



9.11 BOROUGH OF STONE HARBOR

This section presents the jurisdictional annex for the Borough of Stone Harbor. The annex includes a general overview of the Borough of Stone Harbor; an assessment of the Borough of Stone Harbor’s risk, vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.11.1 Staff and Local Stakeholder Involvement in Annex Development

The Borough of Stone Harbor followed the planning process described in Section 3 (Planning Process). This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 3 (Planning Process) and Appendix C (Meeting Documentation)

Table 9.11-1. Hazard Mitigation Planning Team and Contributors

| Primary Point of Contact | | Alternate Point of Contact |
|--|---------------------------|---|
| Name / Title: Robert Smith, Borough Administrator Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone number: (609) 368-5102 Email: smithr@shnj.org | | Name / Title: Jonathan Lakose, OEM Coordinator Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone number: (610) 842-6526 Email: lakosej@shnj.org |
| NFIP Floodplain Administrator | | |
| Name / Title: Ray Poudrier, Construction Official/CFM Address: 9508 Second Avenue Stone Harbor, New Jersey 08247 Phone number: (609) 368-6814 Email: poudrierr@shnj.org | | |
| Name | Title | Method of Participation |
| Kim Stevenson | CRS Coordinator | Annex Development and Review, Project Development, Meeting Attendance |
| Marc Deblasio | Borough Engineer | Project Development, Meeting Attendance, Reviewed and Signed Off on Annex |
| Ray Poudrier | Construction Official/CFM | Annex Review, Meeting Attendance, Reviewed and Signed Off on Annex |
| Robert Smith | Borough Administrator | Annex Review, Meeting Attendance, Reviewed and Signed Off on Annex |
| Jonathan Lakose | OEM Coordinator | Annex Review, Meeting Attendance, Reviewed and Signed Off on Annex |
| Grant Russ | Public Works Director | Completed Stakeholder Survey |
| James Craft | Director of Finance | Reviewed and Signed Off on Annex |
| Paul Kates | Land Use Planner | Reviewed and Signed Off on Annex |
| Thomas Schutta | Chief, Police Department | Reviewed and Signed Off on Annex |
| Roger Stanford | Chief, Fire Department | Reviewed and Signed Off on Annex |



9.11.2 Jurisdiction 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.

According to the U.S. Census, the 2010 population for the Borough of Stone Harbor was 866. The estimated 2018 population was 955, a 10.2 percent increase from the 2010 Census. Data from the 2018 U.S. Census American Community Survey indicate

that 0.2 percent of the population is 5 years of age or younger and 42.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.11.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.11-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.11-1 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development.

Table 9.11-2. Recent and Expected Future Development

| Type of Development | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
|---|---------------------|-------------|-------------------------|-------------|---|-------------|-----------------------|-------------|-------------------------------------|-------------|
| Number of Building Permits for New Construction Issued Since the Previous HMP | | | | | | | | | | |
| | Total | Within SFHA | Total | Within SFHA | Total | Within SFHA | Total | Within SFHA | Total | Within SFHA |
| Single and Two-Family Units | 26 | 24 | 37 | 34 | 43 | 42 | 39 | 35 | 39 | 36 |
| Multi-Family | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| Other (commercial, mixed-use, etc.) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Property or Development Name | Type of Development | | # of Units / Structures | | Location (address and/or block and lot) | | Known Hazard Zone(s)* | | Description / Status of Development | |
| Recent Major Development and Infrastructure from 2015 to Present | | | | | | | | | | |
| The Reeds II | Mixed Use | Hotel | 22 | | 9622-28 Third Ave | | SFHA | | Received certificate of occupancy | |
| Property or Development Name | Type of Development | | # of Units / Structures | | Location (address and/or block and lot) | | Known Hazard Zone(s)* | | Description / Status of Development | |



| | | | | | |
|---|--|-----------------------------------|--|------|----------------|
| 100 th Street LLC | Day Spa | N/A | 96.03/111; 9622-28 Third Ave | SFHA | Completed |
| Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years | | | | | |
| Villa Maria | Retreat Center /13SF Subdivision | 13 Single Fam/1 Retreat Center | 11101 First Ave 111.01/1-20 112.01/1 & 112.02/22-60 | SFHA | In Engineering |
| 93 rd St Stormwater Pump Station | Stormwater Pump Station | 1 | 93 rd & Third Ave | SFHA | In Design |

* Only location-specific hazard zones or vulnerabilities identified.

9.11.4 Capability Assessment

The Borough of Stone Harbor performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community’s adaptive capacity.
- Information on National Flood Insurance Program (NFIP) compliance.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. Areas with current mitigation integration are summarized in Capability Assessment (Section 9.11.4). The Borough of Stone Harbor identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Borough of Stone Harbor and where hazard mitigation has been integrated.

Table 9.11-3. Planning, Legal and Regulatory Capability

| | Do you have this? (Yes/No) | Authority that enforces (Federal, State, Regional, County, Local) | Is this State Mandated? | Have aspects of this been integrated into your mitigation plan? | |
|--|-------------------------------|--|-------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| Codes, Ordinances, & Requirements | | | | | |
| Building Code | Yes | State & Local | Yes | Yes | - |
| <i>Comment:</i> | | | | | |





Table 9.11-3. Planning, Legal and Regulatory Capability

| | Do you have this? (Yes/No) | Authority that enforces (Federal, State, Regional, County, Local) | Is this State Mandated? | Have aspects of this been integrated into your mitigation plan? | |
|--|-------------------------------|--|--|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| <ul style="list-style-type: none"> State mandated on local level under NJAC 5:23-3.14. <i>International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14 Adopted 9/3/2019 (with NJ edits dated March 14, 2020 coming soon)</i> <i>Construction Codes, Uniform, Chapter 230, adopted by Borough Council in 1982 and amended through 2019. 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.</i> <i>The Ordinance contains no specific mitigation actions other than those required in the Uniform Construction Code.</i> | | | | | |
| Zoning Code | Yes | State & Local | Yes – if municipality has a Planning Board | Yes | - |
| <p>Comment:</p> <ul style="list-style-type: none"> State permissive on local level. Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Zoning, Chapter 560, adopted by Borough Council on 12-06-11 and amended through 2019. Pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., and for the purposes set forth therein, the Borough of Stone Harbor, New Jersey, hereby establishes the Zoning Ordinance of Stone Harbor, New Jersey. This Chapter addresses flooding in basic terms by making exceptions to normal standards for height and setbacks to allow for building elevations. Regarding Stormwater, All new construction and substantial improvements as defined in Chapter 300 will be required to furnish and install an underground stormwater recharge system to limit the amount of runoff generated by the construction. The system shall be designed to collect stormwater runoff from the roof leaders or an equivalent amount of runoff through inlets or yard drains. There is a separate Chapter that addresses Stormwater Management in more detail. | | | | | |
| Subdivisions | Yes | County & Local | Yes – if municipality has a Planning Board | Yes | - |
| <p>Comment:</p> <ul style="list-style-type: none"> P.L.1975, c.291 (C.40:55D-47); 40:55D-37. Grant of power; referral of proposed ordinance; county planning board approval a. The governing body may by ordinance require approval of subdivision plats by resolution of the planning board as a condition for the filing of such plats with the county recording officer and approval of site plans by resolution of the planning board as a condition for the issuance of a permit for any development, except that subdivision or individual lot applications for detached one or two dwelling-unit buildings shall be exempt from such site plan review and approval; provided that the resolution of the board of adjustment shall substitute for that of the planning board whenever the board of adjustment has jurisdiction over a subdivision or site plan pursuant to subsection 63b. of this act . Dictated by the Municipal Land Use Law. NJ Statute 40:27-6.2 - the board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section. Land Development Procedures, Chapter 345, adopted by Borough Council in 1982, amended through 2019. 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. The Planning Board shall have the power to administer the provisions of the Land Subdivision Ordinance and Site Plan Review Ordinance of the Borough in accordance with the provisions of these ordinances, and the Municipal Land Use Law, Chapter 291, P.L. 1975, N.J.S.A. 40:55D-1 et seq. The Zoning Board shall have the same powers when such applications are within its jurisdiction. There shall be no division of any lot, tract or parcel of land in this Borough into two or more lots, tracts or parcels of land for sale or development without first obtaining subdivision approval from the Planning or Zoning Board. This Chapter makes general provisions for flood protection and stormwater controls. | | | | | |



Table 9.11-3. Planning, Legal and Regulatory Capability

| | Do you have this? (Yes/No) | Authority that enforces (Federal, State, Regional, County, Local) | Is this State Mandated? | Have aspects of this been integrated into your mitigation plan? | |
|--|-------------------------------|--|--|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| Stormwater Management | Yes | State & Local | Yes | Yes | - |
| <p>Comment:</p> <ul style="list-style-type: none"> See Title 7 of the NJ Administrative Code, N.J.A.C. 7:8 Storm Sewer System, Chapter 468, adopted by Borough Council on 06-01-10. 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. Chapter 470 of the Borough's code regulates stormwater management. | | | | | |
| Post-Disaster Recovery | No | - | No | - | - |
| <p>Comment:</p> | | | | | |
| Real Estate Disclosure | Yes | State, Division of Consumer Affairs | Yes | Yes | - |
| <p>Comment: N.J.A.C. 13:45A-29.1 - Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</p> <ul style="list-style-type: none"> It should be noted that Section 300-3 of the Borough's Flood Damage Prevention Ordinance 'Statement of Purpose' has a provision to ensure that potential buyers are notified that property is in an area of special flood hazard. | | | | | |
| Growth Management | No | - | Yes – if municipality has a Planning Board | - | - |
| <p>Comment:</p> <ul style="list-style-type: none"> State Mandated on a municipal level. See Zoning Ordinance; Also - Plan Endorsement Process via the State Development & Redevelopment Plan provides for the delineation of Growth Areas and Environs; Use of the endorsed plans in the implementation of state environmental regulations makes the Plan Endorsement process a growth management strategy. | | | | | |
| Site Plan Review | Yes | County & Local | Yes – if municipality has a Planning Board | Yes | - |
| <p>Comment:</p> <ul style="list-style-type: none"> Dictated by the Municipal Land Use Law which sets forth minimum requirements for plans, etc., timeframes for development review. NJ Statute 40:27-6.2: The board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section. 40:27-6.10 In order that county planning boards shall have a complete file of the planning and zoning ordinances of all municipalities in the county, each municipal clerk shall file with the county planning board a copy of the planning and zoning ordinances of the municipality in effect on the effective date of this act and shall notify the county planning board of the introduction of any revision or amendment of such an ordinance which affects lands adjoining county roads or other county lands, or lands lying within 200 feet of a municipal boundary, or proposed facilities or public lands shown on the county master plan or official county map. Such notice shall be given to the county planning board at least 10 days prior to the public hearing thereon by personal delivery or by certified mail of a copy of the official notice of the public hearing together with a copy of the proposed ordinance. Land Development Procedures, Chapter 345, adopted by Borough Council in 1982, amended through 2019. 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. | | | | | |



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|--|-------------------------------|--|-------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| <ul style="list-style-type: none"> The Planning Board shall have the power to administer the provisions of the Land Subdivision Ordinance and Site Plan Review Ordinance of the Borough in accordance with the provisions of these ordinances, and the Municipal Land Use Law, Chapter 291, P.L. 1975, N.J.S.A. 40:55D-1 et seq. The Zoning Board shall have the same powers when such applications are within its jurisdiction. There shall be no division of any lot, tract or parcel of land in this Borough into two or more lots, tracts or parcels of land for sale or development without first obtaining subdivision approval from the Planning or Zoning Board. This Chapter makes general provisions for flood protection and stormwater controls. | | | | | |
| Environmental Protection | Yes | Local | No | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> Parks, Recreation Areas and Bird Sanctuary, Chapter 400, adopted by Borough Council in 1982, amended 05-05-09 to add Article IV. Bird Sanctuary. 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. Chapter 560-24 Conservation District Chapter 466-19 – Single Use Plastics Ban | | | | | |
| Flood Damage Prevention | Yes | State & Local | Yes | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> The NJ State Law Flood Area Control Act (N.J.S.A. 58:16A-52) and the National Flood Control Act of 1968 (NFIP) are state and federal acts to support minimization of flood losses. They do not require local adoption but as enforced by the NJDEP, the floodplain ordinances of each municipality must be reviewed for compliance with these regulations. In addition, participation in the NFIP requires a floodplain ordinance. Regulations for the Flood Control Hazards Act were adopted in 2007 and amended effective June 20, 2016. Flood Damage Prevention, Chapter 300, adopted by Borough Council on 09-19-17 and amended 04-17-18. 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. In order to accomplish its purposes, this chapter includes methods and provisions for: Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters; Controlling filling, grading, dredging, and other development which may increase flood damage; and Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. The Floodplain Manager is hereby appointed to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions. It appears this Chapter requires regulated residential and nonresidential structures in a SFHA be elevated to or above the BFE and that manufactured homes in a SFHA be elevated to a minimum of three feet above the BFE. | | | | | |
| Wellhead Protection | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Emergency Management | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Climate Change | No | - | No | - | - |



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|--|-------------------------------|--|-------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| <i>Comment:</i> | | | | | |
| Disaster Recovery Ordinance | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Disaster Reconstruction Ordinance | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Other | Yes | Federal, State & Local | No | No | - |
| <i>Comment:</i> <ul style="list-style-type: none"> • <i>Beaches, Chapter 156, adopted by Borough Council in 1982 and last amended 12-12-15. The beach berm and dunes offer the first line of defense against the sea during a storm. Dune areas are vulnerable to erosion and damage by wind, water, indiscriminate trespass, construction, acts which damage their protective vegetation, and the absence of good husbandry. Therefore, the Borough has a vital interest in establishing and maintaining a protection program for the beach and dune areas. It is the policy of this Borough to encourage the development of sand dunes, and to take whatever steps are required to maintain and protect these dunes. The specifics for such steps are set forth in Executive Policy 98-B-001, as amended from time to time.</i> • <i>The Borough of Stone Harbor has adopted a Dune Vegetation Management Plan, as approved by the New Jersey Department of Environmental Protection. The Dune Vegetation Management Plan includes a Dune Maintenance Program whereby interested private property owners can partner with the Borough to, among other things, help eliminate certain nonindigenous and/or invasive species of vegetation from dune areas. The Borough undertakes dune maintenance and protection measures.</i> | | | | | |
| Planning Documents | | | | | |
| Comprehensive / Master Plan | Yes | State & Local | Yes | Yes | - |
| <i>Comment:</i> <ul style="list-style-type: none"> • <i>2018 Revised NJ Statute 40:27-2; the county planning board shall make and adopt a master plan for the physical development of the county. The master plan of a county, with the accompanying maps, plats, charts, and descriptive and explanatory matter, shall show the county planning board's recommendations for the development of the territory covered by the plan, and may include, among other things, the general location, character, and extent of streets or roads, viaducts, bridges, waterway and waterfront developments, parkways, playgrounds, forests, reservations, parks, airports, and other public ways, grounds, places and spaces; the general location and extent of forests, agricultural areas, and open-development areas for purposes of conservation, food and water supply, sanitary and drainage facilities, or the protection of urban development, and such other features as may be important to the development of the county. The county planning board shall encourage the co-operation of the local municipalities within the county in any matters whatsoever which may concern the integrity of the county master plan and to advise the board of chosen freeholders with respect to the formulation of development programs and budgets for capital expenditures. Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976 40:55D-28 provides the required components of a municipal Master Plan and requires that each municipality prepare a master plan and update it every 6 years. Further, all zoning ordinances must be consistent with the Master Plan or will not be benefitted from a presumption of validity.</i> • <i>Master Plan, Land Use Plan Element, adopted by the Planning Board on June 22, 2009. 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.</i> • <i>Master Plan Re-Examination Report, dated June 2019. The Plan makes general mention of flood hazard issues but does point to the fact that Storm water development in the Borough is looking to the future to control nuisance flooding as well as catastrophic failures during major storm and tidal flooding events. The current plan breaks down the island into thirteen drainage areas where storm water runoff would be moved to the lowest point and dispersed through underground recharge systems or conveyed by pumps either downstream or into the bay. While the ultimate goal is to reduce impermeable surface runoff through recharge, rain gardens, pervious surfaces, and underground storage; in some areas the runoff and elevation exceeds the limitations of those methods. Part of the storm water planning process also brought about changes to the bulkhead requirements that have already been implemented.</i> | | | | | |
| Capital Improvement Plan | Yes | Local | No | Yes | - |
| <i>Comment: The Borough of Stone Harbor has a five (5) year Capital Improvement Plan: Infrastructure Upgrades</i> | | | | | |



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|--|-------------------------------|--|-------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| Disaster Debris Management Plan | No | - | No | - | 2021- StoneHarbor-014 |
| <i>Comment:</i> | | | | | |
| Floodplain or Watershed Plan | Yes | State & Local | No | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> The Stone Harbor Watershed Plan was completed in November 2019 by the Stockton University Coastal Research Center. The goals of the Stormwater Management Plan are to: <ul style="list-style-type: none"> 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 | State & Local | Yes | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> The Stormwater Management rules (N.J.A.C. 7:8) rules were published in the February 2, 2004 NJ Register. These rules set forth the required components of regional and municipal stormwater management plans and establish the stormwater management design and performance standards for new (proposed) development. The design and performance standards for new development include groundwater recharge, runoff quantity controls, and runoff quality controls. The rules emphasize, as a primary consideration, the use of nonstructural stormwater management techniques including minimizing disturbance, minimizing impervious surfaces, minimizing the use of stormwater pipes, preserving natural drainage features, etc. The rules also set forth requirements for groundwater recharge, stormwater runoff quantity control, stormwater runoff quality control, and the prohibition of major development to be located within or to discharge runoff from the major development into a 300-foot riparian zone without prior authorization from the Department under the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13. Stormwater Plan, no date. 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. The Master Plan establishes a ten (10) year plan aimed at mitigation of Borough-wide flooding. The Master Plan recommended monitoring impervious coverage limits to ensure that they can maintain the balance of light and air along with historically desirable densities. This problem persists but has not been exacerbated. 93rd Street Stormwater Pump Station – to be completed 2022 – Reduce Nuisance Flooding in the business district. Marina Improvements – improved bulkhead, raising of parking lot **See Master Plan Update 2019 Continued Infrastructure Improvements – 5 year Capital Improvement Plan | | | | | |
| Stormwater Pollution Prevention Plan | Yes | State & Local | Yes | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> The Phase II New Jersey Pollutant Discharge Elimination System Stormwater Regulation Program (NJPDES) rules (N.J.A.C. 7:14A) were published in the February 2, 2004, NJ Register. These NJPDES rules are intended to address and reduce pollutants associated with existing stormwater runoff. The NJPDES rules establish a regulatory program for existing stormwater discharges as required under the Federal Clean Water Act. These NJPDES rules govern the issuance of permits to entities that own or operate small municipal separate storm sewer systems, known as MS4s. Under this program, permits must be secured by municipalities, certain public complexes such as universities and hospitals, and State, interstate and federal agencies that operate or maintain highways. The permit program establishes the Statewide Basic Requirements that must be implemented to reduce nonpoint source pollutant loads from these sources. The Statewide Basic Requirements include measures such as: the adoption of ordinances (litter control, pet waste, wildlife feeding, proper waste disposal, etc.); the development of a municipal stormwater management plan and implementing ordinance(s); requiring certain maintenance activities (such as street sweeping and catch basin cleaning); implementing solids and floatables control; locating discharge points and stenciling catch basins; and a public education component. Stormwater Pollution Prevention Plan (SPPP), dated May 25, 2011 & revised December 26, 2019. 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. | | | | | |
| Urban Water Management Plan | No | - | No | - | - |



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| | Do you have this? (Yes/No) | Authority that enforces (Federal, State, Regional, County, Local) | Is this State Mandated? | Have aspects of this been integrated into your mitigation plan? | |
|--|----------------------------|---|------------------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| <i>Comment:</i> | | | | | |
| Habitat Conservation Plan | Yes | State & Local | No | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> • Dune Vegetation Management Plan, dated June 2015. Goals of the Plan include; <ul style="list-style-type: none"> ○ 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 • In addition to the Dune Protection Ordinance, the Borough supports dune vegetation improvement programs through its Public Works Department and through volunteer beachgrass planting initiatives, in addition to education programs. • Chapter 560-24 Conservation Management District • Borough of Stone Harbor Beach Management Plan – For the protection of State & Federal listed species | | | | | |
| Economic Development Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Shoreline Management Plan | Yes | Construction Office | Yes – if located in a coastal zone | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> • NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone management Rules N.J.A.C. 7:27E-1 et seq. | | | | | |
| Community Wildfire Protection Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Community Forest Management Plan | Yes | State & Local | No | Yes | - |
| <i>Comment:</i> | | | | | |
| <ul style="list-style-type: none"> • Community Forestry Management Plan, submitted to the State in 2016 for 2016 – 2020. This Community Forestry Management Plan (CFMP or Plan) for the Borough of Stone Harbor was prepared to establish programs that recognize the unique nature of its tree resources and to plan future programs that will continue to protect and enhance these resources. The Borough established goals and objectives compatible with its forestry planning process vision to provide forest and tree streetscapes for the benefit of its residents and visitors in addition to the wildlife that rely on tree resources. The mission of the Borough's CFMP is to protect, enhance and sustain productive community shade tree and forest resources that will improve the quality of life for the residents, visitors and wildlife that inhabit and/or visit this unique resort community. | | | | | |
| Transportation Plan | Yes | Local | No | No | - |
| <i>Comment:</i> | | | | | |
| Agriculture Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Climate Action Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Tourism Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Business Development Plan | No | - | No | - | - |
| <i>Comment:</i> | | | | | |
| Other | Yes | - | No | - | - |



Table 9.11-3. Planning, Legal and Regulatory Capability

| | Do you have this? (Yes/No) | Authority that enforces (Federal, State, Regional, County, Local) | Is this State Mandated? | Have aspects of this been integrated into your mitigation plan? | |
|---|-------------------------------|--|-------------------------|---|---|
| | | | | If yes- how? Describe in comments | If no - can it be a mitigation action? If yes, add Mitigation Action #. |
| Comment: | | | | | |
| <ul style="list-style-type: none"> • Green Purchasing Policy, adopted by Borough Council on November 7, 2017. It is the policy & practice of the Borough of Stone Harbor to: <ul style="list-style-type: none"> ○ Institute practices that reduce waste by increasing product efficiency and effectiveness, and ○ Purchase products that minimize environmental impacts, toxics, pollution, and hazards to worker and community safety to the greatest extent practicable, and ○ Purchase products that include recycled content, are durable and long-lasting, conserve energy and water, use agricultural fibers and residues, reduce greenhouse gas emissions, use unbleached or chlorine free manufacturing processes, are lead-free and mercury-free, and use wood from sustainably harvested forests (FSC) when & where possible. • The Borough instituted a Single Use Plastic ban within our Business District Chapter 466-19 | | | | | |
| Response/Recovery Planning | | | | | |
| Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP) | Yes | Local OEM & State Police | Yes | Yes | - |
| Comment: | | | | | |
| <ul style="list-style-type: none"> • Each county and municipality in the State shall prepare a written Emergency Operations Plan with all appropriate annexes necessary to implement the plan. Each Emergency Operations Plan shall be adopted no later than one year after the State Emergency Planning Guidelines have been adopted by the State Office of Emergency Management and shall be evaluated at such subsequent scheduled review of the State Emergency Operations Plan. L.1989, c.222, s.19. • The Municipal Emergency Manager, with support for County OEM and New Jersey OEM, is continuing to develop, enhance, and implement existing emergency plans. | | | | | |
| Threat & Hazard Identification & Risk Assessment (THIRA) | No | - | No | - | - |
| Comment: | | | | | |
| Post-Disaster Recovery Plan | No | - | No | - | - |
| Comment: | | | | | |
| Continuity of Operations Plan | Yes | OEM Director | No | Yes | - |
| Comment: | | | | | |
| Public Health Plan | No | - | No | - | - |
| Comment: | | | | | |
| Other | No | - | No | - | - |
| Comment: | | | | | |

Table 9.11-4. Development and Permitting Capability

| Criterion | Response |
|--|--|
| Does your jurisdiction issue development permits? - If no, who does? If yes, which department? | Yes – Zoning Board Construction Office |
| Does your jurisdiction have the ability to track permits by hazard area? | Yes |
| Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction. | No- the Borough is built-out and all new development is redevelopment. |

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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





Table 9.11-5. Administrative and Technical Capabilities

| Staff/Personnel Resource | Available? | Department/Agency/Position |
|---|------------|---|
| Administrative Capability | | |
| Planning Board | Yes | Zoning Officer |
| Mitigation Planning Committee | Yes | Flood Mitigation Committee |
| Environmental Board / Commission | No | - |
| Open Space Board / Committee | Yes | County |
| Economic Development Commission / Committee | Yes | Council |
| Warning Systems / Services (reverse 911, outdoor warning signals) | Yes | Fire Department & OEM. The Borough is maintaining flood siren warning systems throughout the Borough to alert residents in the event of an emergency. |
| Maintenance program to reduce risk | 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. |
| 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 |
| Staff with training in benefit/cost analysis | Yes | CFO, Borough Engineer |
| Staff with training in green infrastructure | Yes | Borough Engineer, Public Works |
| Staff with education/knowledge/training in low impact development | No | - |
| Surveyor | Yes | DeBlasio & Associates |
| Stormwater engineer | Yes | DeBlasio & Associates |
| Personnel skilled or trained in GIS applications | Yes | Deblasio & Associates |
| Local or state water quality professional | Yes | Craig Loper, Licenses Operator |
| Scientist familiar with natural hazards in local area | Yes | Dr. Stewart Farrell, Coast Research Center |
| Emergency manager | Yes | Jonathan Lakose, OEM Director, Roger Stanford, Deputy |
| Watershed planner | Yes | Dr. Stewart Farrell, Stockton Coastal Research |
| Environmental specialist | Yes | Dr Lenore Tedesco, The Wetlands Institute |
| Grant writers | Yes | DeBlasio & Associates |
| Resilience Officer | No | - |
| Other | No | - |

FISCAL CAPABILITY

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



Table 9.11-6. Fiscal Capabilities

| Financial Resource | Accessible or Eligible to Use? |
|--|--------------------------------|
| Community Development Block Grants (CDBG, CDBG-DR) | Yes |
| Capital Improvements Project Funding | Yes |
| Authority to Levy Taxes for Specific Purposes | Yes |
| User Fees for Water, Sewer, Gas or Electric Service | Yes |
| 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 |
| State-Sponsored Grant Programs | Yes |
| Development Impact Fees for Homebuyers or Developers | No |
| Clean Water Act 319 Grants (Nonpoint Source Pollution) | No |
| Other | No |

EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Borough of Stone Harbor.

Table 9.11-7. Education and Outreach Capabilities

| Criterion | Response |
|--|---|
| Do you have a public information officer or communications office? | Yes- Jenny Olson, Tourism Director/PIO |
| Do you have personnel skilled or trained in website development? | Yes- Joyce Media/Jenny Olson, Tourism Director |
| Do you have hazard mitigation information available on your website? -If yes, briefly describe. | Yes- Flood Information Tab that provides all aspects within CRS |
| Do you use social media for hazard mitigation education and outreach? -If yes, briefly describe. | Yes- Storm Notification, Hurricane Awareness and Preparedness, Links to FEMA Funding |
| Do you have any citizen boards or commissions that address issues related to hazard mitigation? -If yes, briefly describe. | Yes- Flood Mitigation Committee - Council, Environmental Specialists, Engineers, Public Works, Construction, OEM and Private Citizens |
| Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe. | Yes- Stone Harbor Emergency Website – CODE RED Notification |

COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Borough of Stone Harbor.

Table 9.11-8. Community Classifications

| Program | Participating? | Classification | Date Classified |
|--|----------------|----------------|-----------------|
| Community Rating System | Yes | 5 | May 1, 2014 |
| Building Code Effectiveness Grading Schedule (BCEGS) | Yes | 3 | July 5, 2012 |
| Public Protection (Fire ISO Protection Class) | Yes | 3 | 2019 |
| Storm Ready Certification | No | - | - |
| Firewise Community Classification | No | - | - |
| Sustainable Jersey | Yes | Silver | 12/13/2017 |

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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the adaptive capacity for each hazard and the jurisdiction’s rating.

Table 9.11-9. Adaptive Capacity

| Hazard | Adaptive Capacity (Capabilities) – Strong/Moderate/Weak |
|------------------------|---|
| Climate Change and SLR | Moderate |
| Coastal Erosion | Moderate |
| Disease Outbreak | Moderate |
| Drought | Moderate |
| Flood | Moderate |
| Hurricane | Moderate |
| Nor'Easter | Moderate |
| Severe Weather | Moderate |
| Severe Winter Weather | Strong |
| Tsunami | Moderate |
| Wildfire | Moderate |

Notes:

Strong = Capacity exists and is in use; Moderate = Capacity may exist, but is not used or could use some improvement; Weak = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

The Borough has access to resources to determine the possible impacts of climate change upon the municipality. For example, the Borough has tide gauges that monitor sea level rise and 16 sensors that measure stormwater. The Borough administration is supportive of integrating climate change in policies or actions and has already implemented a flood mitigation/stormwater master plan.

NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.11-10. National Flood Insurance Program Compliance

| Criterion | Response |
|---|--|
| What local department is responsible for floodplain management? | Construction Office |
| Who is your floodplain administrator? (name, department/position) | Ray Poudrier, Construction Official |
| Are any certified floodplain managers on staff in your jurisdiction? | Ray Poudrier, Construction Official & Marc DeBlasio, DeBlasio & Associates, Borough Engineer |
| What is the date that your flood damage prevention ordinance was last amended? | 9/19/2017 |
| Does your floodplain management program meet or exceed minimum requirements? -If exceeds, in what ways? | Exceeds – Substantial Improvements @ 40%. Greater of or Higher of +2 or 11 feet NAVD88 |
| When was the most recent Community Assistance Visit or Community Assistance Contact? | January 2020 – Douglass Reedy ISO |
| Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? -If so, state what they are. | No. The Borough is continuing to work with property owners to bring all applicable properties within the Borough up to code within the NFIP. |
| Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are. | Yes. The Borough participated in a FEMA Roadmap Workshop and worked on Risk Map Overlay |



| Criterion | Response |
|--|--|
| Do your flood hazard maps adequately address the flood risk within your jurisdiction? -If no, state why. | Yes |
| 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? | Yes – Always need updates for changing criteria. CRS Updates. |
| Does your jurisdiction participate in the Community Rating System (CRS)? -If yes, is your jurisdiction interested in improving its CRS Classification? -If no, is your jurisdiction interested in joining the CRS program? | The Borough participates and is interested in improving its ranking. |
| How many flood insurance policies are in force in your jurisdiction?* | 1,959 policies |
| -What is the insurance in force? -What is the premium in force? | |
| How many total loss claims have been filed in your jurisdiction?* | 1,334 total claims |
| -How many claims are still open or were closed without payment? -What were the total payments for losses? | \$388,798 total payments for losses |
| Do you maintain a list of properties that have been damaged by flooding? | Yes, Repetitive Loss and Substantial Damage List. |
| Do you maintain a list of property owners interested in flood mitigation? | Yes, Listing reported within our CRS Certification |

*According to FEMA statistics as of October 2020

ADDITIONAL AREAS OF EXISTING INTEGRATION

- The Borough, working with NJDEP and USACE, is working to maintain relationship with Army Corps and NJDEP for dune maintenance along the oceanfront via planting dune grass and installing sand fencing.
- There is a continuation of annual review of ordinances and appropriate laws with regard to planning, zoning and code enforcement within the Borough.
- Stone Harbor participates in Sustainable Jersey and has undertaken a number of actions to advance sustainability and resiliency. The Borough has completed the Climate Adaptation: Flood Risk action by comprehensively examining its existing and future flood risk. The Borough also received credit for emergency communications planning and its robust public outreach system. Stone Harbor received credit for a water conservation ordinance that mitigates the drought hazard.

9.11.5 Hazard Event History Specific to the Jurisdiction

Cape May County has a history of hazard events, as detailed in Section 5 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 5.4 (Hazard Profiles) and includes a chronology of events that affected Cape May County and its jurisdictions. The Borough of Stone Harbor’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Cape May County. Table 9.11-11 provides details regarding municipal-specific loss and damages the Borough experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.11-11. Hazard Event History

| Date(s) of Event | Event Type (disaster declaration if applicable) | Cape May County Designated? | Summary of Event | Summary of Local Damages and Losses |
|------------------|---|-----------------------------|--|--|
| January 23, 2016 | Winter Storm Jonas (Nor'easter) | No. State Designated, yes | Severe winter storm which borough historic flooding to the Borough | Multiple businesses and homes in low-lying areas sustained moderate flood damage |



| Date(s) of Event | Event Type (disaster declaration if applicable) | Cape May County Designated? | Summary of Event | Summary of Local Damages and Losses |
|------------------|---|-----------------------------|---|--|
| October 27, 2018 | Nor'easter | No | Nor'easter brought severe flooding to Borough. | Several businesses sustained moderate flood damage |
| August 4, 2020 | Hurricane/Tropical Storm Isaias | Yes | Tropical Storm conditions, including high winds and heavy rains | Multiple buildings sustained minor wind damage. Widespread trees and wires down. |

Source: NOAA NCEI 2020; FEMA 2020; Borough of Stone Harbor 2020

9.11.6 Jurisdiction-Specific Vulnerabilities and Hazard Ranking

The hazard profiles in Section 5 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. Refer to Section 5.1 (Methodology) and Section 5.3 (Hazard Ranking) for a detailed summary for the Borough of Stone Harbor risk assessment results and data used to determine the hazard ranking.

REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Borough of Stone Harbor.

- Number of repetitive loss (RL) properties: 137
- Number of severe repetitive loss (SRL) properties: 38
- Number of RL/SRL properties that have been mitigated: 44

Source: NFIP FEMA Region 2, 2020

Note: The number of SRL properties excludes RL properties.

CRITICAL FACILITIES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.11-12. Potential Flood Losses to Critical Facilities and Lifelines

| Name | Type | Exposure | |
|--|---------------------------------|----------|------------|
| | | 1% Event | 0.2% Event |
| 104th. Street Bridge | Bridge | X | X |
| No Name | Communications Facility | X | X |
| No Name | Communications Facility | X | X |
| Borough Hall Communications Tower | Communications Facility | X | X |
| Stone Harbor Branch Library | County Facilities | X | X |
| STONE HARBOR ELEMENTARY | Education | X | X |
| Stone Harbor Branch Library | Library | X | X |
| Stone Harbor Public Marina | Marinas | X | X |
| Stone Harbor | Municipal Facilities | X | X |
| 80th Street Well | Potable Water Facilities | X | X |
| 92nd Street Well | Potable Water Facilities | X | X |
| 95th Street Well | Potable Water Facilities | X | X |
| 81St St Pump Station | Wastewater Treatment Facilities | X | X |
| 93rd Street Lift Station | Wastewater Treatment Facilities | X | X |
| 114th Street Lift Station | Wastewater Treatment Facilities | X | X |
| 94th Street Lift Station | Wastewater Treatment Facilities | X | X |
| STONE HARBOR VOLUNTEER FIRE DEPARTMENT | Fire Stations | | X |





| Name | Type | Exposure | |
|-------------------------------------|--------------------------|----------|------------|
| | | 1% Event | 0.2% Event |
| 101st Street Well | Potable Water Facilities | | X |
| Water Plant | Potable Water Facilities | | X |
| Stone Harbor Police Department | Police Stations | | X |
| STONE HARBOR FIRE HOUSE | Polling Places | | X |
| STONE HARBOR RESCUE SQUAD | EMS | | X |
| BORO OF STONE HARBOR Municipal Hall | Municipal Facilities | | X |

Source: FEMA DFIRM 2014/2017; Cape May County 2020

IDENTIFIED ISSUES

The jurisdiction has identified the following vulnerabilities within their community:

- The Borough has low bulkhead heights along the bayfront. Bulkheads will be required to be eight feet high by 2050 and 6.2 feet high by 2026.
- Stone Harbor experiences nuisance flooding Third Avenue 93rd Street to 99th Street.

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Borough of Stone Harbor that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps have been generated only for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Stone Harbor has significant exposure. A map of the Borough of Stone Harbor hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain, as well as identified critical facilities within the municipality.

HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 5.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Cape May County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community factoring in their capabilities to withstand impacts and rebound after the event. The table below summarizes the hazard rankings of potential natural hazards for the Borough of Stone Harbor. The Borough of Stone Harbor has reviewed the Cape May County hazard ranking table and has provided input to its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard ranking, the Borough assented to the proposed hazard ranking.

Table 9.11-13. Borough of Stone Harbor Hazard Ranking Input

| Climate Change and SLR | Coastal Erosion | Disease Outbreak | Drought | Flood | Hurricane |
|------------------------|-----------------|------------------|---------|-------|-----------|
| High | Medium | Medium | Medium | High | High |





| | | | | |
|------------|----------------|-----------------------|---------|----------|
| Nor'Easter | Severe Weather | Severe Winter Weather | Tsunami | Wildfire |
| High | High | High | Medium | Medium |

9.11.7 Mitigation Strategy and Prioritization

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

PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.11-14. Status of Previous HMP Mitigation Actions

| 2015 Action Number | Action Description | Responsible Party | Status (In Progress, No Progress, Ongoing Capability, or Completed) | Include in the 2021 HMP Update? | |
|---------------------------|---|--|--|---------------------------------|-------------------------|
| | | | | Check if Yes | Enter 2021 HMP Action # |
| SH-1a (former SH-1a) | Property Mitigation Support – Retrofit | Borough (likely through NFIP Floodplain Administrator) | In Progress | X | 2021-StoneHarbor-005 |
| SH-1b (former SH-1b) | Property Mitigation Support – Acquisition/Relocation | Borough (likely through NFIP Floodplain Administrator) | No Progress, not interested in acquisition | | |
| SH-1c | Retrofit or relocate critical facilities in the 100-year floodplain | Borough (likely through NFIP Floodplain Administrator); working with facility manager/operator | In Progress | X | 2021-StoneHarbor-006 |
| SH-2 (former SH-2, -4) | Strive to maintain compliance with, and good-standing in the National Flood Insurance program, including continued active participation in incentive-based program. | Borough (primarily through NFIP Floodplain Administrator) & CRS Coordinator | Ongoing Capability | | |
| SH-3 (former SH-3) | Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0 | Borough (through mitigation planning point of contacts) | Ongoing Capability | | |
| SH-4 | Train staff or acquire contract support for benefit-cost analysis | Borough (primarily through NFIP Floodplain Administrator and Engineering) | In Progress | X | 2021-StoneHarbor-007 |
| SH-5 (former SH-5) | Continue to develop, enhance, and implement existing emergency plans. | Municipal Emergency Manager with support from County OEM and NJ OEM | Ongoing Capability | | |
| SH-6 (former SH-6) | Create/enhance/ maintain mutual aid agreements with neighboring communities. | Borough | Ongoing Capability | | |



Table 9.11-14. Status of Previous HMP Mitigation Actions

| 2015 Action Number | Action Description | Responsible Party | Status (In Progress, No Progress, Ongoing Capability, or Completed) | Include in the 2021 HMP Update? | |
|--|---|---|--|---------------------------------|------------------------------|
| | | | | Check if Yes | Enter 2021 HMP Action # |
| SH-7 (former SH-7) | Support County-wide initiatives identified in Section 9.1 of the County Annex. | Local departments (as applicable for specific initiative) | Ongoing Capability | | |
| SH-8 (former SH-8 and SH-22) | Continue to support beach replenishment activities from 98 th to 111 th Streets. This is an ongoing yearly initiative | NJDEP with Borough support | In Progress | X | 2021- StoneHarbor- 008 |
| SH-9 (former SH-9) | Continue stormwater drainage improvements throughout the Borough to increase capacity. | Borough | In Progress | X | 2021- StoneHarbor- 009 |
| SH-10 (former SH-10a (CMC-26, BA-8) | Upgrade stormwater system on CR-619 through Stone Harbor and Avalon. Seven stormwater pump stations were installed along CR-619 from Avalon Boulevard to 19 th Street (Avalon business district) to address flooding in this area. | County Engineering with municipalities | In Progress | X | 2021- StoneHarbor- 010 |
| SH-11 (former SH-11) | Support installation of back-up generator at SH School. Assist in obtaining grants when available. | School Board; with Borough support as appropriate | No Progress | X | 2021- StoneHarbor- 011 |
| SH-12 (former SH-12) | Remote tide-gages with cameras, using tide gauges at CMC Bridge Comm. and 80 th Street Marina. | Borough | In Progress | X | 2021- StoneHarbor- 012 |
| SH-13 (former SH-14) | Support private property owner with elevation of The Market (commercial property). | Borough | No Progress | | |
| SH-14 (CMC-14) | Elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor proper | County Engineering, with local support | No Progress | X | 2021- StoneHarbor- 013 |
| SH-15 | Maintain relationship with Army Corps and NJDEP for dune maintenance along the oceanfront via planting dune grass and installing sand fencing. | Borough; working with NJDEP and USACE | Ongoing Capability | | |
| SH-16 | Continue annual review of ordinances and appropriate laws with regard to planning, zoning and code enforcement within the Borough. | Medium - High | Ongoing Capability | | |
| SH-17 | Maintain the 12 outfall pipes along the beachfront of the Borough by regularly cleaning and adding replacement sands to the area for Emergency Access. | High | Ongoing Capability | | |
| SH-18 | Continue to work with property owners to bring all applicable properties within the Borough up to code within the NFIP. | Medium - High | Ongoing Capability | | |
| SH-19 | Maintain flood siren warning systems throughout the Borough to alert residents in the event of an emergency. | Medium - High | Ongoing Capability | | |

In addition to the above progress, the Borough of Stone Harbor identified the following mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy:





- The Borough undertook stormwater improvements to 111th Street to prevent the collection of rainwater at the 111th & Second Street intersection.
- The Borough raised 88th Street adjacent to the bulkhead.
- Stone Harbor Point has been subject to sand replenishment in support of ecological enhancements.
- At 92nd Street as it curves onto Sunset Drive, two storm basins were added in addition to a pipe that ran to 93rd Street to collect and redirect the flow to the 93rd Street bay end outlet and onto the bay.
- During the 95th Street road project between First Avenue to Sunset Drive, storm water basins were added to help collect runoff and move it to the other side of the street. In addition, any old existing basins were removed and replaced. A pipe was added to cross Second Avenue from east to west to change the flow that once flowed to 94th Street, ensuring all ran down 95th Street to end at back bay outlet.

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Borough of Stone Harbor participated in a risk assessment workshop in June 2020 in which detailed information was provided about assets exposed and vulnerable to the identified hazards of concern. The Borough of Stone Harbor participated in a mitigation action workshop in July 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Cape May County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments; and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 *Selecting Appropriate Mitigation Measures for Floodprone Structures* (March 2007) and FEMA *Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards* (January 2013). Section 6 (Mitigation Strategy) and Appendix F (Mitigation Strategy Supplement) provide a more complete description of the Mitigation Toolbox and its resources.

Table 9.11-15 summarizes the comprehensive-range of specific mitigation initiatives the Borough of Stone Harbor would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the 4 FEMA mitigation action categories and the 6 CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

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

Table 9.11-16 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update.



Table 9.11-15. Proposed Hazard Mitigation Initiatives

| Initiative Number | Mitigation Initiative Name | Description of the Problem and Solution | New or Existing Assets? | Hazard(s) to be Mitigated | Goals Met | Lead and Support Agencies | Potential Funding Sources | Estimated Benefits | Estimated Cost | Timeline | Priority | Mitigation Category | CRS Category |
|------------------------------|---|--|-------------------------|---|------------|--|--|--|----------------|----------------------|----------|---------------------|--------------|
| 2021- StoneHarbor- 001 | Stone Harbor Hazard Mitigation Initiatives for Land Development | <p>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.</p> <p>Solution: The Borough proposes to implement three land use practices: overlay zoning, critical infrastructure protection, and modifying required development application submittals to consider hazards.</p> | New | Flood; Hurricane/Tropical Storm; Nor’easter; Coastal Erosion; Climate Change and Sea Level Rise | 1, 3, 4, 6 | Stone Harbor Administration; NJDEP; NJOPA; FEMA Region II | Borough funds; existing staff capabilities | Enhanced resilience to natural hazards | None | Short-term | High | LPR | PR |
| 2021- StoneHarbor- 002 | Bayside Stormwater Pump Station | <p>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.</p> <p>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.</p> | New | Flood; Hurricane/Tropical Storm; Nor’easter; Climate Change and Sea Level Rise; Severe Weather | 1, 3 | Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works | HMGP; BRIC; Local match | Alleviate flooding in roadways, homes and allow for access to businesses | \$8 million | Less than five years | High | SIP | SP |
| | Boat Ramp Marina Raising | <p>Problem: The Borough’s Boat Ramp at 81st Street is located at elevation</p> | Existing | Flood; Hurricane/Tropical | 1, 3 | Borough Engineer/Borough | HMGP; BRIC; Local match | Alleviate flooding - | \$500,000 | Less than | High | SIP | SP |



| Initiative Number | Mitigation Initiative Name | Description of the Problem and Solution | New or Existing Assets? | Hazard(s) to be Mitigated | Goals Met | Lead and Support Agencies | Potential Funding Sources | Estimated Benefits | Estimated Cost | Timeline | Priority | Mitigation Category | CRS Category |
|-------------------------------------|--|---|-------------------------|--|-----------|--|----------------------------|--|----------------|---------------------|----------|---------------------|--------------|
| 2021-StoneHarbor-003 | | 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. | | Storm; Nor'easter; Climate Change and Sea Level Rise | | Floodplain Manager/Director of Public Works | | roadways, surrounding properties | | two years | | | |
| 2021-StoneHarbor-004 | Bayside Outfall Tide Closure Valves | 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. | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise | 1, 3 | Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works | HMGP, BRIC, Borough budget | Alleviate flooding in roadways, homes and allow for access to businesses | \$2 million | Less than two years | High | SIP | SP |
| 2021-StoneHarbor-005 (Former SH-1a) | Property Mitigation Support – Retrofit | 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 | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | 1, 3, 4 | Floodplain Administrator, Homeowners | FMA; HMGP; Owner funds | High | High | Long Term DOF | High | SIP | PP |



| Initiative Number | Mitigation Initiative Name | Description of the Problem and Solution | New or Existing Assets? | Hazard(s) to be Mitigated | Goals Met | Lead and Support Agencies | Potential Funding Sources | Estimated Benefits | Estimated Cost | Timeline | Priority | Mitigation Category | CRS Category |
|-------------------------------------|---------------------------------|---|-------------------------|--|------------------|--|---|--------------------|----------------|---------------|----------|---------------------|--------------|
| | | cost-effectiveness versus relocation. Where retrofitting is determined to be a viable option, consider implementation of that action based on available funding. | | | | | | | | | | | |
| 2021-StoneHarbor-006 (Former SH-1c) | Critical Facilities Retrofit | <p>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.</p> <p>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.</p> | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | 1, 3, 4 | Borough (likely through NFIP Floodplain Administrator); working with facility manager/operator | FMA; HMGP; Owner funds; Local match | High | High | Long Term DOF | High | SIP | PP |
| 2021-StoneHarbor-007 (Former SH-4) | Benefit Cost Analysis Training | <p>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.</p> <p>Solution: Train staff or acquire contract support for benefit-cost analysis.</p> | N/A | All Hazards | 1, 2, 3, 4, 5, 6 | Borough (primarily through NFIP Floodplain Administrator and Engineering); FEMA | Local Budget | Medium | Low | Short term | High | EAP | PI |
| 2021-StoneHarbor-008 (Former SH-8) | Beach Replenishment Innovations | <p>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</p> | Existing | Hurricane, Nor'easter, Coastal Erosion, Flooding, Severe Weather | 1, 3, 5 | NJDEP with Borough support | NJDEP – 75%; Borough – 25%; US Army Corps | High | High | Long term | High | NSP | NR |



| Initiative Number | Mitigation Initiative Name | Description of the Problem and Solution | New or Existing Assets? | Hazard(s) to be Mitigated | Goals Met | Lead and Support Agencies | Potential Funding Sources | Estimated Benefits | Estimated Cost | Timeline | Priority | Mitigation Category | CRS Category |
|-------------------------------------|---|---|-------------------------|--|------------|--|--------------------------------------|--------------------|----------------|---------------|-----------|---------------------|--------------|
| | | <p>help the Borough retain sand for its beaches and dunes.</p> <p>Solution: Continue to support beach replenishment activities from 98th to 111th Streets and explore innovative options for replenishment.</p> | | | | | | | | | | | |
| 2021-StoneHarbor-009 (Former SH-9) | Stormwater Management Enhancements | <p>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.</p> <p>Solution: Continue stormwater drainage improvements throughout the Borough to increase capacity.</p> | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | 1, 3, 4, 5 | Borough Engineer | Borough funds; BRIC | High | High | Long term | High | SIP | PP |
| 2021-StoneHarbor-010 (Former SH-10) | Seven Mile Island CR-619 Stormwater Improvements (See 2021-CapeMayCounty-018) | <p>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.</p> <p>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.</p> | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise | 1, 3, 4, 6 | County Engineering with municipalities | FEMA HMA grant programs, local match | High | High | Long Term DOF | Medium | SIP | PP |
| 2021-StoneHarbor- | SHES Generator | <p>Problem: The Stone Harbor Elementary School lacks a back-up</p> | Existing | Flood; Hurricane/Tropical | 1, 3, 4 | School Board; with Borough | FEMA BRIC; School | High-continued | Medium | | M-H (DOF) | SIP | PP |



| Initiative Number | Mitigation Initiative Name | Description of the Problem and Solution | New or Existing Assets? | Hazard(s) to be Mitigated | Goals Met | Lead and Support Agencies | Potential Funding Sources | Estimated Benefits | Estimated Cost | Timeline | Priority | Mitigation Category | CRS Category |
|-------------------------------------|----------------------------------|--|-------------------------|--|-----------|--|--|--|----------------|---------------|----------|---------------------|--------------|
| 011 (Former SH-11) | | generator. The School is a designated critical facility. Solution: Support installation of back-up generator at SH School. | | Storm; Nor'easter; Severe Winter Weather; Severe Weather | | support as appropriate | Board/Borough funds | functioning of school facility during outages | | Long Term DOF | | | |
| 2021-StoneHarbor-012 (Former SH-12) | Flood Cameras | 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 96 th Street bridge and at the 81 st Street boat ramp. | New | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise | 1, 3, 4 | Borough Administration | Local, Coastal Coalition | Medium | Medium | Short term | High | EAP | PI |
| 2021-StoneHarbor-013 (Former SH-13) | Stone Harbor Boulevard Elevation | 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. | Existing | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | 1, 3, 4 | County Engineering, with local support | County funds; Local match; BRIC; NJDOT | Continued use of evacuation route and access to Stone Harbor | High | Long Term DOF | Medium | SIP | PP |
| 2021-StoneHarbor-014 | Disaster Debris Management Plan | Problem: The Borough lacks a debris management plan. Solution: The Borough will develop and adopt a Disaster Debris Management Plan. | N/A | All Hazards | 4, 6 | Administration | Municipal budget | Plan in place for debris management | Staff time | 1 year | High | LPR | ES |

Notes:

Acronyms and Abbreviations:

CAV Community Assistance Visit
CRS Community Rating System

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation





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

BRIC Building Resilient Infrastructure and Communities
 Program

Cost:
 The estimated cost for implementation.

Benefits:
 A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses and 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.

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. 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. 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. Structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.



Table 9.11-16. Summary of Prioritization of Actions

| Initiative Number | Mitigation Initiative Name | Life Safety | Property Protection | Cost Effectiveness | Technical | Political | Legal | Fiscal | Environmental | Social | Administrative | Multi-Hazard | Timeline | Agency Champion | Other Community Objectives | Total | High / Medium / Low |
|-------------------------------------|---|-------------|---------------------|--------------------|-----------|-----------|-------|--------|---------------|--------|----------------|--------------|----------|-----------------|----------------------------|-------|---------------------|
| 2021-StoneHarbor-001 | Stone Harbor Hazard Mitigation Initiatives for Land Development | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 12 | High |
| 2021-StoneHarbor-002 | Bayside Stormwater Pump Station | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 10 | High |
| 2021-StoneHarbor-003 | Boat Ramp Marina Raising | 1 | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 11 | High |
| 2021-StoneHarbor-004 | Bayside Outfall Tide Closure Valves | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 12 | High |
| 2021-StoneHarbor-005 (Former SH-1a) | Property Mitigation Support – Retrofit | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 9 | High |
| 2021-StoneHarbor-006 (Former SH-1c) | Critical Facilities Retrofit | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 10 | High |
| 2021-StoneHarbor-007 (Former SH-4) | Benefit Cost Analysis Training | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 11 | High |
| 2021-StoneHarbor-008 (Former SH-8) | Beach Replenishment Innovations | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 9 | High |
| 2021-StoneHarbor-009 (Former SH-9) | Stormwater Management Enhancements | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 11 | High |
| 2021-StoneHarbor-010 (Former SH-10) | Seven Mile Island CR-619 Stormwater Improvements (See 2021-CapeMayCounty-018) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 9 | Medium |
| 2021-StoneHarbor-011 (Former SH-11) | SHES Generator | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 11 | High |



| Initiative Number | Mitigation Initiative Name | Life Safety | Property Protection | Cost Effectiveness | Technical | Political | Legal | Fiscal | Environmental | Social | Administrative | Multi-Hazard | Timeline | Agency Champion | Other Community Objectives | Total | High / Medium / Low |
|-------------------------------------|----------------------------------|-------------|---------------------|--------------------|-----------|-----------|-------|--------|---------------|--------|----------------|--------------|----------|-----------------|----------------------------|-------|---------------------|
| 2021-StoneHarbor-012 (Former SH-12) | Flood Cameras | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 | High |
| 2021-StoneHarbor-013 (Former SH-13) | Stone Harbor Boulevard Elevation | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 8 | Medium |
| 2021-StoneHarbor-014 | Disaster Debris Management Plan | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | High |

Notes: Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).


 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



Table 9.11-17. Analysis of Mitigation Actions by Hazard and Category

| Hazard | Prevention | Property Protection | Public Education and Awareness | Natural Resource Protection | Emergency Services | Structural Projects | Climate Resilient | Community Capacity Building |
|-----------------------------------|------------|---------------------|--------------------------------|-----------------------------|--------------------|---------------------|-------------------|-----------------------------|
| Climate Change and Sea Level Rise | X | X | X | | X | X | X | X |
| Coastal Erosion | X | | X | X | X | | | X |
| Disease Outbreak | | | X | | X | | | X |
| Drought | | | X | | X | | | X |
| Flood | X | X | X | X | X | X | | X |
| Hurricane | X | X | X | X | X | X | | X |
| Nor'easter | X | X | X | X | X | X | | X |
| Severe Weather | | X | X | X | X | X | | X |
| Severe Winter Weather | | | X | | X | | | X |
| Tsunami | | | X | | X | | | X |
| Wildfire | | | X | | X | | | X |

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

RED high ranked hazard

ORANGE medium ranked hazard

YELLOW low ranked hazard



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

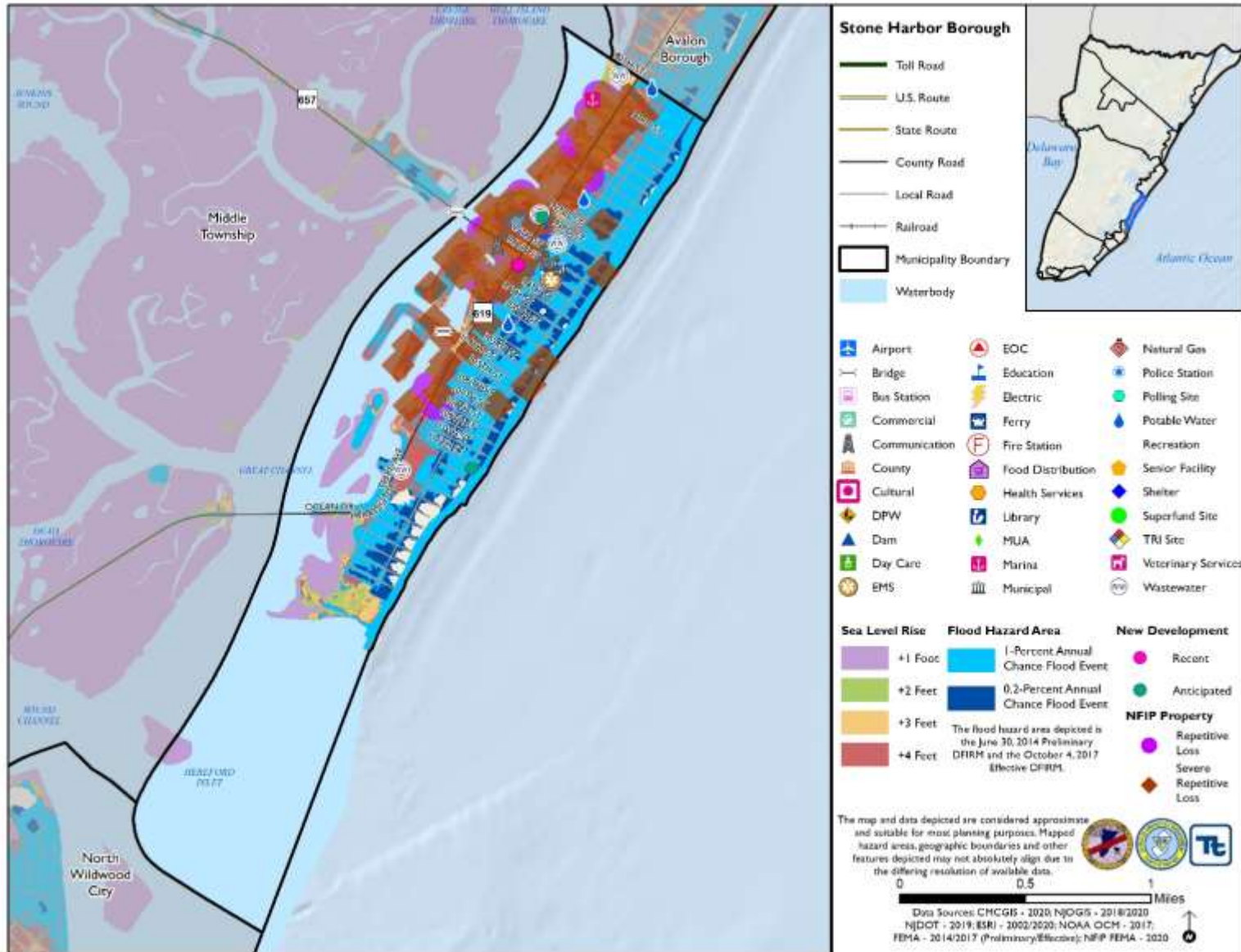




Figure 9.11-2. Borough of Stone Harbor Hazard Area Extent and Location Map 2

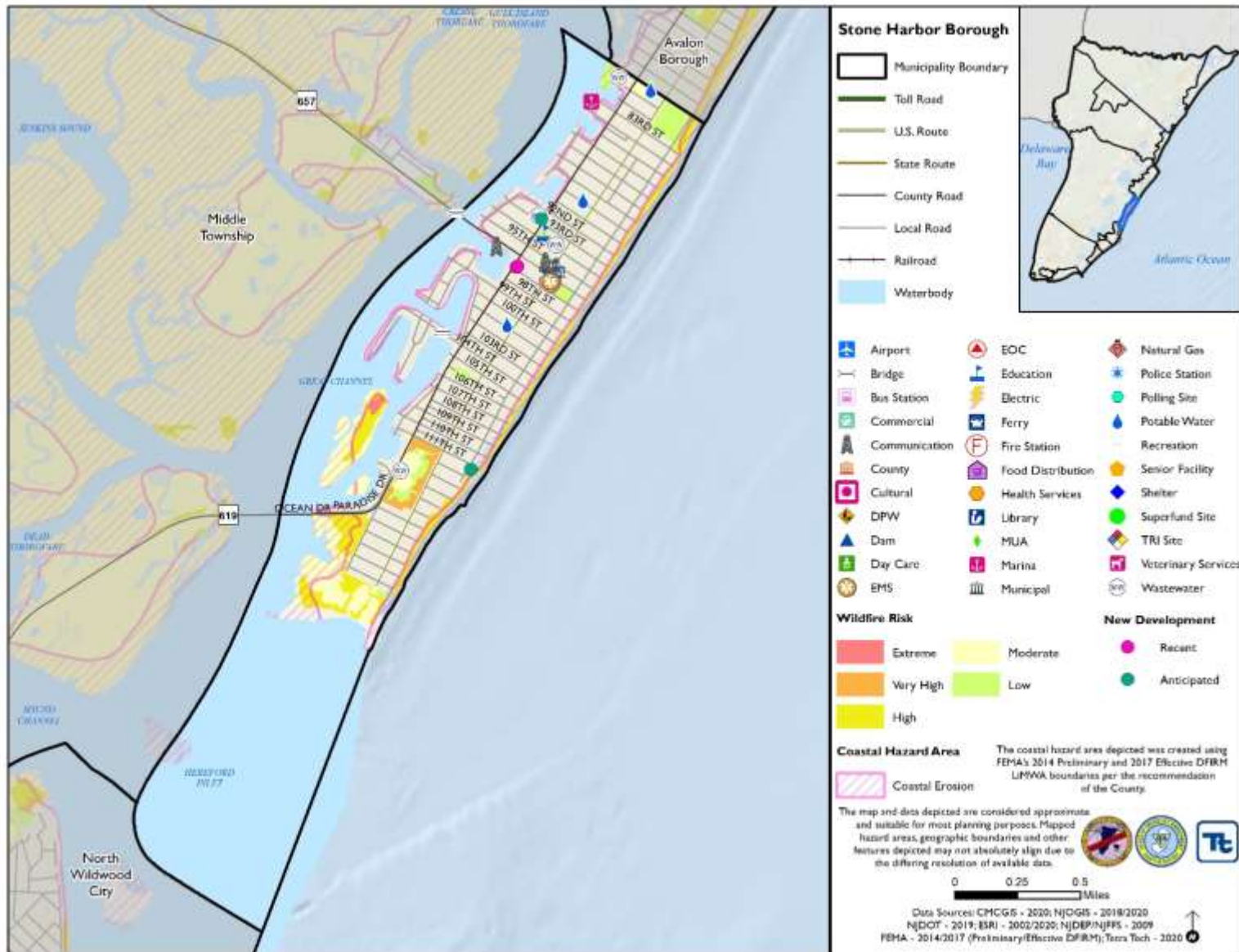
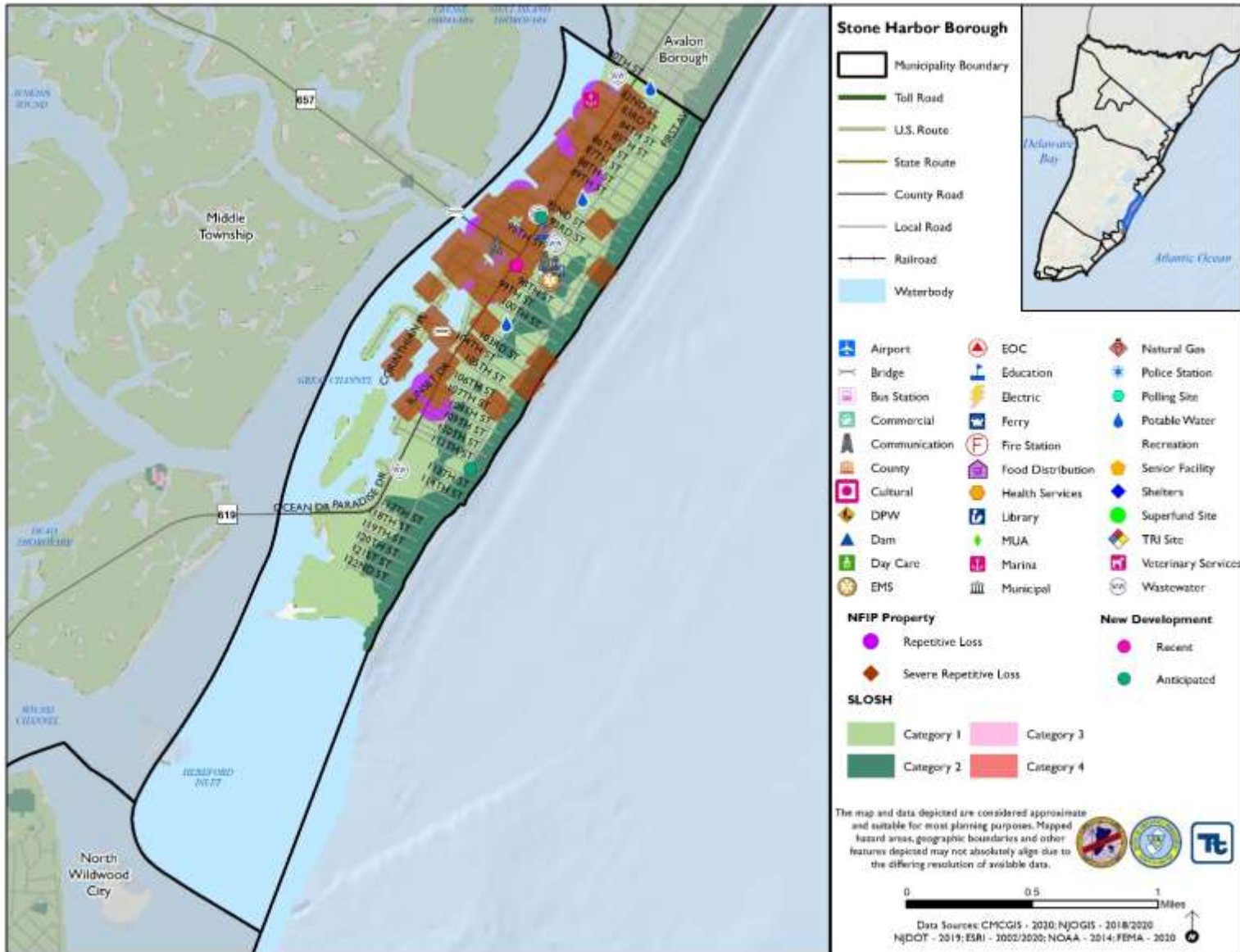




Figure 9.11-3. Borough of Stone Harbor Hazard Area Extent and Location Map 3





| Action Worksheet | | | |
|--|--|---|--|
| Project Name: | Bayside Stormwater Pump Station | | |
| Project Number: | 2021-StoneHarbor-002 | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | | |
| Description of the 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. | | |
| Action or Project Intended for Implementation | | | |
| 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. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Level of Protection: | Base Flood Elevation | Estimated Benefits (losses avoided): | Alleviate flooding in roadways, homes and allow for access to businesses |
| Useful Life: | 30 years | Goals Met: | 1, 3 |
| Estimated Cost: | \$8 million | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Within five years |
| Estimated Time Required for Project Implementation: | 2 Years | Potential Funding Sources: | HMGP; BRIC; Local match |
| Responsible Organization: | Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works | Local Planning Mechanisms to be Used in Implementation if any: | Watershed Management Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | N/A | Continued flooding |
| | Remove outfalls and replace with larger outfalls | High | Pumping needed |
| | Installing actuated tidal valves | High | Pumping needed |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|---------------------------------|--|
| Project Name: | Bayside Stormwater Pump Station | |
| Project Number: | 2021-StoneHarbor-002 | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | |
| Property Protection | 1 | |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 1 | The Borough has the legal authority to complete the project |
| Fiscal | 0 | Project requires funding support |
| Environmental | 1 | |
| Social | 0 | |
| Administrative | 0 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather |
| Timeline | 1 | |
| Agency Champion | 1 | Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works |
| Other Community Objectives | 1 | |
| Total | 11 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|--|---|---|
| Project Name: | Boat Ramp Marina Raising | | |
| Project Number: | 2021-StoneHarbor-003 | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | | |
| Description of the Problem: | The Borough's Boat Ramp at 81 st Street is located at elevation 4.0 NAVD88 datum. Floodwaters enter through boat ramp resulting in flooding of marina parking lot and surrounding area. | | |
| Action or Project Intended for Implementation | | | |
| Description of the 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. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Level of Protection: | 100 year | Estimated Benefits (losses avoided): | Alleviate flooding - roadways, surrounding properties |
| Useful Life: | 50 years | Goals Met: | 1, 3 |
| Estimated Cost: | \$500,000 | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Within 2 years |
| Estimated Time Required for Project Implementation: | 1 Year | Potential Funding Sources: | HMGP; BRIC; Local match |
| Responsible Organization: | Borough Engineer/Borough Floodplain Manager/Director of Public Works | Local Planning Mechanisms to be Used in Implementation if any: | Watershed Master Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | N/A | Flooding Continues |
| | Eliminate Boat Ramp | Low | Loss of access |
| | Add Flood Gate | Medium | Requires deployment, requires monitoring of flooding conditions |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|--------------------------|--|
| Project Name: | Boat Ramp Marina Raising | |
| Project Number: | 2021-StoneHarbor-003 | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | |
| Property Protection | 1 | |
| Cost-Effectiveness | 1 | Saves on flood insurance claims |
| Technical | 1 | Design is underway |
| Political | 1 | |
| Legal | 1 | Borough owns land |
| Fiscal | -1 | Borough engineer created design- there was an opportunity for open space funding but County was not in favor of boat ramp specifically |
| Environmental | 1 | |
| Social | 0 | |
| Administrative | 0 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather |
| Timeline | 1 | Project imminent |
| Agency Champion | 1 | |
| Other Community Objectives | 1 | Master Plan- Recreation goals |
| Total | 11 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|---|---|--|
| Project Name: | Bayside Outfall Tide Closure Valves | | |
| Project Number: | 2021-StoneHarbor-004 | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise | | |
| 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. | | |
| Action or Project Intended for Implementation | | | |
| Description of the Solution: | Install automated (mechanical) tide valves that close during high tides. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Level of Protection: | 100 year | Estimated Benefits (losses avoided): | Alleviate flooding in roadways, homes and allow for access to businesses |
| Useful Life: | 5 years | Goals Met: | 1, 3 |
| Estimated Cost: | 2 Million | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Less than two years |
| Estimated Time Required for Project Implementation: | 1.5 Years | Potential Funding Sources: | HMGP, BRIC, Borough budget |
| Responsible Organization: | Borough Engineer/Borough Certified Floodplain Manager/Director of Public Works | Local Planning Mechanisms to be Used in Implementation if any: | Watershed Master Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | N/A | Problem Continues |
| | Consolidate Outfalls | High | May not be feasible |
| | Add Pump Station | High | Costly |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|-------------------------------------|--|
| Project Name: | Bayside Outfall Tide Closure Valves | |
| Project Number: | 2021-StoneHarbor-004 | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | |
| Property Protection | 1 | |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 1 | Borough owns all outfalls except for some County-owned |
| Fiscal | 0 | The project requires funding support. |
| Environmental | 1 | |
| Social | 1 | Fewer nuisance flooding events |
| Administrative | 0 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise |
| Timeline | 1 | Within next year |
| Agency Champion | 1 | |
| Other Community Objectives | 1 | Stormwater Plan |
| Total | 12 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|--|---|---|
| Project Name: | Property Mitigation Support – Retrofit | | |
| Project Number: | 2021-StoneHarbor-005 (Former SH-1a) | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Hurricane, Nor'Easter, 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. | | |
| Action or Project Intended for Implementation | | | |
| 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 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. | | |
| Is this project related to a Critical Facility or Lifeline? | | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| Level of Protection: | Base Flood Elevation | Estimated Benefits (losses avoided): | High |
| Useful Life: | 30 years | Goals Met: | 1, 3, 4 |
| Estimated Cost: | High | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Long term |
| Estimated Time Required for Project Implementation: | Long Term DOF | Potential Funding Sources: | FEMA Mitigation Grant Programs (primarily HMGP and FMA); local property owner for match as supported by ICC and other non-Federal match sources as available. |
| Responsible Organization: | Borough (likely through NFIP Floodplain Administrator) | Local Planning Mechanisms to be Used in Implementation if any: | Building Code, Zoning Code |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Elevate roads | \$500,000+ | Elevated roadways would not protect the homes from flood damages |
| | Install floodwalls around neighborhoods that flood | \$500,000+ | Costly; not feasible in all areas that experience flood damage; some homes could still experience damage |
| Progress Report (for plan maintenance) | | | |
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| Action Worksheet | | |
|--------------------------------|--|---|
| Project Name: | Property Mitigation Support - Retrofit | |
| Project Number: | 2021-StoneHarbor-005 (Former SH-1a) | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | |
| Property Protection | 1 | Properties protected from flooding |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 0 | |
| Fiscal | 0 | The project requires funding support |
| Environmental | 0 | |
| Social | 1 | |
| Administrative | 1 | |
| Multi-Hazard | 1 | Hurricane, Nor'Easter, Flood, Severe Weather |
| Timeline | 0 | Long term |
| Agency Champion | 1 | Borough (likely through NFIP Floodplain Administrator) |
| Other Community Objectives | 0 | |
| Total | 9 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|---|---|---|
| Project Name: | Critical Facility Retrofit/floodproofing | | |
| Project Number: | 2021-StoneHarbor-006 (Former SH-1c) | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; 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. | | |
| Action or Project Intended for Implementation | | | |
| Description of the 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. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Level of Protection: | 500-year flood elevation plus two feet | Estimated Benefits (losses avoided): | High |
| Useful Life: | Variable | Goals Met: | 1, 3, 4 |
| Estimated Cost: | High | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Five years |
| Estimated Time Required for Project Implementation: | Long Term DOF | Potential Funding Sources: | FEMA Mitigation Grant Programs (primarily HMGP and FMA); local property owner for match as supported by ICC and other non-Federal match sources as available. |
| Responsible Organization: | Borough (likely through NFIP Floodplain Administrator); working with facility manager/operator | Local Planning Mechanisms to be Used in Implementation if any: | Capital improvement plan; watershed master plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Relocate CFs | High | Not feasible due to lack of locations |
| | Floodproof CFs | High | Feasible |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|-----------------------------------|--|--|
| Project Name: | Critical Facility Retrofit/floodproofing | |
| Project Number: | 2021-StoneHarbor-006 (Former SH-1c) | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | Protect critical services |
| Property Protection | 1 | Protect critical facilities from damage |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 1 | The Borough has the legal authority to complete the project |
| Fiscal | 0 | Project requires funding support |
| Environmental | 0 | |
| Social | 1 | |
| Administrative | 1 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather |
| Timeline | 0 | 5 years |
| Agency Champion | 1 | Borough (likely through NFIP Floodplain Administrator); working with facility manager/operator |
| Other Community Objectives | 0 | |
| Total | 10 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|---|---|---|
| Project Name: | Stormwater Management Enhancements | | |
| Project Number: | 2021-StoneHarbor-009 (Former SH-9) | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Hurricane, Nor'Easter, 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. | | |
| Action or Project Intended for Implementation | | | |
| Description of the Solution: | Continue stormwater drainage improvements throughout the Borough to increase capacity. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Level of Protection: | N/A | Estimated Benefits (losses avoided): | High |
| Useful Life: | 50 years | Goals Met: | 1, 3, 4, 5 |
| Estimated Cost: | High | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Long Term |
| Estimated Time Required for Project Implementation: | This is a yearly initiative through our annual infrastructure upgrades, included in our yearly and long range capital plan. | Potential Funding Sources: | This is a yearly initiative through our annual infrastructure upgrades, included in our yearly and long range capital plan. |
| Responsible Organization: | Borough Engineer | Local Planning Mechanisms to be Used in Implementation if any: | Capital Improvement Plan; Watershed Management Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Road elevations | High | Does not mitigate flooding completely |
| | Drainage Improvements | TBD | Alleviates drainage |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|------------------------------------|---|
| Project Name: | Stormwater Management Enhancements | |
| Project Number: | 2021-StoneHarbor-009 (Former SH-9) | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 0 | |
| Property Protection | 1 | |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 1 | The Borough has the legal authority to complete the project |
| Fiscal | 0 | The project requires funding support |
| Environmental | 1 | |
| Social | 1 | |
| Administrative | 1 | |
| Multi-Hazard | 1 | Hurricane, Nor'Easter, Flood, Severe Weather |
| Timeline | 0 | Long term |
| Agency Champion | 1 | Borough Engineer |
| Other Community Objectives | 1 | |
| Total | 11 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|--|---|--|
| Project Name: | Seven Mile Island CR-619 Stormwater Improvements | | |
| Project Number: | 2021-StoneHarbor-010 | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise | | |
| 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. | | |
| Action or Project Intended for Implementation | | | |
| Description of the Solution: | The County will upgrade the stormwater system on CR-619 through Stone Harbor and Avalon. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Level of Protection: | TBD by design | Estimated Benefits (losses avoided): | High |
| Useful Life: | 30 years | Goals Met: | 1, 3, 4, 6 |
| Estimated Cost: | High | Mitigation Action Type: | Structure and Infrastructure |
| Plan for Implementation | | | |
| Prioritization: | Medium | Desired Timeframe for Implementation: | Within five years |
| Estimated Time Required for Project Implementation: | Long Term DOF | Potential Funding Sources: | FEMA HMA grant programs, local match |
| Responsible Organization: | County Engineering with municipalities | Local Planning Mechanisms to be Used in Implementation if any: | CIP; Local floodplain management plans |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Road elevation | High | Not currently feasible |
| | Drainage Upgrades | High | Less disruptive than elevation |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|--|--|
| Project Name: | Seven Mile Island CR-619 Stormwater Improvements | |
| Project Number: | 2021-StoneHarbor-010 | |
| Criteria | 2021-StoneHarbor-010 | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | |
| Property Protection | 1 | Project will protect roadway from flooding |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 0 | The project is under the county's jurisdiction |
| Fiscal | 0 | The project requires funding support |
| Environmental | 1 | |
| Social | 1 | |
| Administrative | 0 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise |
| Timeline | 0 | Within five years |
| Agency Champion | 1 | County Engineering with municipalities |
| Other Community Objectives | 0 | |
| Total | 9 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|---|---|---|
| Project Name: | SHES Generator | | |
| Project Number: | 2021-StoneHarbor-011 (Former SH-11) | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | All Hazards, except Wildfire and Coastal Erosion | | |
| Description of the Problem: | The Stone Harbor Elementary School lacks a back-up generator. The School is a designated critical facility. | | |
| Action or Project Intended for Implementation | | | |
| Description of the Solution: | Support installation of back-up generator at SH School. Assist in obtaining grants when available. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Level of Protection: | 500 Year Flood Level | Estimated Benefits (losses avoided): | High- continued functioning of school facility during outages |
| Useful Life: | 30 years | Goals Met: | 1, 3, 4 |
| Estimated Cost: | Medium | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | High | Desired Timeframe for Implementation: | Within five years |
| Estimated Time Required for Project Implementation: | Long Term DOF | Potential Funding Sources: | FEMA BRIC; School Board/Borough funds |
| Responsible Organization: | School Board; with Borough support as appropriate | Local Planning Mechanisms to be Used in Implementation if any: | Capital Improvements Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Microgrid | High | Cost prohibitive |
| | Solar panels | High | Weather dependent |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|-------------------------------------|---|
| Project Name: | SHES Generator | |
| Project Number: | 2021-StoneHarbor-011 (Former SH-11) | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | Project will protect critical services of the school |
| Property Protection | 1 | Project will protect school from power outages |
| Cost-Effectiveness | 1 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 0 | The project is under the school's jurisdiction |
| Fiscal | 0 | The project requires funding support |
| Environmental | 1 | |
| Social | 1 | |
| Administrative | 1 | |
| Multi-Hazard | 1 | All Hazards, except Wildfire and Coastal Erosion |
| Timeline | 0 | Within 5 years |
| Agency Champion | 1 | |
| Other Community Objectives | 1 | |
| Total | 11 | |
| Priority (High/Med/Low) | High | |



| Action Worksheet | | | |
|--|---|---|--|
| Project Name: | Stone Harbor Boulevard Elevation | | |
| Project Number: | 2021-StoneHarbor-013 (Former SH-13) | | |
| Risk / Vulnerability | | | |
| Hazard(s) of Concern: | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather | | |
| Description of the 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. | | |
| Action or Project Intended for Implementation | | | |
| Description of the Solution: | The County will elevate Stone Harbor Boulevard (CR-657) from the Parkway into Stone Harbor up to the base flood elevation. | | |
| Is this project related to a Critical Facility or Lifeline? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Level of Protection: | Base Flood Elevation | Estimated Benefits (losses avoided): | Continued use of evacuation route and access to Stone Harbor |
| Useful Life: | 50 years | Goals Met: | 1, 3, 4 |
| Estimated Cost: | High | Mitigation Action Type: | Structure and Infrastructure Project |
| Plan for Implementation | | | |
| Prioritization: | Medium | Desired Timeframe for Implementation: | Within 5 years |
| Estimated Time Required for Project Implementation: | Long Term DOF | Potential Funding Sources: | County funds; Local match; BRIC; NJDOT |
| Responsible Organization: | County Engineering, with local support | Local Planning Mechanisms to be Used in Implementation if any: | Capital Improvement Plan |
| Three Alternatives Considered (including No Action) | | | |
| Alternatives: | Action | Estimated Cost | Evaluation |
| | No Action | \$0 | Current problem continues |
| | Road abandonment | Low | Loss of access |
| | Road elevation | High | Continued access during high water events |
| Progress Report (for plan maintenance) | | | |
| Date of Status Report: | | | |
| Report of Progress: | | | |
| Update Evaluation of the Problem and/or Solution: | | | |



| Action Worksheet | | |
|--------------------------------|-------------------------------------|--|
| Project Name: | Stone Harbor Boulevard Elevation | |
| Project Number: | 2021-StoneHarbor-013 (Former SH-14) | |
| Criteria | Numeric Rank (-1, 0, 1) | Provide brief rationale for numeric rank when appropriate |
| Life Safety | 1 | Project maintains emergency access to Stone Harbor Boulevard |
| Property Protection | 0 | |
| Cost-Effectiveness | 0 | |
| Technical | 1 | |
| Political | 1 | |
| Legal | 0 | The project is under the county's jurisdiction |
| Fiscal | 1 | The project has funding support |
| Environmental | 1 | |
| Social | 1 | |
| Administrative | 0 | |
| Multi-Hazard | 1 | Flood; Hurricane/Tropical Storm; Nor'easter; Climate Change and Sea Level Rise; Severe Weather |
| Timeline | 0 | Within 5 years |
| Agency Champion | 1 | County Engineering, with local support |
| Other Community Objectives | 0 | |
| Total | 8 | |
| Priority (High/Med/Low) | Medium | |