EXECUTIVE SUMMARY

1.1 WHY PLAN FOR FLOODING?

The Township of Brick has significant exposure to flooding as it is a shore community located on the Atlantic coast of NJ. It has the distinction of being the foremost NJ community with the most miles of shoreline in the state, having a combination of ocean, bay and riverine coastal exposure. Historically and most recently, storm events have demonstrated how the Township of Brick can be significantly impacted by flooding. Specifically, on October 29, 2012, Superstorm Sandy came ashore as an immense tropical storm and dropped heavy rain on the area. Wind gusts were recorded at 90 mph and a full moon made the high tides 20% higher than normal and amplified the storm surge. As a result of this storm, the community suffered human loss as well as severe damage to buildings and infrastructure which underscored the importance of effective floodplain management.

The Township of Brick is subject to multiple sources of flooding and is continuing to improve its floodplain management by developing more detailed information on the frequency, location and damages caused by flooding to support planning and regulations to reduce future impacts of this hazard.

Even though the Township of Brick has adopted a FEMA approved hazard mitigation plan in conjunction with the Ocean County Multi-Jurisdictional Hazard Mitigation Plan which includes an analysis of flood risks and flood mitigation actions, it is constantly seeking additional ways to enhance floodplain management and mitigate flood impacts in their community. Additionally, the Township of Brick is in the process of preparing to participate in the federal Community Rating System, and can use this more detailed and updated floodplain management plan as a key step toward significant reductions in flood insurance premiums.

1.2 WHAT IS A FLOODPLAIN MANAGEMENT PLAN?

Hazard mitigation is defined as "sustained action taken to reduce or eliminate long-term risk to life and property." It involves planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards on a defined planning area. The responsibility for hazard mitigation lies with many, including private property owners, business, industry, and local, state and federal government. Recognizing that there is no one solution for mitigating flood hazards, planning provides a mechanism to identify the best alternatives within the capabilities of a jurisdiction. A floodplain management plan achieves the following in order to set the course for reducing the risk associated with flooding:

- Ensuring that all possible floodplain management activities are reviewed and implemented so that local problems are addressed by the most appropriate and efficient solutions
- Ensuring that floodplain management activities are coordinated with one another and with other community goals and activities, preventing conflicts and reducing the cost of implementing each individual activity

This floodplain management plan provided a comprehensive review of existing floodplain policies and serves to educate the public on the present and potential losses associated with flooding to provide a basis for sound flood policy within the Township.

- Coordinating local floodplain management activities with federal, state and regional programs
- Educating residents on the flooding hazard, loss reduction measures, and the natural and beneficial functions of floodplains
- Building public and political support for mitigation projects
- Fulfilling planning requirements for obtaining state or federal assistance
- Providing a framework and basis for Township decision makers such as the Planning Board and Zoning Board of Adjustment for decisions affecting development and use of floodplains.
- Facilitating the implementation of floodplain management and mitigation activities through an action plan that has specific tasks, staff assignments and deadlines.

The Township of Brick Floodplain Management Plan identifies 124 flood hazard mitigation initiatives, chosen through a facilitated process that focused on meeting these objectives.

1.3 THE COMMUNITY RATING SYSTEM

The Community Rating System (CRS) is a voluntary program within the National Flood Insurance Program (NFIP) that encourages floodplain management activities that exceed the minimum requirements of the NFIP. The CRS outlines 18 creditable activities that fulfill the program goals of reducing flood losses, facilitating accurate insurance rating and promoting awareness of flood insurance. The activities are in four categories:

- Public information
- Mapping and regulations
- Flood damage reduction
- Flood preparedness.

The Community Rating System (CRS) is a program that support improved floodplain management and to provide reduction in flood insurance rates.

Flood insurance premiums in participating communities are discounted to reflect the reduced flood risk resulting from community actions to meet the CRS goals. A Class 1 community receives a 45-percent premium discount for properties within a 100-year floodplain, and a Class 9 community receives a 5-percent discount. Discounts for classifications between those two vary in 5-percent increments. Class 10 communities are those that do not participate in the CRS; they receive no discount.

The Township of Brick is preparing to participate in the CRS program to improve floodplain management and to obtain a rating to reduce flood insurance premiums. The Township will go through an annual recertification and a re-verification every five years to maintain or improve its rating. This Floodplain Management Plan will help the Township maximize its credit potential under the CRS.

1.4 PLAN DEVELOPMENT METHODOLOGY

The Township of Brick Floodplain Management Plan was developed in six phases:

- **Phase 1, Organize and review**—The planning team consisting of two members of the Township planning and land use department and a technical consultant formed a 14-member committee, consisting of Township staff, citizens and other stakeholders in the planning area, was assembled to oversee the

development of the plan. This committee met five times over a nine month period to provide guidance and oversight to the planning process. The committee was responsible for the development of the plan. Coordination with regional, state and federal agencies involved in flood hazard mitigation occurred throughout the plan's development. A multi-media public involvement strategy was implemented, centered on a hazard preparedness questionnaire. A comprehensive review of existing plans and programs that can support flood hazard mitigation was completed.

- **Phase 2, Update the risk assessment**— Risk assessment is the process of measuring potential loss of life, personal injury, economic injury and property damage resulting from flood hazards. This process assesses the vulnerability of people, buildings and infrastructure to flood hazards. The risk assessment for this plan meets CRS requirements for assessing the flood hazard.

- **Phase 3, Engage the public**—The Committee developed a public involvement strategy that was implemented by the planning team and included public meetings held to provide the public an opportunity to participate in the planning process. Additionally, a flood preparedness/hazard mitigation survey, a Township-sponsored website dedicated to the plan, (http://www.twp.brick.nj.us/flood-plain-management/) and multiple media releases were deployed under the strategy.

- **Phase 4, Assemble the updated plan**—The planning team and Steering Committee assembled key information from Phases 1 and 2 into a document that meets CRS requirements for the following:

  - A description of the planning process
  - A risk assessment
  - A mitigation strategy including goals, a review of alternatives and a prioritized action plan
  - A plan maintenance section
  - Documentation of adoption.

- **Phase 5, Natural and beneficial floodplain functions plan**—The CRS provides credits for adopting plans that protect one or more natural functions within a community's floodplain. This plan includes components that strive to meet these CRS requirements. The Township of Brick has two documents that meet these requirements: the Conservation and Green Infrastructure (pending) elements of the Township Master Plan. Both of these plan elements lay out long range visions for improvements. The natural and beneficial floodplain function Appendix of this plan integrates these two elements into this Floodplain Management Plan so that the Township can review their status every five years when the Floodplain Management Plan is updated.

- **Phase 6, Plan review**—A pre-adoption review draft of the plan will be sent for review and comment to the Insurance Services Office (ISO), the contractor for the CRS. After the ISO grants pre-adoption approval, the final adoption phase will begin. This plan includes an implementation and maintenance section that details the formal process for ensuring that the plan remains an active and relevant document. The maintenance process includes a schedule for monitoring and evaluating the plan's progress annually and revising it every five years. Implementation and maintenance include continued public involvement and incorporation of the recommendations of this plan into other planning mechanisms of the Township, such as the master plan, capital improvement program, and hazard mitigation plan.

1.5 THE FLOOD HAZARD RISK ASSESSMENT

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards such as flooding. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets. The risk assessment for this plan used the best available data, science and technology, with tools that included GIS and FEMA's risk assessment platform, Hazus-MH. Hazus-MH is a program that includes extensive inventory data, such as demographics, building stock, critical facilities, transportation facilities and utilities. It uses multiple models to estimate potential losses from natural disasters. The program maps hazard areas and estimates damage and economic losses for buildings and infrastructure. Some key findings from the risk assessment of this plan are as follows:

- The risk assessment profiles seven types of flood hazards within the Township of Brick: flooding in FEMA-designated Special Flood Hazard Areas (SFHA) riverine, coastal, coastal erosion, non-SFHA stormwater/urban drainage flood areas, non-SFHA storm surge, system-related dam failures and increased flooding due to sea level rise.

Seven types of flooding are addressed in this plan. They include riverine flooding, coastal flooding, coastal erosion, stormwater/urban drainage flooding, storm surge, system-related dam failures and increased flooding due to sea level rise.

- There have been eight flood events in the Township of Brick that caused sufficient damage to trigger a presidential disaster declaration since 1971. This equates to a significant flood event approximately every 5.5 years over the past 50 years.
- The Township of Brick includes over 5,956 acres of mapped floodplain for recurrence intervals up to the 500-year flood event that encompasses over 14,500 structures, most of which are residential.
- The analysis estimated $3.48 billion replacement cost value of building exposure to the 100-year flood, representing 18.6 percent of the total replacement cost of the Township of Brick and $4.65 billion of building exposure to the 500-year flood, representing 24.8 percent of the total replacement cost value of the Township of Brick.
- The analysis identified 50 critical facilities exposed to floods up to the 500-year event.
- An estimated 14.5 and 9.9 percent of the people within the households in the census blocks that intersect the 100-year floodplain are over the age of 65 or economically disadvantaged, defined as having household incomes of $20,000 or less, respectively.
- A 100-year flood event in the Township of Brick could displace 11,443 households, with over 9,800 persons requiring short-term shelter.
- The analysis estimates that a 100-year flood event in the Township of Brick could cause damage to almost 7,490 structures, totaling over $3.48 billion in property damage.
- A 100-year flood event in the Township of Brick could generate almost 30,600 tons of building related (excluding contents) debris.

1.6 MITIGATION MISSION STATEMENT, GOALS AND OBJECTIVES

The Steering Committee identified a mission statement, goals and objectives.

> The mission of the Township of Brick Floodplain Management Plan is to create a safe, protected, and well-informed community with a comprehensive set of tools and the necessary capacity to identify and address vulnerabilities to flood related hazards. The Township of Brick will strive to protect the health, safety, and quality of life of community members and remain a safe, resilient, and prosperous place to live.

Table ES-1 presents the goals and objectives for the Township FMP. Although an objective is listed with each goal, the objectives were developed to meet multiple goals as demonstrated in Table ES-2. These goals and objectives provide a framework within which the planning committee worked to create a plan focused on the needs of the Township.

Table ES-1. Brick Township Flood Mitigation Plan Goals

Goal Number	Goal
1	Reduce threats and damage from flooding, Stormwater, storm surge and sea level rise to protect life and property and to reduce vulnerabilities and negative impacts of flooding on critical facilities and infrastructure.
2	Protect environmental resources and maintain their natural ability to increase flood protection and community resilience.
3	Ensure that local government operations are not significantly disrupted by flood hazard events.
4	Provide a methodical approach to flood hazard planning that can integrate with other planning mechanisms that enhance or support floodplain management and create a decision-making tool for flood management policy.
5	Promote compliance with state and federal program requirements.
6	Foster all sectors of the community working together to create a flood-hazard-resilient community.

Table ES-2. Brick Township Flood Mitigation Plan Objectives

Obj. #	Objective Statement	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6
Prevention							
1	Develop a long term strategy for mitigating potential flooding of properties, facilities, and infrastructure that are at risk for damage from future sea level rise including identification of critical facilities in the floodplain and determine potential options for relocation.	x			x		x
2	Improve capital improvement planning to ensure that future projects are constructed with storm- and flood- resilient features.	x		x	x	x	x
3	Utilize the best available data and resources including FEMA's updated flood mapping and local zoning and regulatory controls to guide growth and development to appropriate areas and rebuild using best practices.	x	x		x		x
4	Strive to participate in the CRS rating and realize greater resilience and lower insurance costs.	x			x		x
5	Update local ordinances to reflect and address flood hazards in the community including drainage system maintenance, boats, docks and marinas protection, green infrastructure, low impact design, water pollution prevention among others.	x	x		x		x
6	Promote sustainable development patterns to improve property protection, public safety, and natural resource conservation.	x	x		x		x
7	Maintain or expand planning and regulatory capabilities to support effective floodplain management and increased public safety.	x	x		x		
8	Identify additional resources to support the implementation of mitigation and recovery projects.	x			x	x	x
Property Protection							
9	Address any remaining damage and unmet needs from Hurricane Sandy, restore the tax base, and increase protection for homes and businesses against future hazards.			x			x
10	Improve structural and non-structural infrastructure, regulatory controls, and impervious surfaces to adequately manage stormwater and reduce the negative impacts on natural resources, infrastructure, and property.	x	x				
11	Reduce the adverse impact on critical facilities and infrastructure from flood hazard events within the community.	x		x			
12	Identify and support various options to increase property protection including elevation, acquisition, wet and dry floodproofing, structural protection, and infrastructure improvements.	x				x	x
13	Identify and support various options to increase infrastructure protection including road elevation, drainage improvements, flood gates, structural protection measures, and improved maintenance strategies.	x					x
14	Identify and/or provide assistance to second home owners who are typically disqualified from most types of financial aid to rebuild or elevate the structures.	x					x
Public Education and Awareness							
15	Expand outreach and education to support public awareness of flood hazards and vulnerabilities.						x

Obj. #	Objective Statement	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6
Natural Resource Protection							
16	Reinforce and protect dune systems, coastal wetlands, and other natural coastal protective measures.	x	x				
17	Restore and enhance natural areas with flood protection benefits including riparian areas, wetlands, dune systems among others.	x	x				
18	Provide for adequate groundwater infiltration and recharge to replenish aquifer systems and protect water quality and quantity.	x	x		x		
Emergency Services							
19	Provide for enhanced community facilities including an Emergency Operations Center to support emergency preparedness and response and Improve local sheltering facilities and planning to improve public safety during and after a flood.	x		x			x
20	Improve evacuation routes and evacuation plans, particularly for low-lying areas to prepare for future storm surge and flooding.	x		x	x		x
21	Develop enhanced resources and techniques for greater public education including reverse 911, equipment purchases, training, and education materials among others.						x
22	Maintain reliable power sources for all critical community facilities to prevent disruption in essential services.	x		x			
Structural Projects							
23	Address stormwater infrastructure deficiencies including submerged outfall pipes, reactionary maintenance, clogging, areas with non-existing or outdated stormwater infrastructure, impervious surfaces, and water pollution. Improve stormwater collection areas and systems including bypass force mains and pump stations to allow for proper stormwater drainage and prevent submerged outflow pipes.	x			x		
24	Implement a series of green improvements to reduce stormwater quantity and improve stormwater quality including green roofs, bio swales, planter boxes, vegetated filter strips, permeable paving, and rain gardens.	x	x		x		

These planning components all directly support one another. Goals were selected that support the mission statement, and objectives were identified that fulfill multiple goals. Mitigation initiatives were identified that achieve multiple objectives.

1.7 MITIGATION INITIATIVES

The action plan is a key element of the floodplain management plan. It is through the implementation of the action plan that the Township of Brick can strive to become flood disaster-resilient. The action plan includes an assessment of the capabilities of the Township to implement hazard mitigation initiatives, a review of alternatives, and a mitigation strategy matrix and prioritization matrix that identify the following:

The planning committee reviewed and selected projects to support the identified goals and objectives. To provide an implementation plan, this list was reviewed based on cost, benefit and timeline for implementation to categorize the projects into low, medium and high priority actions.

- Description of the action
- Estimated costs
- Objectives met
- Timeline for implementation
- Lead implementation agency (or agencies)
- Funding sources
- Estimated benefits
- Prioritization

For the purposes of this document, mitigation initiatives are defined as activities designed to reduce or eliminate losses resulting from the impacts of flooding.

Although one of the driving influences for preparing this plan was CRS, this plan does not focus solely on CRS credits. It was important to the Township and the Steering Committee to examine initiatives that would work through all phases of emergency management. Some of the initiatives outlined in this plan fall outside CRS credit criteria, and CRS creditability was not the focus of their selection. Rather, the focus was on the initiatives' effectiveness in achieving the goals of the plan and whether they are within the City's capabilities. Table ES-2 presents a summary of the hazard mitigation initiatives identified in the action plan.

Table ES-3. Hazard Mitigation Initiatives Identified

Initiative Number	Initiative	Priority (High, Med., Low)
1	Install permanent generators in Township schools which serve as shelters (Brick Memorial High School, Brick Township High School, Herbertsville School, Lake Riveria Middle School, Midstreams Elementary School, Osbornville School, and Veterans Memorial Middle School), the Township Municipal Building (home of the EOC), senior centers (Laurelton Village, Meridian Nursing & Rehab, Ocean Medical Center Acute Care of the Elderly Unit, and Shorrock Gardens Care Center), and temporary housing centers, as well as Mantoloking Road, Morris Avenue, and Ridge Road Water booster stations	High
2	Priority focus on permanent generator installation is for the Municipal Complex, Public Work and the Police Sub-Station/ Pioneer Hose Fire Company Barrier Island Forward Command Post	High
3	Develop an alternate fuel supply for the emergency generators at the William Miller Water Treatment Plant	High
4	Upgrade sewer system generators	High
5	Upgrade generators at five of the transition centers, including: Brick Township High School, Ocean County Vocational-Technical School, Emma Havens Young School, and Veterans Memorial Middle School	Medium

Initiative Number	Initiative	Priority (High, Med., Low)
6	Elevate electrical equipment, controls, instrumentation and emergency generators in all municipal facilities above the base flood elevation to continue critical community services during utility interruptions and storm events	High
7	Develop a FEMA 361 Shelter for New Police Department Station	Medium
8	Enhance emergency evacuation signage, especially in Cherry Quay.	Medium
9	Elevate evacuation routes, including South Drive in Princeton Midstreams and the Shore Acres Neighborhood. The elevation would be for approximately 400 feet of South Drive and would eliminate a local low point that cases the repeated flooding of residential structures. This elevation would also provide overland flow relief and allow the road to drain via gravity.	High
10	Improve drainage at six locations, including the installation of a floodgate at Brick Beach 3	Medium
11	Maintain current drainage systems at appropriate care level	High
12	Increase conveyance through sewer and channels by dredging, culvert sizing, debris removal, de-snagging, and ewer flushing	High
13	Clean all critical sewer pipes and drainage facilities from debris	High
14	Improve/repair failing septic systems.	Medium
15	Promote I&I protection of sewer systems	Medium
16	Elevate the equipment from dry wells	Medium
17	Install Tideflex valves where appropriate	Medium
	Acquire a drainage easement of over 300 square feet of private property abutting Broad Avenue and South Harbor Lagoon to develop a low-lying runoff collection point, reconstruct the drainage system, and provide a tide check valve on the outfall pipe. This would allow the Broad Avenue pavement surface to be elevated to prevent flooding without causing flooding to adjacent properties.	High
19	Install an outlet structure on the pond in Cherry Quay by Boom Lane. The outlet structure should be constructed to maintain a consistent water surface elevation range. Overflow would be conveyed through the existing drainage system in residential streets and outfall into the Barnegat Bay through an existing drainage outfall. A path of overflow for overland flood relief would be provided for when the pond elevation reaches a flood stage that cannot be conveyed hydraulically through the existing drainage system.	High
20	Support BTMUA in upgrading and improving infrastructure and capacity to allow for uninterrupted service during hazard events. Measures may include: i. Flood proofing the raw water pump stations located on the Metedeconk River and Bay Harbor Boulevard, Drum Point Road, and Riverside Drive ii. Installing additional booster pump stations iii. Enhancing local communications iv. Converting pump stations to submersible pumps v. Evaluating and building resiliency for the long-term implications of sea-level rise for water supply operations.	High
21	Elevate roads, particularly those adjacent to waterways.	Low
22	Elevate Snake Road to prevent overtopping of roadway during regular lunar tidal events. Surface elevation needs to be increased by approximately 4,000 feet of the access road. This road is the sole vehicular access point for the Seawood Harbor residential community.	Medium
23	Consider raised roads with side protection, which can dual function as levees, near Barnegat Bay	Low
24	Harden existing infrastructure	High
25	Replace older and unsafe bridges and culverts including the Route 70 and Route 88 culverts, the Jordan Road White Bridge (raise) and those identified in the capital improvement plan.	High
26	Improve sweet sweeping methods and frequencies to reduce pollutants entrained in runoff from impervious streets and parking lots.	Low

Initiative Number	Initiative	Priority (High, Med., Low)
27	Purchase, relocate, and/or retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation and inform candidates/public as appropriate. Phase 2: Where retrofitting is determined to be a viable option, work with the property owner to implement that action based on available funding from FEMA and local match availability. This action supports and promotes retrofitting and elevation of 2,000 homes that fall within flood vulnerable areas and the acquisition and demotion of 45 homes as identified by the Township.	High
28	Support funding for acquisition or elevation of four Severe Repetitive Loss properties. This may be addressed by submitting a Township or joint municipal HMA (FMA) grant application.	
29	Support funding for acquisition or elevation of 20 Repetitive Loss properties. This may be addressed by submitting a Township or joint municipal HMA grant application	
30	Retrofit 600 buildings to meet hurricane-force wind needs	High
31	Locate new or relocate existing critical facilities outside of the floodplain, where possible	High
32	Increase the height of the bulkheads along Barnegat Bay (with or without movable panels) as appropriate	Low
33	Construct new metal sheet bulkheads (with or without movable panels) and incorporate check valves inside the bulkheads as appropriate	Low
34	Construct new concrete flood walls and flood gates (with or without movable flood panels) and incorporate check valves inside the walls as appropriate	Low
35	Construct new levee/dike including culvert or pipe with flap gate/check valve as appropriate	Low
36	Construct sluice gates or in-water barriers for dredged lagoons as appropriate	Low
37	Placeholder	
38	Add stormwater collection areas and bypass force mains for elevated areas to improve stormwater drainage and prevent issues related to submerged outflow pipes as appropriate	High
39	Construct stormwater gravel wetlands, which rely on a dense root mat, crushed stone, and an anaerobic and microbe-rich subsurface.	High
40	Township officials provide technical information and guidance, when needed	Medium
41	Provide information on residential, business, and natural resource grant programs to residents	Medium
42	Develop an app to link to public website for pre-, during- and post-disaster information.	Medium
43	Create website for pre-storm information dissemination, including shelter locations	Medium
44	Acquire computers for senior communities so that residents have access to information on disaster mitigation, preparedness, response and recovery	Medium
45	Continue Police outreach programs in schools to include children in outreach and to improve families' disaster response capabilities	High
46	Acquire critical warehouse infrastructure components	Medium
47	Develop field-deployed electronic mapping system	Medium
48	Obtain additional high wheeled vehicles for rescue operations.	Low
49	Upgrade and automate the EOC to ensure state-of-the-art audio/visual equipment, sufficient space and security, and stand-alone ability	Medium
50	Develop reverse 911 system to assist in communication for all hazards	High
51	Support continuous operations of Emergency Support Services for the Barrier Island	High
52	Mitigate Barrier Island Police Substation and Pioneer Fire Station to protect from flood related hazards	High
53	Create system to document FEMA reimbursable expenses.	High

Initiative Number	Initiative	Priority (High, Med., Low)
54	Capture/survey high water marks after flood events.	High
55	Utilize post-disaster assistance	High
56	Obtain electric grid maps to assist in recovery after disruption of power	High
57	Implement/participate in regional precipitation monitoring networks and other programs that enhance flood threat recognition capability	Medium
58	Identify critical facilities/infrastructure that require early notification during flood responses	Medium
59	Maintain existing data and gather new data needed to define risks and vulnerability	High
60	Expand the Best Management Practices (BMP) subsection of the Stormwater Management Plan to emphasize green stormwater management techniques, such as bio-swales, rain gardens, offline regional treatment, and vegetative rooftop overs	High
61	Assess the stormwater management BMPs in other parts of the country for potential benefit to the Township	High
62	Supplement the Stormwater Management Plan to include details on drainage system maintenance and keeping channels and storage basins clear of debris for sufficient flood carrying and storage capacity	High
63	Encourage compliance with NJ Department of Transportation legislation on state highway stormwater management issues for Routes 9, 35, 37, 70, 72, 88 and 166	High
64	Coordinate County, State, and Federal funding to maximize the effectiveness of stormwater protection and rehabilitation efforts	High
65	Identify and restore impaired stormwater management facilities to improve infiltration and reduce runoff throughout the watershed.	High
66	Construct additional facilities to collect and provide temporary storage of stormwater runoff to promote infiltration through highly permeable soils.	Low
67	Investigate the benefits of bypass force main, tide barriers, stormwater pump systems, surge barriers, and mobile flood barriers.	Medium
68	Identify BMPs that individual property owners can implement.	High
69	Enforce minimum National Flood Insurance Program requirements and proactively support floodplain management property protection and outreach requirements	High
70	Adopt appropriate enhanced regulatory standards, such as increased freeboard standards, cumulative substantial improvement or damage, lower substantial damage threshold, compensatory storage, and non-conversion deed restrictions	High
71	Supplement the Flood Prevention Ordinance or adding regulations to the Township Code requiring removal or securing of boats, floating docks, gangways, etc. from water bodies within a specified period from the issuance of an order from Emergency Management personnel.	High
72	Prohibit the construction of occupied structures seaward of the mean high water line or on piers or platforms except for essential structures for “functionally dependent uses” such as marinas or boatyards	High
73	Update existing regulations to account for the impacts of climate change	High
74	Adopt a “no-adverse impact” floodplain management policy that strives to not increase the flood risk on downstream communities.	High
75	Implement as-built regulatory requirements	High
76	Use Re-sale Certification of Occupancy to catch up with substantially damaged structures and regulate safe re-building practices	High
77	Utilize the most recent FEMA FIRMs to assist property owners in rebuilding to or above regulatory standards	High
78	Join CRS program to complete pro-active floodplain management and assist residents with flood insurance costs	High
79	Implement site review ordinances/requirements	High
80	Integrate climate change into design codes and standards.	High

Initiative Number	Initiative	Priority (High, Med., Low)
81	Develop design standards to address the visual impact of mitigation measures such as elevating bulkheads, elevating buildings on foundations or pilings	Low
82	Continue to enforce building codes to require building, renovations, and re-building to that all buildings meet or exceed the Uniform Construction Code	High
83	Institute low-impact development techniques on property	High
84	Develop a Fertilizer Application Ordinance to control reduce the amount of damaging non-point source pollution during storm events	High
85	Ensure post-disaster code enforcement and inspection to protect properties in the process if being re-built and built	High
86	Continue to take a proactive approach to the NJ Soils Health Legislation by working with the Ocean County Soil Conservation District to promote construction practices to maintain soil health and reduce compaction.	High
87	Encourage and support compliance with the NJ Fertilizer Law.	High
88	Enact tools to help manage development in hazard areas (stronger controls, tax incentives, and information)	High
89	Adopt appropriate land development criteria such as planned unit developments, density transfers clustering	High
90	Consider the residual risk associated with structural flood control in land use and land development plans	High
91	Develop and adopt a continuity of operations plan (COOP)	High
92	Maintain the all-hazards Emergency Operations Plan	High
93	Develop and implement Shelter Management Plans	High
94	Integrate hazard mitigation into the Master Plan	High
95	Integrate flood management policies into other Township planning mechanisms	High
96	Incorporate retrofitting/replacement of critical system elements in the capital improvement plan	High
97	Continue to work with the Barnegat Bay Partnership to target research and assessment efforts.	High
98	Develop a building and elevation inventory of structures in the floodplain	Medium
99	Improve the Township's mapping capability to increase access to information and adding additional AutoCAD software, as necessary to support mapping capabilities	Medium
100	Conduct Local Emergency Planning Committee meetings every month and perform drills to prevent hazardous materials accidents	High
101	Identify agricultural BMPs to control runoff from crops and livestock.	High
102	Implement stronger pet waste and fertilizer management protocols and ordinances to reduce pathogen and nutrient contributions at the household scale. Goose management programs have been recommended for implementation in the fecal coliform and total coliform total maximum daily loads (TMDLs) throughout the watershed.	High
103	Support the USACE beach repair, restoration, and replenishment project	High
104	Provide beach fill as necessary	High
105	Maintain and improve dunes and maintain natural beach habitat and bay habitat	High
106	Repair and install bulkheads to protect from coastal erosion	Medium
107	Construct beach revetment	Medium
108	Support easements for the ACOE beach replenishment project on the Barrier Island	High
109	Implement erosion control projects for Dock Road Beach, such as constructing a minor geotextile system to be installed upstream and downstream of the beach and/or establishing scour protection and velocity control at an existing drainage pipe outfall to Metedeconk River.	Medium
110	Complete soil stabilization project at Bay Harbor Beach and install geotextiles at park next to Windward Beach	Medium

Initiative Number	Initiative	Priority (High, Med., Low)
111	Restore a fire break on North Riverside Drive. The current fire break and soil stabilization systems are inadequate to prevent future disaster of the shoreline and to protect the adjacent Vanada Woods neighborhood from potential wildfire. The project would include demolishment of the Macintosh House, boathouse, and partial removal of the bulkhead so that the shoreline can be stabilized. Ideally, the entire parcel will be returned to a more natural state.	Medium
112	Maintain Mallard Park to avoid coastal geotech erosion and mitigate flood related hazards	Medium
113	Redesign pond in Cherry Quay to provide increased flood retention	Low
114	Redesign the islands in Beaver Dam Creek for Princeton Midstreams to provide increased flood retention	Low
115	Strategize responsible land protection methods to maintain/restore natural floodplain functions	High
116	Manage sediment and debris removal and provide regional retention, detention, infiltration and constructed wetland areas.	High
117	Participate in regional watershed management	Low
118	Promote open space or flood-compatible land uses in identified high hazard areas via techniques such as: planned unit development, easements, setbacks, greenways, sensitive area tracts, community education, natural resource inventory; comprehensive planning; zoning provisions; floodplain protection ordinance; and the environmental review process.	High
119	Provide dredging, levee and bulkhead construction, revetments or channelization where appropriate	Medium
120	Maintain vegetated riparian buffer zones. Prioritize implementation by using parcels identified as protection priority from the Trust for Public Land.	High
121	Restore upland and riparian forests to capture rainfall, protect soil from erosion, maximize infiltration, and sequester nutrients.	Medium
122	Construct stormwater wetlands to maximize removal of pollutants from stormwater runoff.	Low
123	Install a bio retention system in lawns, median strips, parking lot islands, unused lot areas, certain easements, or other areas that would benefit from stormwater mitigation.	Medium
124	Retrofit existing stormwater basins to extend detention or bio retention areas.	Medium
125	Remove un-utilized or under-utilized impervious surfaces, such as extra parking, with native or maintained vegetation. Where possible redirect runoff to these new pervious surfaces.	Low
126	Restore fluvial systems and streams to approach pre-development conditions where a sinuous channel is reconnected to an expansive floodplain, ideally integrated with riparian wetlands.	Low
127	Support the use and installation of green energies and sustainable technologies, where appropriate and affordable. Green improvements can include: i. Green roofs ii. Bioswales iii. Planter boxes iv. Vegetated filter strips v. Permeable/pervious paving vi. Rain gardens vii. Overall increased vegetation viii. Rain barrels or cisterns ix. Soil amendment x. Bulkhead/vertical walls xi. Vegetated filter strip	High

1.8 IMPLEMENTATION

Full implementation of the recommendations of this plan will require time and resources. This plan reflects an adaptive management approach in that specific recommendations and plan review protocols are provided to evaluate changes in vulnerability and action plan prioritization after the plan is adopted. The true measure of the plan's success will be its ability to adapt to the ever-changing needs of hazard mitigation. Funding resources are always evolving, as are programs based on state or federal mandates.

The Township of Brick has a long-standing tradition of proactive response to issues that may impact its citizens. The Township's commitment to proactive floodplain management is evidenced by the development of this plan. Its well-established programs and policies have striven to maintain the flood risk at a steady level without increase. The framework established by this plan will help maintain this tradition in that it identifies a strategy that maximizes the potential for implementation based on available and potential resources. It commits the Township to pursue initiatives when the benefits of a project exceed its costs. Most important, the Township developed this plan with extensive public input. These techniques will set the stage for successful implementation of the recommendations in this plan. The Township Council will assume responsibility for adopting the recommendations of this plan and committing Township resources toward its implementation as the Township's budget permits.