drainage. So far, the schematic design for locations has been selected. The Borough will make a funding request to FEMA in the Spring of 2025 to continue with the development of this project.
Estimated Cost:	Medium
Potential Funding Sources:	FMA, HMGP, state funding
Implementation Timeline:	Medium (1-5 years)
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	High ($100,000)
Impact on Socially Vulnerable Populations:	Socially vulnerable people, such as the elderly or disabled, who reside in these areas which typically flood will be protected against runoff damages and other flood impacts.
Impact on Future Development:	Future development which will reside in the low lying areas of the Borough will be protected from impacts through enhanced stormwater systems.
Impact on Critical Facilities/Lifelines:	The stormwater pump and systems will be a critical facility for the Borough as it helps to limit risk from flooding and runoff.
Impact on Capabilities:	This will strengthen the Borough's capabilities to effectively manage stormwater in the event of a flood event.
Climate Change Considerations:	Climate change will continue to increase the severity and frequency of flood and severe storm events. This action will work to mitigate those future event risks to the Borough.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Structural Flood Control Project
Priority	High

Alternatives

Action	Evaluation
No action	Problem persists.
Remove Residential Properties in Bayfront Areas	Not an option, loss of homes for residents.
Remove Roadways in the Area	Not an option, loss of critical transportation route, costly.

Action 2025-Stone Harbor-03. Boat Ramp Marina Raising

Lead Agency:	Borough Engineer	
Supporting Agencies:	Borough Floodplain Manager/Director of Public Works	
Hazards of Concern:	Flood, Severe Weather	
Description of the Problem:	The Borough's Boat Ramp at 81st Street is located at elevation 4.0 NAVD88 datum. Floodwaters enter through a boat ramp resulting in flooding of marina parking lot and surrounding area.	
Description of the Solution:	The Borough proposes to remove and elevate a boat ramp to 6.0 feet and add a flood gate to allow functional use of the ramp and enabling closures during surge events. So far, the ramp schematic design has been completed. The Borough will make a funding request to FEMA in spring of 2025.	
Estimated Cost:	Medium	
Potential Funding Sources:	FMA, HMGP, State funding	
Implementation Timeline:	Medium (1-5 years)	
Goals Met:	1, 2, 3, 4	
Benefits:	High ($100,000)	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	Future development nearby the boat ramp will have better protection against flooding by mitigating the source of the water.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change will continue to impact the severity and frequency of flood events. This action will work to mitigate those future flood concerns.	
Mitigation Category	Structure and Infrastructure Project	
CRS Category	Structural Flood Control Project	
Priority	Medium	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Remove Boat Ramp	Loss of service, costly, and no access to this water body.
	Remove Marina Parking Lot	Not an option, loss of service for the public which utilize the boat ramp.

Action 2025-Stone Harbor-04. Bayside Outfall Tide Closure Valves

Lead Agency:	Borough Engineer
Supporting Agencies:	Borough Certified Floodplain Manager/Director of Public Works
Hazards of Concern:	Flood, Severe Weather
Description of the Problem:	Tidal water floods roadways by entering bayside outfalls. Tidal water then backs up through stormwater pipes and inlets and onto streets, causing nuisance flooding. Duck bill valves are currently in place on outfalls to prevent backflow, but do not close during storm events.
Description of the Solution:	Install automated (mechanical) tide valves that close during high tides. So far, the outfall valves have been located and designs. The Borough will make a funding request to FEMA in spring of 2025 to complete the installation of these valves.
Estimated Cost:	Medium
Potential Funding Sources:	FMA, HMGP, state funding
Implementation Timeline:	Short (1-2 years)
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	High ($100,000)
Impact on Socially Vulnerable Populations:	Socially vulnerable populations which use the roadways will be protected from flood impacts through the installation of tide valves will limit the amount of inundation on these roadways.
Impact on Future Development:	Future development around these roadways will be able to access these transportation routes during flood events by mitigating future inundation.
Impact on Critical Facilities/Lifelines:	The roadways are critical lifelines for transportation and evacuation by residents. They also provided access for EMS to reach residents in times of emergency. This action will make sure the continuous operation is maintained during a high tide event.
Impact on Capabilities:	This action will strengthen the EMS capabilities to respond to emergencies during high tide event by protecting a roadway they use to access residents homes.
Climate Change Considerations:	Climate change will continue to impact the frequency and severity of flood events. This action will work to mitigate future flood events from extreme high tides.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Structural Flood Control Project
Priority	High

Alternatives

Action	Evaluation
No action	Problem persists.
Remove Duck Bill Valves	Not an option, no valves worsen the problem.
Remove Roadways	Not an option, loss of critical service and transportation routes for residents.

Action 2025-Stone Harbor-05. Property Mitigation Support – Retrofit

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Homeowners
Hazards of Concern:	Flood, Severe Weather
Description of the Problem:	Stone Harbor has a number of repetitive loss, severe repetitive loss, and substantially damaged properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. Progress has been made on elevating buildings and reconstructing new buildings that are more resistant to flooding.
Description of the Solution:	Where appropriate, support retrofitting (e.g. elevation) of structures located in hazard-prone areas to protect structures from future damage, with substantial damages, 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.
Estimated Cost:	High (> $100,000)
Potential Funding Sources:	FMA, state grants
Implementation Timeline:	Long-term (> 5 years)
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	High ($100,000)
Impact on Socially Vulnerable Populations:	Socially vulnerable populations which have a RL or SRL property will be better protected against flood impacts to their homes by house elevations and retrofits.
Impact on Future Development:	Future development in these areas will be better protected against flood impacts by being built at a higher elevation than flood depths.
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change will continue to impact the severity and frequency of flood events. This action will work to mitigate those future risks to RL and SRL homes.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Structural Flood Control Project, Property Protection
Priority	High

Alternatives

Action	Evaluation
No action	Problem persists.
Remove SRL and RL Properties	This is not an option. Loss of residential homes.
Relocate SRL and RL Properties	This is not an option. Loss of residential homes and very costly.

Action 2025-Stone Harbor-06. Critical Facilities Retrofit

Lead Agency:	Borough (likely through NFIP Floodplain Administrator	
Supporting Agencies:	Facility manager/operator	
Hazards of Concern:	Flood, Severe Weather	
Description of the Problem:	Numerous critical facilities and lifelines in Stone Harbor are located in the Special Flood Hazard Area. The facilities provide crucial services to Stone Harbor and require elevation and floodproofing to continue providing service during future flooding events.	
Description of the Solution:	The Borough will seek funding to design and construct improvements to critical facilities or construct new critical facilities that are floodproofed to the 500-year base flood elevation and higher.	
Estimated Cost:	Medium	
Potential Funding Sources:	FMA, HMGP, State grant	
Implementation Timeline:	Medium (1-5 years)	
Goals Met:	1, 2, 3, 4, 5, 6, 7	
Benefits:	High ($100,000)	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations which rely on critical facilities and lifelines for their safety and security will be less impacted from flood events. This action will work to ensure the continuity of operations for these lifelines.	
Impact on Future Development:	Future development will be able to access these lifelines for future hazard events such as future flooding impacts.	
Impact on Critical Facilities/Lifelines:	These critical facilities will be protected against the 500-year flood.	
Impact on Capabilities:	This will strengthen the capabilities for the Borough to provide critical lifeline systems to residents in times of hazard events such as severe storms and flooding.	
Climate Change Considerations:	Climate change will continue to impact the severity and frequency of hazard events such as flooding and severe storms. This action will help to mitigate these future concerns on critical facilities.	
Mitigation Category	Structure and Infrastructure Project	
CRS Category	Structural Flood Control Project	
Priority	High	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Remove Critical Facilities	Loss of critical services that are essential to resident safety.
	Build Levee Around Critical Facilities	Not enough space to build a permanent levee system for each critical facility.

Action 2025-Stone Harbor-07. Benefit Cost Analysis Training

Lead Agency:	Borough (likely through NFIP Floodplain Administrator and Engineering	
Supporting Agencies:	FEMA	
Hazards of Concern:	All Natural Hazards	
Description of the Problem:	Benefit cost analyses help identify and prioritize projects that protect people and property. With climate change and sea level rise posing increasing risks to the Borough, benefit cost analysis training has been identified as a need to assist Borough officials with determining what kinds of infrastructure projects should be pursued.	
Description of the Solution:	Train staff or acquire contract support for benefit-cost analysis.	
Estimated Cost:	Low	
Potential Funding Sources:	Staff time, annual budget	
Implementation Timeline:	Short (1-2 years) and ongoing efforts	
Goals Met:	1, 2, 3, 4, 5	
Benefits:	High ($100,000)	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	This action will benefit future development planning practices by providing essential training needed for planners to discern practical and sustainable development.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This will strengthen the Borough Staff knowledge on how to conduct benefit-cost analysis to help with selecting and prioritizing infrastructure projects.	
Climate Change Considerations:	N/A	
Mitigation Category	Education and Awareness Programs	
CRS Category	Public Information	
Priority	Medium	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Rely on State Support	This may lengthen project time, and this support is not always guaranteed.
	Rely on Federal Support	This may lengthen project time, and this support is not always guaranteed.

Action 2025-Stone Harbor-08. Beach Replenishment Innovations

Lead Agency:	NJDEP	
Supporting Agencies:	Borough Administrator	
Hazards of Concern:	Coastal Erosion	
Description of the Problem:	The Borough has US Army Corps of Engineers-replenished beaches and receives periodic maintenance refurbishments funded by the Borough and NJDEP. Given existing inefficiencies and the maintenance need, alternatives and innovations to existing replenishment projects are desired to help the Borough retain sand for its beaches and dunes.	
Description of the Solution:	Continue to support beach replenishment activities from 98th to 111th Streets and explore innovative options for replenishment. So far, the Hertford Inlet dredging is now permitted and will aid in reducing cost of future replenishment projects	
Estimated Cost:	Medium	
Potential Funding Sources:	Annual budget	
Implementation Timeline:	Short (1-2 years)	
Goals Met:	1, 2, 3	
Benefits:	High ($100,000)	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the public access to beaches for the Borough.	
Climate Change Considerations:	As climate change continues to impact the severity and frequency of natural hazard events such as severe storms, and more, this action will help to combat secondary impacts from these hazards, such as coastal erosion.	
Mitigation Category	Natural Systems Protection	
CRS Category	Natural Resource Protection	
Priority	Medium	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Build a Flood Wall	Not publicly accepted as it cuts off beach access. Not environmentally friendly for this habitat area.
	Build a Living Shoreline	A feasibility study will need to be conducted before to determine the best areas for a living shoreline and an environmental impact study.

Action 2025-Stone Harbor-09. Stormwater Management Enhancements

Lead Agency:	Borough Engineer
Supporting Agencies:	-
Hazards of Concern:	Flood, Severe Weather
Description of the Problem:	Stone Harbor is low-lying and continually experiences nuisance flooding aggravated by stormwater conditions. Drainage improvements have been undertaken throughout the Borough though new and proposed improvements continue to be identified per the Watershed Management Plan and capital improvement plan.
Description of the Solution:	Continue to improve stormwater drainage throughout the Borough to increase capacity, as capital projects are planned and implemented. The Borough will make a funding request to FEMA in spring of 2025 to complete. So far, ongoing roads have been raised where and when possible. The Borough has completed schematic designs for selected areas and are awaiting funds to complete.
Estimated Cost:	Medium
Potential Funding Sources:	FMA, HMGP, DOT grants
Implementation Timeline:	Medium (1-5 years)
Goals Met:	1, 2, 3, 4, 5, 6
Benefits:	High ($100,000)
Impact on Socially Vulnerable Populations:	Socially vulnerable populations, such as the elderly or disabled, who reside in the Borough will be protected against future flood risks by the implementation of actions identified in the Watershed Management Plan and CIP.
Impact on Future Development:	Future development will be less at risk to future inundation by the implementation of the Watershed Management Plan and various CIP project aimed at reducing flood risks.
Impact on Critical Facilities/Lifelines:	Critical facilities located in the low lying areas of the Borough will be better protected against flood impacts, as identified in the Watershed Master Plan.
Impact on Capabilities:	This action will strengthen the Boroughs capabilities to withstand flood events and limit the number of flooding events for residents.
Climate Change Considerations:	Climate change will continue to increase the severity and frequency of flooding events and other natural hazards. This action will work to limit risk to these future events.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Structural Flood Control Project
Priority	High

Alternatives

Action	Evaluation
No action	Problem persists.
Remove Stormwater Drainage System	Loss of critical service, costly, problem persists.
Utilize Annual Budget	Will take increasingly more time to complete due to lack of funding availability. Other CIP projects which are essential may halt.

Action 2025-Stone Harbor-10. Seven Mile Island CR-619 Stormwater Improvements

Lead Agency:	County Engineering
Supporting Agencies:	Municipalities
Hazards of Concern:	Flood, Severe Weather
Description of the Problem:	Ocean Drive/Third Avenue in Avalon and Stone Harbor is a major thoroughfare connecting the communities and is the longest and busiest roadway in Avalon and Stone Harbor that is most vulnerable to flooding. Flooding impacts begin with a flood event bringing water levels just one foot above high tide. The removal of outfalls is currently in the design phase. The Borough is currently at 60% Design of new Stormwater Pump Station at 93rd & Third Ave.
Description of the Solution:	Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. CMC has completed all the stormwater infrastructure. In SH the 93rd Street pump station schematic design is completed. Funding request for 93rd street is included in the FEMA Spring 2025 request to be able to complete this project.
Estimated Cost:	High (> $100,000)
Potential Funding Sources:	CWSRF, EPA's Environmental Finance Center Grant Program, HMGP
Implementation Timeline:	Medium (1-5 years)
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	High ($100,000)
Impact on Socially Vulnerable Populations:	This roadway will be protected against flash flooding from severe storm events by implementing this action. Socially vulnerable populations which utilize this roadway will be able to safely access these transportation routes during events that cause flooding.
Impact on Future Development:	This action will protect the roadway from flooding, which will protect a critical transportation route for future development.
Impact on Critical Facilities/Lifelines:	This roadway is a critical lifeline for residents to safely access homes and evacuate from disaster events. This action will ensure its continuity of operations during flood events.
Impact on Capabilities:	This will strengthen EMS ability to respond to help by protecting a critical roadway which is used to access residents in need.
Climate Change Considerations:	Climate change will continue to change the severity and frequency of hazard events, such as flooding. This action will help to mitigate future flood concerns.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Structural Flood Control Project
Priority	High

Alternatives

Action	Evaluation
No action	Problem persists.
Remove Current Stormwater System	Loss of critical service, costly, problem persists.
Remove Roadway	Loss of critical service, costly, problem persists.

Action 2025-Stone Harbor-11. SHES Generator

Lead Agency:	School Board
Supporting Agencies:	Borough support as appropriate
Hazards of Concern:	All Natural Hazards
Description of the Problem:	The Stone Harbor Elementary School lacks a back-up generator. The School is a designated critical facility.
Description of the Solution:	The Borough will assist with seeking funding to install a back-up generator at Stone Harbor Elementary School.
Estimated Cost:	Medium
Potential Funding Sources:	HMGP, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget
Implementation Timeline:	Medium (1-5 years)
Goals Met:	1, 2, 3, 4, 5, 6
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Protection of the school provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of the school and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category	Structure and Infrastructure Project
CRS Category	Emergency Services
Priority	High

Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

Action 2025-Stone Harbor-12. Stone Harbor Boulevard Elevation

Lead Agency:	Director of Public Works	
Supporting Agencies:	-	
Hazards of Concern:	All Natural Hazards	
Description of the Problem:	The Borough lacks a debris management plan.	
Description of the Solution:	The Borough will develop and adopt a Disaster Debris Management Plan.	
Estimated Cost:	Staff time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 3, 4, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category	Local Plans and Regulations	
CRS Category	Emergency Services	
Priority	High	
Alternatives	**Action**	**Evaluation**
	No action	Problem persists.
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available