# Appendix Vol I.30 Manasquan Borough

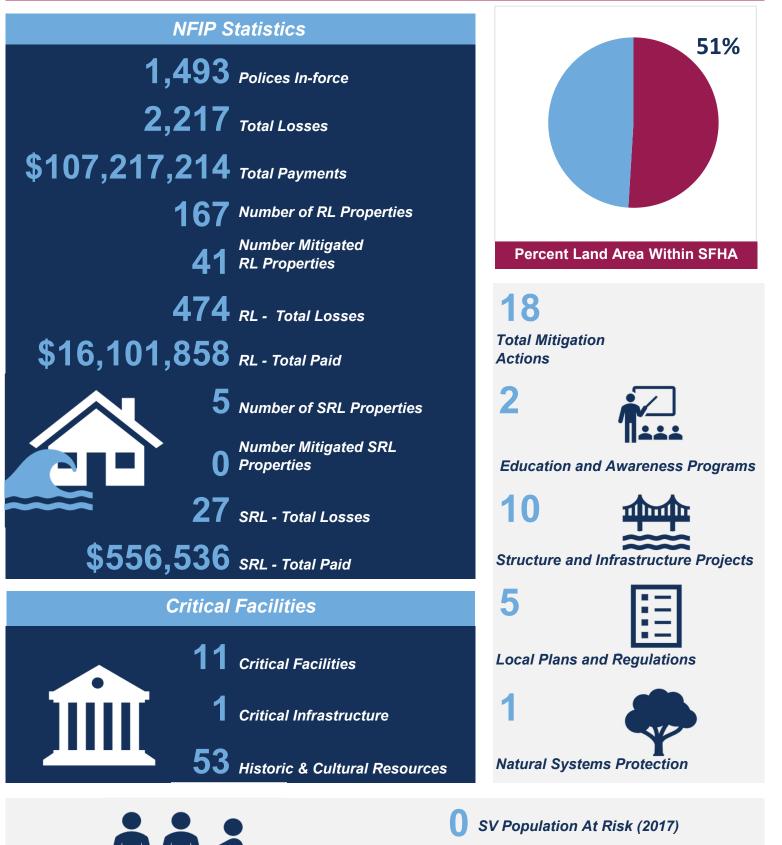
Please find below the following documents specific to this jurisdiction that have been included as part of the plan update process.

- Summary Sheet
- Mitigation Action Table
- Mitigation Action Worksheets
- Capability Assessment
- Flood Zone Map
- Sea Level Rise Vulnerability Map
- Meeting Material



# Manasquan Borough

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**2,967** Population at Risk (2017)

Manasquan, Borough of Monmouth County HMP Mitigation Action Su						ion Su	mmary					
Community Action #	Action Name	Action Description	Action Category	Action Type	Hazard(s) Addressed	Priority	Ease of Implementation	Responsible Party	Potential Funding Sources	Cost Estimate	Timeline	Action Status
30_01	Complete the Borough Risk Assessment for Structures, Facilities, and Equipment in the Borough	Conduct a hazard-specific, community-wide risk assessment of all structures, facilities, and equipment and identify, map, quantify, and rank vulnerable structures for each of the hazards. This will include identifying and mapping high hazard areas for each hazard addressed. This will also include inventorying and evaluating existing at-risk housing stock, commercial buildings, as well as public facilities and equipment and assessing each structure for vulnerabilities to each of the hazards addressed. This action will be a more detailed presentation and assessment of data from what is in the hazard mitigation plan.	Administrative	Local Plans and Regulations	Flood, Wave Action, Drought, Earthquake, Coastal Erosion, Extreme Wind, Lightening, Storm Surge, Wildfire, Tornado	High	Low	Office of Emergency Management	FEMA HMA, Community Resiliency Grants	\$150,000.00	2 years	Ongoing
30_02	Establish Funding Mechanism for HMP	Establish a permanent funding mechanism and budget for hazard mitigation planning and mitigation actions.		Local Plans and Regulations	Extreme Temperatures, Flood, Drought, Earthquake, Coastal Erosion, Extreme Wind, Lightening, Storm Surge,			Office of Emergency Management		\$50,000.00		Completed
30_03	Continue Monitoring the Implementation of the Hazard Mitigation Plan	Monitor the implementation of the hazard mitigation plan and make updates to the plan as required. This includes forming a plan implementation steering committee to monitor progress on local mitigation actions as well as implementation monitoring schedule and outlining responsibilities.	Administrative	Local Plans and Regulations	All Hazards	Low	Low	Office of Emergency Management	Municipal budget	\$5,000.00	1 year	Ongoing
30_04	Implement a Program for Public Information on Hazard Awareness & Mitigation	Implement a comprehensive program for public information that systematically distributes hazard awareness information as well as actions that citizens can take to mitigate those hazards. The program will also promote household disaster preparedness as well as private mitigation efforts. This program will include the formation of a public information steering committee and will include specific public outreach goals, responsibilities and monitoring.		Education and Awareness Programs	All Hazards			Office of Emergency Management	Local Hazard Mitigation Program, Hazard Mitigation Planning Grants, Community Resiliency Grants HMGP	\$5,000.00		Completed
30_05	Increase Public Warning Capabilities	Increase public warning capabilities through the implementation of FEMA developed IPAWS alerting, upgrade warning siren coverage, implement a Reverse911 system, upgrade electronic warning sign system coverage, and improve use of web-based programs and social media for public warning.	Maintenance/Respon se/Recovery	Education and Awareness Programs	All Hazards	Medium	Low	Office of Emergency Management	Municipal budget	\$150,000.00	1 year	Ongoing
30_06	Develop a Drought Emergency Plan	Develop a drought emergency plan which includes criteria for drought-related actions, identifying local drought indicators, such as precipitation, temperature, guidance from NJDEP, and institute voluntary and mandatory water conservation measures during drought conditions and emergencies. This includes developing a drought communication plan and early warning system to facilitate timely communication of relevant information to officials, decision makers, emergency managers, and the general public.	Administrative	Local Plans and Regulations	Drought	Low	Low	Office of Emergency Management	Municipal budget	\$5,000.00	1 year	Ongoing

# Manasquan, Borough of

# Monmouth County HMP Mitigation Action Summary

Community Action #	Action Name	Action Description	Action Category	Action Type	Hazard(s) Addressed	Priority	Ease of Implementation	Responsible Party	Potential Funding Sources	Cost Estimate	Timeline	Action Status
30_07	Conduct Seismic Retrofitting of Structures, Facilities, and Equipment	This action item will include conducting seismic retrofitting of these structures based upon rank (most vulnerable) and importance (most critical). Such mitigation actions may include, but are not limited to bracing of generators, elevators, and other vital equipment, strengthening and retrofitting non-reinforced masonry buildings and non-ductile concrete facilities that are particularly vulnerable to ground shaking, retrofitting building veneers to prevent failure, anchoring rooftop- mounted equipment, and otherwise retrofitting structures and equipment to make earthquake resistant. This will also include reviewing building codes and structural policies to ensure they are adequate to protect older structures from seismic damage. This item will also include requiring or encouraging seismic engineering measures and construction techniques that may include the mitigation actions listed above.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Earthquake	Low	Medium	Office of Emergency Management	Municipal budget	\$25,000.00	5 + years	Ongoing
30_08	Provide Back-up Power Generation for Critical Facilities	An inventory of all critical facilities and equipment shall be made and ranked in order of importance. Emergency back-up generators will be provided and maintained at each of the facilities.		Structure and Infrastructure Project	All Hazards			Office of Emergency Management		\$200,000.00		Completed
30_09	Provide Lightning Protection for Critical Facilities	This action item will include conducting lightning protection of these structures based upon rank (most vulnerable) and importance (most critical). This will include installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities, as well as installing and maintaining surge protection on critical electronic equipment.	Maintenance/Respon se/Recovery	Structure and Infrastructure Project	Lightening	Medium	Low	Office of Emergency Management	Municipal budget	\$100,000.00	2 years	Ongoing
30_10	Provide Erosion and Wave Protection along the Oceanfront by Constructing a Dune and Wall System along the Coastline	Fortify a one-mile portion of coastline with and engineered dune and wall system consisting of high- strength steel wall covered by dune system and vegetation.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Wave Action, Coastal Erosion	Low	Low	Office of Emergency Management	FEMA HMA, Army Corp of Engineers	\$10,000,000.00	5 + years	Ongoing
30_11	Restore Natural Buffers to Mitigate Flooding Borough-Wide	Provide natural resource restoration to existing dunes, salt marshes, coastal wetlands, maritime forests, stream corridors and natural floodplains in order to enhance natural buffers and flood mitigation. This will include developing a comprehensive approach that combines dune, maritime forest, coastal wetlands, salt marsh and stream corridor restoration with potential flood mitigation opportunities and integrated high-water controls in order to reduce both riverine and tidal flooding and protects against sea level rise. The project will restore over 60-acres of coastal wetlands and maritime forest and 6-miles of stream corridors.	Mitigation - Risk Reduction	Natural Systems Protection	Flood, Wave Action, Storm Surge	Medium	Medium	Office of Emergency Management	FEMA HMA, EPA, National Fish and Wildlife Foundation (NFWF), NOAA, New Jersey Corporate	\$7,000,000.00	5 + years	Ongoing

Manas	quan, Borough of					ľ	Monmout	h Count	y HMP Mitig	ation Act	ion Su	mmary
Community Action #	Action Name	Action Description	Action Category	Action Type	Hazard(s) Addressed	Priority	Ease of Implementation	Responsible Party	Potential Funding Sources	Cost Estimate	Timeline	Action Status
30_12	Enforce Compliance with NFIP's CRS Program	Manasquan participates in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). This project will include increased regulatory standards both in and out of the floodplain, including enacting and enforcing regulations that exceed NFIP minimum standards so that more flood protection is provided for any development. Existing ordinances will be reviewed and made more stringent, including requiring buildings to be constructed above the minimum elevation required by NFIP, requiring foundation protection on new buildings, requiring any new critical facilities to be build outside of the flood zone, requiring new development to provide positive drainage away from the structure, updating the definition of substantial improvement ta include accumulation of improvements counted over 10-years, as well as formally adopting the preliminary Flood Insurance Rate Maps (FIRMS). This will also include advising the public about the local flood hazard, flood insurance, and flood protection measures as part of an organize, Program for Public Information (Action Item #4) and increasing our flood warning dissemination and response capabilities (Action Items 13-17, including implementing damage reduction measures for existing buildings such as elevation, acquisition, relocation, retrofitting, and maintenance of drainageways and retention basins.		Local Plans and Regulations	Flood, Wave Action, Storm Surge			Office of Emergency Management	Local Hazard Mitigation Program	\$5,000.00		Completed
30_13	Floodproof Residential and Non- Residential Structures	This action item will include conducting flood proofing of these structures based upon rank (most vulnerable) and importance (most critical). These structures will be protected from flooding by a combination of methods, including, but not limited to wet floodproofing in a basement, wet floodproofing of areas above base flood elevation, using water resistant paints or other materials to allow for easy cleanup after floodwater exposure, and by dry floodproofing non-residential structures by strengthening walls, sealing openings, or using waterproof compounds or plastic sheeting on walls to keep water out.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Storm Surge	Medium	Low	Office of Emergency Management	FEMA HMA	\$10,000.00	1 year	Ongoing
30_14	Elevate Residential and Non- Residential Structures & Equipment, especially Repetitive Loss (RL) and Severe Repetitive Loss (SRL) Properties	This action item will include elevating these structures based upon rank (most vulnerable) and importance (most critical). These structures, facilities, and equipment will be elevated at least 1-foot above minimum NFIP base flood elevation requirements to protect from flooding, storm surge & sea level rise.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Wave Action, Storm Surge	High	Medium	Office of Emergency Management	FEMA HMA	\$200,000,000.00	5 + years	Ongoing
30_15	Relocate Structures, Critical Facilities, and Equipment out of Flood Hazard Areas, especially Repetitive Loss and Severe Repetitive Loss Properties	This action item will include relocating of these structures based upon rank (most vulnerable, importance and most critical. These structures and facilities and equipment will be relocated to low-hazard areas to protect from flooding, wave action, storm surge, and Sea Level Rise. This may include compensating an owner or partial rights, such as easement or development rights, to prevent a property from being developed	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Wave Action, Storm Surge	High	Medium	Office of Emergency Management	Community Resiliency Grants, FEMA's HMA Funding	\$500,000,000.00	5 + years	Ongoing

property from being developed.

# Manasquan, Borough of

# Monmouth County HMP Mitigation Action Summary

Community Action #	Action Name	Action Description	Action Category	Action Type	Hazard(s) Addressed	Priority	Ease of Implementation	Responsible Party	Potential Funding Sources	Cost Estimate	Timeline	Action Status
30_16		Critical access roads in these areas will be elevated to protect from flooding and storm surge. Roadway drainage will be improved, one-way tide-flex type valves installed, and vulnerable shoulders will be stabilized using bioengineered bank stabilization techniques. Seawalls or other structures will be constructed to protect critical facilities located on the shoreline. Water and wastewater treatment facilities located in high-hazard areas will be flood-protected. This will include retrofitting structures to elevate them above forecasted sea level rise levels, retrofitting critical facilities to be 1 foot above the 500- year flood elevation (considering wave action) or the predicted sea level rise level, whichever is higher and replacing exterior building components with more hazard resistant materials.	Mitigation - Continuity of Fuctional Use	Structure and Infrastructure Project	Flood, Storm Surge	High	Medium	Office of Emergency Management	Community Resiliency Grants, FEMA HMA funding, Transportation funds.	\$10,000,000.00	1 year	Ongoing
30_17		This action item includes the construction of a steel seawall along the Atlantic Ocean and a flood gate across the Manasquan Inlet. This project would protect all communities in the Manasquan River floodplain from coastal flooding, storm surge and sea level rise. The steel seawall would be covered in a man-made, vegetated dune and would be tied into high ground on the Sea Girt border to the north and a flood gate across Manasquan Inlet to the south. The same seawall would run the length of Point Pleasant Beach.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Storm Surge	High	High	Army Corp of Engineers	Federal USACE funds, FEMA HMA	\$150,000,000.00	5 + years	Ongoing
30_18	Structures, Facilities, and Equipment to Sustain High Winds	An inventory of public and commercial buildings that are vulnerable to high winds will be identified; this action item will include conducting retrofitting of these structures based upon rank (most vulnerable) and importance (most critical). Such mitigation actions may include, but are not limited to, installing hurricane shutters or other protective measures, retrofitting gable end walls to eliminate wall failures in high winds, replacing existing non-ductile infrastructure with ductile infrastructure to reduce their exposure to hazardous events, retrofitting buildings with load-path connectors to strengthen the structural frames, reinforcing garage doors, anchoring roof-mounted heating, ventilation, and air conditioning units, retrofitting the emergency operations center to FEMA 361 standards, upgrading of reused buildings that will house critical facilities, and otherwise retrofitting structures and equipment to make wind resistant. This will also include reviewing building codes and structural policies to ensure they are adequate to protect older structures from wind damage. This item will also include requiring or encouraging wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles.	Administrative	Structure and Infrastructure Project	Extreme Wind	Low	Low	Office of Emergency Management	Municipal budget	\$2,000,000.00	5 + years	Ongoing

Community Action Number:	30_01 Manasquan, Borough of
Describing the Action	
Action Name:	Complete the Borough Risk Assessment for Structures, Facilities, and Equipment in the Borough
Action Category:	Administrative
Action Type:	Local Plans and Regulations
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	Conduct a hazard-specific, community-wide risk assessment of all structures, facilities, and equipment and identify, map, quantify, and rank vulnerable structures for each of the hazards. This will include identifying and mapping high hazard areas for each hazard addressed. This will also include inventorying and evaluating existing at-risk housing stock, commercial buildings, as well as public facilities and equipment and assessing each structure for vulnerabilities to each of the hazards addressed. This action will be a more detailed presentation and assessment of data from what is in the hazard mitigation plan.
Evaluating the Action	
Hazard(s) Addressed:	Flood, Wave Action, Drought, Earthquake, Coastal Erosion, Extreme Wind, Lightening, Storm Surge, Wildfire, Tornado
Goals:	1, 2, 4, 5, 6
Risk Reduction:	Specific structures, facilities, and equipment that are vulnerable to the above hazards have not been identified/quantified.
Technical:	Technically feasible, easily implemented.
Political:	There is current community support for hazard mitigation planning, however there is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	The Borough has the administrative capacity to implement this action, however outside funding is required.
Local Champion:	Office of Emergency Management will advocate for the project
Other Community Objectives:	This action supports the entire hazard mitigation effort within the municipality
STAPLEE Evaluation:	N/A
Implementing the Action	
Cost Estimate:	\$150,000.00
Priority:	High
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	FEMA HMA, Community Resiliency Grants
Timeline:	2 years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; water level risk has been assessed. Borough plans to continue assessing risk for the remaining hazards.

Community Action Number: 30_02 Manasquan, Borough of					
Describing the Action					
Action Name:	Establish Funding Mechanism for HMP				
Action Category:					
Action Type:	Local Plans and Regulations				
HMA Eligible Activity:	Miscellaneous/Other				
Action Description:	Establish a permanent funding mechanism and budget for hazard mitigation planning and mitigation actions.				
Evaluating the Action					
Hazard(s) Addressed:	Extreme Temperatures, Flood, Drought, Earthquake, Coastal Erosion, Extreme Wind, Lightening, Storm Surge, Will				
Goals:	1, 2, 3, 4, 5, 6, 7, 8				
Risk Reduction:	limited local funding available for hazard mitigation activities				
Technical:	Technically feasible, easily implemented.				
Political:	There is current community support for hazard mitigation planning, however there is community resistance to increased local property taxes.				
Legal:	There are no apparent legal issues				
Environmental:	There is no environmental impact				
Social:	There is no social impact				
Administrative Capability:	The community has the personnel available but has not secured a permanent annual funding mechanism				
Local Champion:	Office of Emergency Management will advocate for the project				
Other Community Objectives:	This action supports the entire hazard mitigation effort within the municipality				
STAPLEE Evaluation:	N/A				
Implementing the Action					
Cost Estimate:	\$50,000.00				
Priority:					
Scale of Ease of Implementation:					

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Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	
Timeline:	
Action Status:	Completed
Notes:	

Community Action Number: 30\_03

Manasquan, Borough of

Describing the Action	
Action Name:	Continue Monitoring the Implementation of the Hazard Mitigation Plan
Action Category:	Administrative
Action Type:	Local Plans and Regulations
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	Monitor the implementation of the hazard mitigation plan and make updates to the plan as required. This includes forming a plan implementation steering committee to monitor progress on local mitigation actions as well as implementation monitoring schedule and outlining responsibilities.

#### **Evaluating the Action**

Hazard(s) Addressed:	All Hazards
Goals:	1, 2, 3, 4, 5, 6, 7, 8
Risk Reduction:	Hazard mitigation plan must be monitored in order to gauge success and accomplish updates as required.
Technical:	Technically feasible, easily implemented.
Political:	There is current community support for hazard mitigation planning, however there is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Monitoring and administering the Hazard Mitigation plan costs are considered low, however, administrative capacity of the Borough is exhausted and outside assistance may be required or the work load of administrative staff reduced in order to absorb the additional requirements of this action.
Local Champion:	Office of Emergency Management will advocate for the project.
Other Community Objectives:	This action supports the entire hazard mitigation effort within the municipality.
STAPLEE Evaluation:	N/A

#### Implementing the Action

Cost Estimate:	\$5,000.00
Priority:	Low
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Municipal budget
Timeline:	1 year
Action Status:	Ongoing
Notes:	This action is ongoing from 2015; Manasquan needs assistance with the engineering and detailed elevations.

Community Action Numbe	er: 30_04	Manasquan, Borough of
Describing the Action		
Action Name:	Implement a Program for Public Information on Hazard Awareness & Mitig	ation
Action Category:		
Action Type:	Education and Awareness Programs	
HMA Eligible Activity:	Miscellaneous/Other	
Action Description:	Implement a comprehensive program for public information that systemat information as well as actions that citizens can take to mitigate those hazar household disaster preparedness as well as private mitigation efforts. This public information steering committee and will include specific public outre	rds. The program will also promote program will include the formation of a
Evaluating the Action		
Hazard(s) Addressed:	All Hazards	

Hazard(s) Addressed:	All Hazards
Goals:	3, 4, 5, 8
Risk Reduction:	The Borough is lacking a comprehensive all-hazards public information program.
Technical:	Technically feasible, easily implemented.
Political:	There is current community support for hazard mitigation planning and public outreach.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	The Borough has the administrative capability to implement this action.
Local Champion:	Office of Emergency Management will advocate for the project.
Other Community Objectives:	Some of these public education activities may be eligible for credit under the Community Rating System and may lead top lower flood insurance premiums.
STAPLEE Evaluation:	N/A

# Implementing the Action Cost Estimate: \$5,000.00 Priority: Scale of Ease of Implementation: Responsible Party: Office of Emergency Management Local Planning Mechanism: Hazard Mitigation Plan, floodplain management plan Likely Funding Source(s): Local Hazard Mitigation Program, Hazard Mitigation Planning Grants, Community Resiliency Grants HMGP funding Timeline: Action Status: Completed Notes:

Community Action Number:	30_05 Manasquan, Borough of
Describing the Action	
Action Name:	Increase Public Warning Capabilities
Action Category:	Maintenance/Response/Recovery
Action Type:	Education and Awareness Programs
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	Increase public warning capabilities through the implementation of FEMA developed IPAWS alerting, upgrade warning siren coverage, implement a Reverse911 system, upgrade electronic warning sign system coverage, and improve use of web-based programs and social media for public warning.

#### **Evaluating the Action**

Hazard(s) Addressed:	All Hazards
Goals:	1, 2, 3, 5, 7
Risk Reduction:	The Borough is lacking critical public warning capabilities.
Technical:	Technically feasible, easily implemented.
Political:	There is current community support for increased public warning capabilities, however there is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Office of Emergency Management will advocate for the project.
Other Community Objectives:	All of these public warning actions are eligible for credit under the Community Rating System and may lead to lower flood insurance premiums.
STAPLEE Evaluation:	N/A

#### Implementing the Action

Cost Estimate:	\$150,000.00
Priority:	Medium
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Emergency Operations Plan
Likely Funding Source(s):	Municipal budget
Timeline:	1 year
Action Status:	Ongoing
Notes:	Ongoing action from 2015; 90% complete. IPAWS held up at the State. The Borough was awarded \$10,240.99 of FEMA Funding 406 Public Assistance for Flashing Signs and Road Signs.

Community Action Numb	per: 30_06	Manasquan, Borough of
Describing the Action		
Action Name:	Develop a Drought Emergency Plan	
Action Category:	Administrative	
Action Type:	Local Plans and Regulations	
HMA Eligible Activity:	Miscellaneous/Other	
Action Description:	Develop a drought emergency plan which includes criteria for drought-relate indicators, such as precipitation, temperature, guidance from NJDEP, and ins conservation measures during drought conditions and emergencies. This incl communication plan and early warning system to facilitate timely communic	titute voluntary and mandatory water udes developing a drought

decision makers, emergency managers, and the general public. **Evaluating the Action** Hazard(s) Addressed: Drought 1, 3, 4, 7 Goals: **Risk Reduction:** The Borough has no plan for dealing with drought emergencies. Technical: Technically feasible, easily implemented. Political: There is current community support for hazard mitigation planning, however there is community resistance to increased local property taxes. Legal: There are no apparent legal issues. Environmental: There is no environmental impact. Social: There is no social impact. Administrative Capability: Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required. Local Champion: Possibly Environmental Commission. Other Community Objectives: This action supports the objectives of emergency preparedness and environmental conservation. STAPLEE Evaluation: N/A

#### **Implementing the Action**

Cost Estimate:	\$5,000.00
Priority:	Low
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Emergency Operations Plan -Hazardous Weather Annex
Likely Funding Source(s):	Municipal budget
Timeline:	1 year
Action Status:	Ongoing
Notes:	Ongoing action from 2015; the Borough still priorities a Drought Emergency Plan and is seeking funding.

Community Action Number: 30_07 Manasquan, Borough of		
Describing the Action		
Action Name:	Conduct Seismic Retrofitting of Structures, Facilities, and Equipment	
Action Category:	Mitigation - Risk Reduction	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Miscellaneous/Other/NA	
Action Description:	This action item will include conducting seismic retrofitting of these structures based upon rank (most vulner and importance (most critical). Such mitigation actions may include, but are not limited to bracing of generat elevators, and other vital equipment, strengthening and retrofitting non-reinforced masonry buildings and no ductile concrete facilities that are particularly vulnerable to ground shaking, retrofitting building veneers to p failure, anchoring rooftop-mounted equipment, and otherwise retrofitting structures and equipment to make earthquake resistant. This will also include reviewing building codes and structural policies to ensure they are adequate to protect older structures from seismic damage. This item will also include requiring or encouragir seismic engineering measures and construction techniques that may include the mitigation actions listed abo	ors, on- prevent e ang
<b>Evaluating the Action</b>		
Hazard(s) Addressed:	Earthquake	

Hazard(s) Addressed:	Earthquake
Goals:	1, 2, 4, 6, 7
Risk Reduction:	The Borough has structures, including critical facilities and equipment, vulnerable to earthquakes.
Technical:	Technically feasible, difficult implementation. Seismic vulnerabilities solved for long term.
Political:	There is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Possibly chamber of commerce and home/business owners.
Other Community Objectives:	This action supports the objectives of emergency preparedness and community resiliency.
STAPLEE Evaluation:	N/A

Implementing the Action	
Cost Estimate:	\$25,000.00
Priority:	Low
Scale of Ease of Implementation:	Medium
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Municipal budget
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; Borough still values an inventory of vulnerable buildings to earthquakes and is seeking potential grants to complete the project. Funding gaps between the planning and engineering costs.

Community Action Number: 30_08 Manasquan, Borough of	
Describing the Action	
Action Name:	Provide Back-up Power Generation for Critical Facilities
Action Category:	
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Generators
Action Description:	An inventory of all critical facilities and equipment shall be made and ranked in order of importance. Emergency back-up generators will be provided and maintained at each of the facilities.
Evaluating the Action	
Hazard(s) Addressed:	All Hazards
Goals:	1, 3, 7
Risk Reduction:	The Borough has critical facilities and equipment that are vulnerable to power failure.
Technical:	Technically feasible, easily implemented.
Political:	There is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	The Borough has the administrative capacity to implement this action, however outside funding is required to implement this action.
Local Champion:	Possibly owners/operators of the critical facilities, OEM and Public Works.
Other Community Objectives:	This action supports the objectives of emergency preparedness and community resiliency.
STAPLEE Evaluation:	N/A
Implementing the Action	
Cost Estimate:	\$200,000.00
Priority:	
Scale of Ease of Implementation:	
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Emergency Operations Plan

 Timeline:

 Action Status:
 Completed

 Notes:
 The E. Virginia Sewage Lift Station received a \$25k grant (HMGP) for a generator.

Likely Funding Source(s):

Community Action Numbe	er: 30_09 Manasquan, Borough of
Describing the Action	
Action Name:	Provide Lightning Protection for Critical Facilities
Action Category:	Maintenance/Response/Recovery
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Miscellaneous/Other/NA
Action Description:	This action item will include conducting lightning protection of these structures based upon rank (most vulnerable) and importance (most critical). This will include installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities, as well as installing and maintaining surge protection on critical electronic equipment.

Evaluating the Action	
Hazard(s) Addressed:	Lightening
Goals:	2, 3, 5, 6, 7
Risk Reduction:	The Borough has critical facilities and equipment that are vulnerable to damage from lightning strikes.
Technical:	Technically feasible, easily implemented.
Political:	There is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Possibly owners/operators of the critical facilities. OEM and Public Works.
Other Community Objectives:	This action supports the objectives of emergency preparedness and community resiliency.
STAPLEE Evaluation:	N/A

Implementing the Action	
Cost Estimate:	\$100,000.00
Priority:	Medium
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Municipal budget
Timeline:	2 years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; about 50% complete.

Describing the Action	
Action Name:	Provide Erosion and Wave Protection along the Oceanfront by Constructing a Dune and Wall System along the Coastline
Action Category:	Mitigation - Risk Reduction
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Localized Flood Risk Reduction Projects
Action Description:	Fortify a one-mile portion of coastline with and engineered dune and wall system consisting of high-strength steel wall covered by dune system and vegetation.

# **Evaluating the Action**

Hazard(s) Addressed:	Wave Action, Coastal Erosion
Goals:	2, 3, 6, 7
Risk Reduction:	The Borough has a 1-mile long unprotected coastline exposed to the ocean and storms.
Technical:	Technically feasible.
Political:	There is community resistance to using private property for the project as resistance to a permanent dune system.
Legal:	There may be issues with easements and/or impacts to residents views.
Environmental:	There is significant environmental issues with installing a hardened structure in the coastal zone.
Social:	There is significant resistance among oceanfront homeowners that would have their views negatively impacted.
Administrative Capability:	The Borough has the administrative capacity to implement this action, however outside funding is required.
Local Champion:	None identified.
Other Community Objectives:	This action supports the objectives of community resiliency.
STAPLEE Evaluation:	N/A

#### Implementing the Action

Cost Estimate:	\$10,000,000.00
Priority:	Low
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	FEMA HMA, Army Corp of Engineers
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; action is not popular among residents however the beach remains vulnerable to future coastal storms.

Community Action Numb	per: 30_11	Manasquan, Borough of
Describing the Action		
Action Name:	Restore Natural Buffers to Mitigate Flooding Borough-Wide	
Action Category:	Mitigation - Risk Reduction	
Action Type:	Natural Systems Protection	
HMA Eligible Activity:	Mitigation Reconstruction	
Action Description:	Provide natural resource restoration to existing dunes, salt marshes, coas corridors and natural floodplains in order to enhance natural buffers and developing a comprehensive approach that combines dune, maritime for stream corridor restoration with potential flood mitigation opportunities to reduce both riverine and tidal flooding and protects against sea level r coastal wetlands and maritime forest and 6-miles of stream corridors.	flood mitigation. This will include est, coastal wetlands, salt marsh and and integrated high-water controls in order

Evaluating the Action	
Hazard(s) Addressed:	Flood, Wave Action, Storm Surge
Goals:	2, 5, 6
Risk Reduction:	The Borough has a significant number of natural buffers including dunes, salt marshes, coastal wetlands, maritime forests, stream corridors and natural floodplains that are in a deteriorated state that can provide significant natural buffers and flood mitigation.
Technical:	Technically feasible.
Political:	There is community resistance to increased local property taxes.
Legal:	There may be issues with easements and/or other impacts to residents.
Environmental:	This is an environmental restoration project and although it has environmental impacts they should be all positive.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Possibly Environmental Commission and the Monmouth County Park System
Other Community Objectives:	This action supports the objectives of community resiliency and environmental quality.
STAPLEE Evaluation:	N/A

Implementing the Action	
Cost Estimate:	\$7,000,000.00
Priority:	Medium
Scale of Ease of Implementation:	Medium
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	FEMA HMA, EPA, National Fish and Wildlife Foundation (NFWF), NOAA, New Jersey Corporate Wetlands Restoration
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; the Borough applied for funding but was not selected. However, the parking in Fisherman's Cove is in the process of relocation and a maritime forest will be created on the existing parking lot. There is still a need for funding to cover the remaining natural resource protection.

	Worksheets
Community Action Number:	30_12 Manasquan, Borough o
Describing the Action	
Action Name:	Enforce Compliance with NFIP's CRS Program
Action Category:	
Action Type:	Local Plans and Regulations
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	Manasquan participates in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). This project will include increased regulatory standards both in and out of the floodplain, including enacting and enforcing regulations that exceed NFIP minimum standards so that more flood protection is provided for any development. Existing ordinances will be reviewed and made more stringent, including requiring buildings to be constructed above the minimum elevation required by NFIP, requiring foundation protection on new buildings, requiring any new critical facilities to be build outside of the flood zone, requiring new development to provide positive drainage away from the structure, updating the definition of substantial improvement ta include accumulation of improvements counted over 10-years, as well as formally adopting the preliminary Flood Insurance, and flood protection measures as part of an organize, Program for Public Information (Action Item #4) and increasing our flood warning dissemination and response capabilities (Action Item #5). This item also includes work included in Action items 13-17, including implementing damage reduction measures for existing buildings such as elevation, acquisition, relocation, retrofitting, and maintenance of drainageways and retention basins.
Evaluating the Action	
Hazard(s) Addressed:	Flood, Wave Action, Storm Surge
Goals:	8
Risk Reduction:	The Borough needs to increase participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS).
Technical:	Technically feasible.
Political:	There is community resistance to increased regulatory standards.
Legal:	There are no legal issues.
Environmental:	There are no environmental impacts.
Social:	There is no social impact.
Administrative Capability:	The Borough has the administrative capacity to implement this action.
Local Champion:	Office of Emergency Management will advocate for the project.
Other Community Objectives:	These activities may be eligible for credit under the Community Rating System and may lead to lower flood insurand premiums.
STAPLEE Evaluation:	N/A
Implementing the Action	
Cost Estimate:	\$5,000.00
Priority:	
Scale of Ease of Implementation:	
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan, Floodplain Management Plan

Likely Funding Source(s): Local Hazard Mitigation Program

Completed

Timeline:

Action Status: Notes:

Community Action Numb	per: 30_13	Manasquan, Borough of
Describing the Action		
Action Name:	Floodproof Residential and Non-Residential Structures	
Action Category:	Mitigation - Risk Reduction	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Dry Floodproofing of Non-residential Structures	
Action Description:	This action item will include conducting flood proofing of these structures importance (most critical). These structures will be protected from flooding but not limited to wet floodproofing in a basement, wet floodproofing of a water resistant paints or other materials to allow for easy cleanup after floo floodproofing non-residential structures by strengthening walls, sealing ope	g by a combination of methods, including, reas above base flood elevation, using odwater exposure, and by dry

plastic sheeting on walls to keep water out.

Evaluating the Action	
Hazard(s) Addressed:	Flood, Storm Surge
Goals:	2, 5, 6
Risk Reduction:	The Borough has residential, commercial, and public structures and equipment vulnerable to flooding, storm surge, Sea Level Rise.
Technical:	Technically feasible, implementation difficult due to varied structure types and ownership.
Political:	There is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	possibly homeowners in flood zone, owners/operators of critical facilities.
Other Community Objectives:	This action supports the objectives of community resiliency.
STAPLEE Evaluation:	N/A
Implementing the Action	
Cost Estimate:	\$10,000.00
Priority:	Medium
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	FEMA HMA
Timeline:	1 year
Action Status:	Ongoing
Notes:	Ongoing action; the Borough is still interested in this action and once funds are available, will implement.

Community Action Number:	30_14 Manasc	quan, Borough of
Describing the Action		
Action Name:	Elevate Residential and Non-Residential Structures & Equipment, especially Repetitive Loss (RL) Repetitive Loss (SRL) Properties	and Severe
Action Category:	Mitigation - Risk Reduction	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Structure Elevation	
Action Description:	This action item will include elevating these structures based upon rank (most vulnerable) and ir critical). These structures, facilities, and equipment will be elevated at least 1-foot above minimu elevation requirements to protect from flooding, storm surge & sea level rise.	

#### **Evaluating the Action**

-	
Hazard(s) Addressed:	Flood, Wave Action, Storm Surge
Goals:	2, 5, 6, 7
Risk Reduction:	The Borough has residential, commercial and public structures and critical facilities and equipment vulnerable to flooding, storm surge, and Sea Level Rise.
Technical:	Technically feasible, implementation difficult due to varied structure types & ownership.
Political:	There is community resistance to increased local property taxes.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact, as most neighborhoods have already undertaken home elevations.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	possibly homeowners in flood zone, owners/operators of critical facilities.
Other Community Objectives:	This action supports the objectives of community resiliency and these actions are eligible for credit under the Community Rating System and may lead to lower flood insurance premiums.
STAPLEE Evaluation:	8

#### Implementing the Action

Cost Estimate:	\$200,000,000.00
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan, NFIP CRS Program, NJOEM, FEMA
Likely Funding Source(s):	FEMA HMA
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; all two (2) controls and pump stations are elevated however there are more structures, facilities, and equipment that need floodproofing.

Community Action Number: 30_15 Manasquan, Borough of		
Describing the Action		
Action Name:	Relocate Structures, Critical Facilities, and Equipment out of Flood Hazard Areas, especially Repetitive Loss and Severe Repetitive Loss Properties	
Action Category:	Mitigation - Risk Reduction	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Property Acquisition and Structure Relocation	
Action Description:	This action item will include relocating of these structures based upon rank (most vulnerable, importance and most critical. These structures and facilities and equipment will be relocated to low-hazard areas to protect from flooding, wave action, storm surge, and Sea Level Rise. This may include compensating an owner or partial rights, such as easement or development rights, to prevent a property from being developed.	

Evaluating the Action	
Hazard(s) Addressed:	Flood, Wave Action, Storm Surge
Goals:	2, 5, 6
Risk Reduction:	The Borough has residential, commercial, and public structures and critical facilities and equipment located in high- hazard areas vulnerable to flooding, wave action, storm surge, and Sea Level Rise.
Technical:	Technically feasible, implementation difficult due to varied structure types and ownership issues.
Political:	There is community resistance to increased local property taxes and to retreating from coastal areas.
Legal:	There will be legal issues if property owners are unwilling to relocate.
Environmental:	There is a positive environmental impact for restoring previously developed areas to natural buffers.
Social:	There is a huge social impact in retreating from the coastal zone.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	None
Other Community Objectives:	This action supports the objectives community resiliency and these actions are eligible for credit under the Community Rating System and may lead to lower flood insurance premiums.
STAPLEE Evaluation:	6
Implementing the Action	
Cost Estimate:	\$500,000,000.00
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard mitigation plan, NFIP's CRS Program, Green Acres Fund, Blue Acres Program, NJOEM, FEMA
Likely Funding Source(s):	Community Resiliency Grants, FEMA's HMA Funding

Ongoing action from 2015; about 5% complete. Relocating lifesaving center to Borough Hall and a plan is underway

Timeline:

Notes:

Action Status:

5 + years

Ongoing

to relocated beach operations.

Community Action Number:	30_16	Manasquan, Borough of
Describing the Action		
Action Name:	Elevate and/or Improve Drainage of Roadways in Flood-prone Areas	
Action Category:	Mitigation - Continuity of Fuctional Use	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Localized Flood Risk Reduction Projects	
Action Description:	Critical access roads in these areas will be elevated to protect from flooding and sto be improved, one-way tide-flex type valves installed, and vulnerable shoulders will l bank stabilization techniques. Seawalls or other structures will be constructed to pro the shoreline. Water and wastewater treatment facilities located in high-hazard are will include retrofitting structures to elevate them above forecasted sea level rise le to be 1 foot above the 500-year flood elevation (considering wave action) or the pre- whichever is higher and replacing exterior building components with more hazard re	be stabilized using bioengineered otect critical facilities located on as will be flood-protected. This vels, retrofitting critical facilities edicted sea level rise level,

Evaluating the Action	
Hazard(s) Addressed:	Flood, Storm Surge
Goals:	3, 5, 6, 7
Risk Reduction:	The Borough has roads and infrastructure located in high-hazard areas vulnerable to flooding, storm surge, and Sea Level Rise.
Technical:	Technically feasible, easily implemented.
Political:	There is community resistance to increased local property taxes, however there is community support for flood protection.
Legal:	There are no legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Emergency Response Agencies, MBIA, OEM, homeowners in affected areas.
Other Community Objectives:	This action supports the objectives community resiliency and emergency response.
STAPLEE Evaluation:	N/A
Implementing the Action	
Implementing the Action	

implementing the Action	
Cost Estimate:	\$10,000,000.00
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Community Resiliency Grants, FEMA HMA funding, Transportation funds.
Timeline:	1 year
Action Status:	Ongoing
Notes:	Ongoing action from 2015; about 20% complete. The Borough's focus is to elevate all roads that fall within the minor coastal flood level. Brielle Road was elevated through HMGP funding (\$292,500).

Community Action Number:	30_17 Manasquan, Borough of	
Describing the Action		
Action Name:	Construct a Seawall and Flood Gate	
Action Category:	Mitigation - Risk Reduction	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Localized Flood Risk Reduction Projects	
Action Description:	This action item includes the construction of a steel seawall along the Atlantic Ocean and a flood gate across the Manasquan Inlet. This project would protect all communities in the Manasquan River floodplain from coastal flooding, storm surge and sea level rise. The steel seawall would be covered in a man-made, vegetated dune and would be tied into high ground on the Sea Girt border to the north and a flood gate across Manasquan Inlet to the	

south. The same seawall would run the length of Point Pleasant Beach.

Evaluating the Action	
Hazard(s) Addressed:	Flood, Storm Surge
Goals:	1, 2, 6, 7
Risk Reduction:	A majority of the Borough flooding is from the Manasquan River. A seawall and/or flood gate would mitigate a majority of the flood risks for the Borough.
Technical:	Installing this flood gate would be both technically challenging and technically feasible.
Political:	There is community resistance to increased local property taxes, however there is community support for flood protection especially a large-scale project such as this.
Legal:	There may be significant legal issues regarding easements and homeowners views being blocked by dunes.
Environmental:	There is significant environmental issues with installing a hardened structure in the coastal zone.
Social:	There is significant resistance among oceanfront homeowners that would have their views negatively impacted by a seawall/dune system.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required. This would have to be a joint project undertaken by multiple municipalities, and administered at the State and/or Federal level.
Local Champion:	Emergency Response Agencies, MBIA, OEM, homeowners in affected areas
Other Community Objectives:	This action supports the objectives community resiliency and emergency response
STAPLEE Evaluation:	5

Implementing the Action	
Cost Estimate:	\$150,000,000.00
Priority:	High
Scale of Ease of Implementation:	High
Responsible Party:	Army Corp of Engineers
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Federal USACE funds, FEMA HMA
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing from 2015 plan; Army Corp of Engineers is responsible for this project but the Borough strongly supports this project.

Community Action Number:	30_18 Manasquan, Borough d	of
Describing the Action		
Action Name:	Conduct an Inventory and Retrofit Structures, Facilities, and Equipment to Sustain High Winds	
Action Category:	Administrative	
Action Type:	Structure and Infrastructure Project	
HMA Eligible Activity:	Miscellaneous/Other/NA	
Action Description:	An inventory of public and commercial buildings that are vulnerable to high winds will be identified; this action iter will include conducting retrofitting of these structures based upon rank (most vulnerable) and importance (most critical). Such mitigation actions may include, but are not limited to, installing hurricane shutters or other protective measures, retrofitting gable end walls to eliminate wall failures in high winds, replacing existing non-ductile infrastructure with ductile infrastructure to reduce their exposure to hazardous events, retrofitting buildings with load-path connectors to strengthen the structural frames, reinforcing garage doors, anchoring roof-mounted heating, ventilation, and air conditioning units, retrofitting the emergency operations center to FEMA 361 standard upgrading of reused buildings that will house critical facilities, and otherwise retrofitting structures and equipment to make wind resistant. This will also include reviewing building codes and structural policies to ensure they are adequate to protect older structures from wind damage. This item will also include requiring or encouraging wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles.	e Is,

Evaluating the Action	
Hazard(s) Addressed:	Extreme Wind
Goals:	1, 2, 4, 6, 7
Risk Reduction:	The Borough has structures, including critical facilities and equipment, vulnerable to high winds.
Technical:	Technically feasible, difficult implementation. Wind vulnerabilities salved for long term.
Political:	There is community resistance to increased local property taxes. There may be same resistance to increased building code regulations.
Legal:	There are no apparent legal issues.
Environmental:	There is no environmental impact.
Social:	There is no social impact.
Administrative Capability:	Currently the Borough does not have the administrative capacity to implement this action and outside assistance and/or funding is required.
Local Champion:	Possibly Chamber of Commerce
Other Community Objectives:	This action supports the objectives of emergency preparedness and community resiliency.
STAPLEE Evaluation:	N/A

## Implementing the Action

Cost Estimate:	\$2,000,000.00
Priority:	Low
Scale of Ease of Implementation:	Low
Responsible Party:	Office of Emergency Management
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Municipal budget
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing action from 2015; wind and seismic risks have been not yet assessed. Funding gaps between the planning and engineering and construction costs.

Name: Christopher Tucker	Title: OEM Coordinator
Jurisdiction: Borough of Manasquan	Organization:

Local Mitigation Capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.

## **Planning & Regulatory**

Planning and Regulatory Capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction currently has in place.

Plan	Yes/No	1. 2. 3. 4.	mitigation strategy?
	Yes	1.	Year: Unknown
Comprehensive/Master Plan		2.	No
		3.	No
		4.	No
Capital Improvements Plan	No	n/a	
	No	n/a	
Economic Development Plan		iiy a	
	Yes	1.	Year: 2019
		2.	Yes
Local Emergency Operations Plan		3.	No
		4.	No
		5.	
	Yes	1.	Year: 2019
Continuity of Operations Plan		2.	No
		3.	No
		4.	No
	Yes	1.	Year: 2019
Post-Disaster Recovery Plan		2.	No
		3. 4.	No
	No		No
Transportation Plan	NO	n/a	
	Yes	1.	Year: Expired
Stormwater Management Disc		2.	No
Stormwater Management Plan		3.	No
		4.	No



Community Wildfire Protection Plan	No	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes	<ul> <li>Drainage System Maintenance Plan</li> <li>Coastal Evacuation Plan</li> <li>Public Information Plan</li> </ul>
Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code	Yes	Version/Year: International Building Code 2015; International Residential Code NJ 2015 Yes Enforced
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score: Residential 4; Commercial 3
Fire Department ISO rating		Rating: 8
Site Plan Review Requirements	Yes	
Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning Ordinance	Yes	Yes Yes
Subdivision Ordinance	Yes	Yes Yes
Floodplain Ordinance	Yes	Yes Yes
Natural hazard ordinance (stormwater, steep slope, wildfire)	Yes	Yes Yes
Flood Insurance Rate Maps	Yes	Yes Yes
Acquisition of Land for Open Space and Public Recreation Uses	Yes	Yes Yes



Post-Disaster Recovery Ordinance	No	
Real Estate Disclose Ordinance	Yes	Yes Yes
Other (ie. Special Purposes Ordinance)	Yes	Special Purposes Ordinance
How can the above capabilities	be expan	ded and improved to reduce risk?
Need ordinance that requires prop ordinance.	er drainage	in roads when disturbed. Need a minimum bulkhead height

## **Administrative & Technical**

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher-level government that can provide technical assistance, indicate so in your comments.

Administration	Yes/No	Describe capability Is coordination effective?
Planning Commission	Yes	
Mitigation Planning Committee	Yes	Utilize LEPC as HM planning Committee and Engineering & Construction Committee as construction committee. Very effective
Maintenance Programs to Reduce Risk (e.g., tree trimming, clearing drainage systems)	Yes	Drainage system Maintenance Plan, coordinated by DPW Superintendent. Not very effective
Mutual Aid Agreements	Yes	County Wide Mutual Aid Agreement. Not yet tested.
Staff	Yes/No FT/PT	Is the staff full time or part time? Is staffing adequate to enforce regulations? Is the staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	Yes FT	<ol> <li>Full time</li> <li>Yes</li> <li>Informally</li> <li>Yes</li> </ol>
Floodplain Administrator	Yes PT	<ol> <li>Part time</li> <li>Yes</li> <li>Informally</li> <li>Yes</li> </ol>



		1. Part time 2. Yes
Emergency Manager	Yes	3. Yes
		4. Yes
		1. Part time
Community Planner	Yes	2. Yes 3. Yes
		3. Yes 4. Yes
		1. Part time
Civil Engineer	Yes	2. Yes
	103	3. Yes
		4. Yes
Surveyor	No	
Surveyor	NO	
GIS Coordinator	No	
		1. Part time
Scientists familiar with the	Yes	2. Yes
hazards of the community	105	3. Yes
nazarus of the community		
		4. Yes
Other		4. Yes
Other	Yes/No	Describe capability
	Yes/No	Describe capability Has capability been used to access/mitigate risk in the past?
Other Technical	Yes/No Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren,
Other Technical Warning Systems/Services		Describe capability Has capability been used to access/mitigate risk in the past?
Other Technical		Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911
Other Technical Warning Systems/Services (Reverse 911, outdoor warning	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works
Other Technical Warning Systems/Services (Reverse 911, outdoor warning		Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping
Other Technical Warning Systems/Services (Reverse 911, outdoor warning	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals)	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals) Hazard Data and Information	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping Very useful
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals)	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals) Hazard Data and Information Grant Writing	Yes Yes Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping Very useful
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals) Hazard Data and Information	Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping Very useful
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals) Hazard Data and Information Grant Writing	Yes Yes Yes	Describe capability Has capability been used to access/mitigate risk in the past? Electronic Signs (6), AM Radio Station, Outdoor Warning Siren, Reverse911 Yes, utilized & works LIDAR based flood mapping Very useful
Other Technical Warning Systems/Services (Reverse 911, outdoor warning signals) Hazard Data and Information Grant Writing Hazus Analysis	Yes Yes Yes No	Describe capability         Has capability been used to access/mitigate risk in the past?         Electronic Signs (6), AM Radio Station, Outdoor Warning Siren,         Reverse911         Yes, utilized & works         LIDAR based flood mapping         Very useful         Grant management too cumbersome and overwhelms existing staf

Need additional staff for administering grant programs or reduce administrative burden assigned to the grantee.



## **Financial**

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Access / Eligibility (Yes/No)	Has the funding resource been used in the past and for what type of activities? Could the resource be used to fund future mitigation actions?
Yes	An annual fund was established in 2019 that has been utilized specifically for flood mitigation & drainage improvements
Yes	no
Yes	no
No	
No	
No	
Yes	Application pending for drainage / flood mitigation project
No	
No	
Yes	Incur Debt through General Obligation Funds and Incur Debt through Special Tax and Revenue Bonds
	Eligibility (Yes/No) Yes Yes No No Yes No No No

Need a federal grant program specifically to address flood mitigation. This should include planning, engineering & construction costs.



## **Education and Outreach**

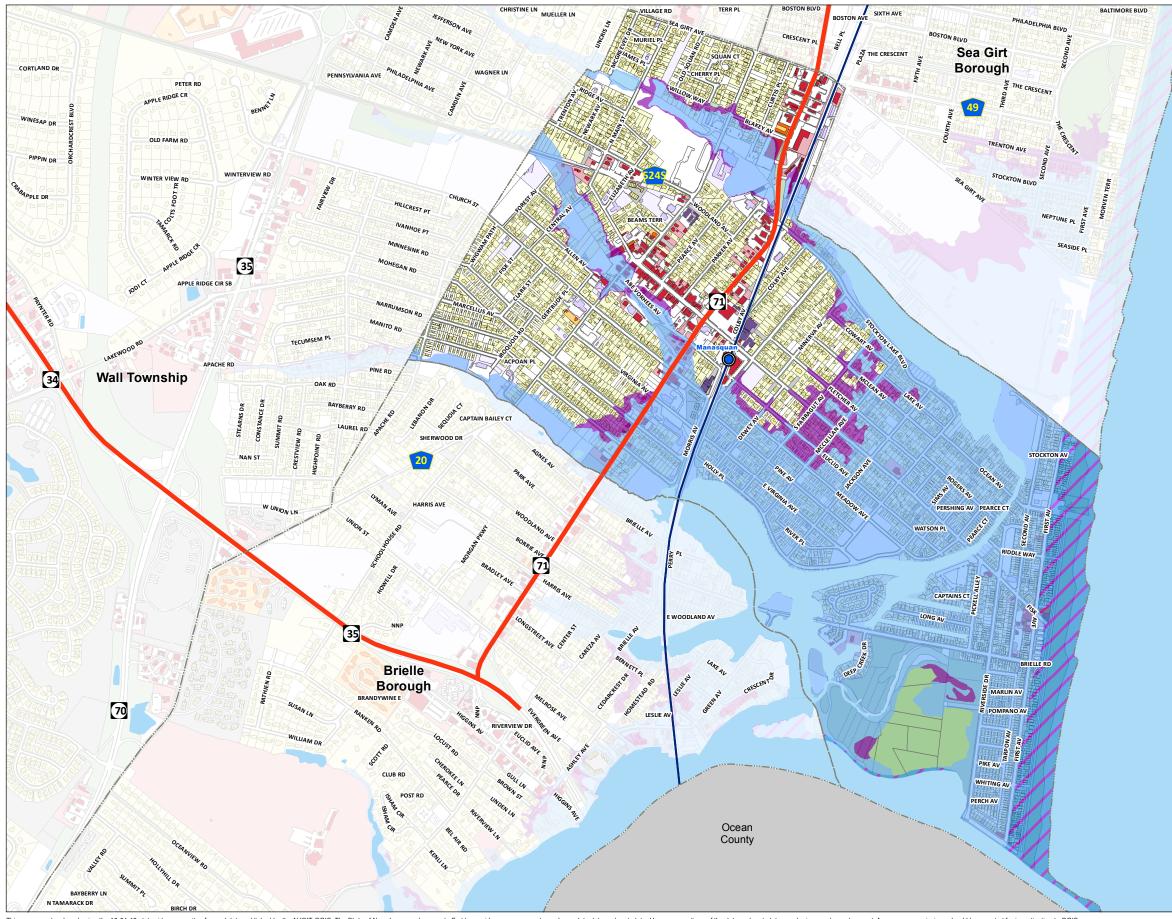
Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how it relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local Citizen Groups or Non- Profit Organizations Focused on Environmental Protection, Emergency Preparedness, Access and Functional Needs Populations, etc.	Yes	Manasquan Beach Improvement Association strongly supports emergency preparedness, mitigation & environmental conservation. Yes
Ongoing Public Education or Information Programs (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	Formal public information program for emergency & flood preparedness. Yes
Natural Disaster or Safety Related School Programs	No	
StormReady Certification	Yes	Community StormReady certified since 2003. No
Firewise Communities Certification	No	
Public-Private Partnership Initiatives Addressing Disaster Related Issues	No	
Other	n/a	
How can these capabilities be expa	anded and i	mproved to reduce risk?
Improve / expand upon existing pro	ograms	





ILLAGE RD



nap was developed using the 10-04-18 statewide composite of parcel data published by the NJOIT-OGIS. The State of New Jersey makes great effort to provide secure, accurate, and complete data and metadata. However, portions of the data and metadata may be incorrect or not current. Any errors or omissions should be reported for investigation to OGIS.



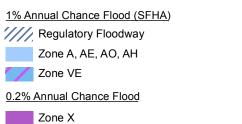
BALTIMORE BLVD



Source: 2014 Esri; Monmouth County; NJOIT-OGIS; NJGIN MODIV Parcel, FEMA Projection: New Jersey State Plane, NAD 1983





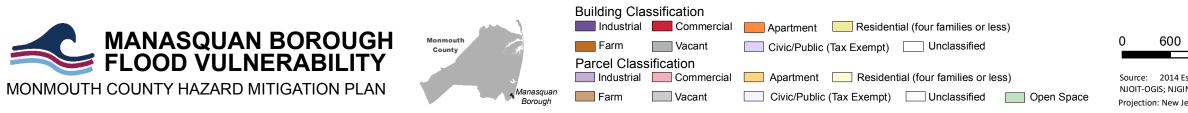


FEMA FLOOD HAZARD AREAS

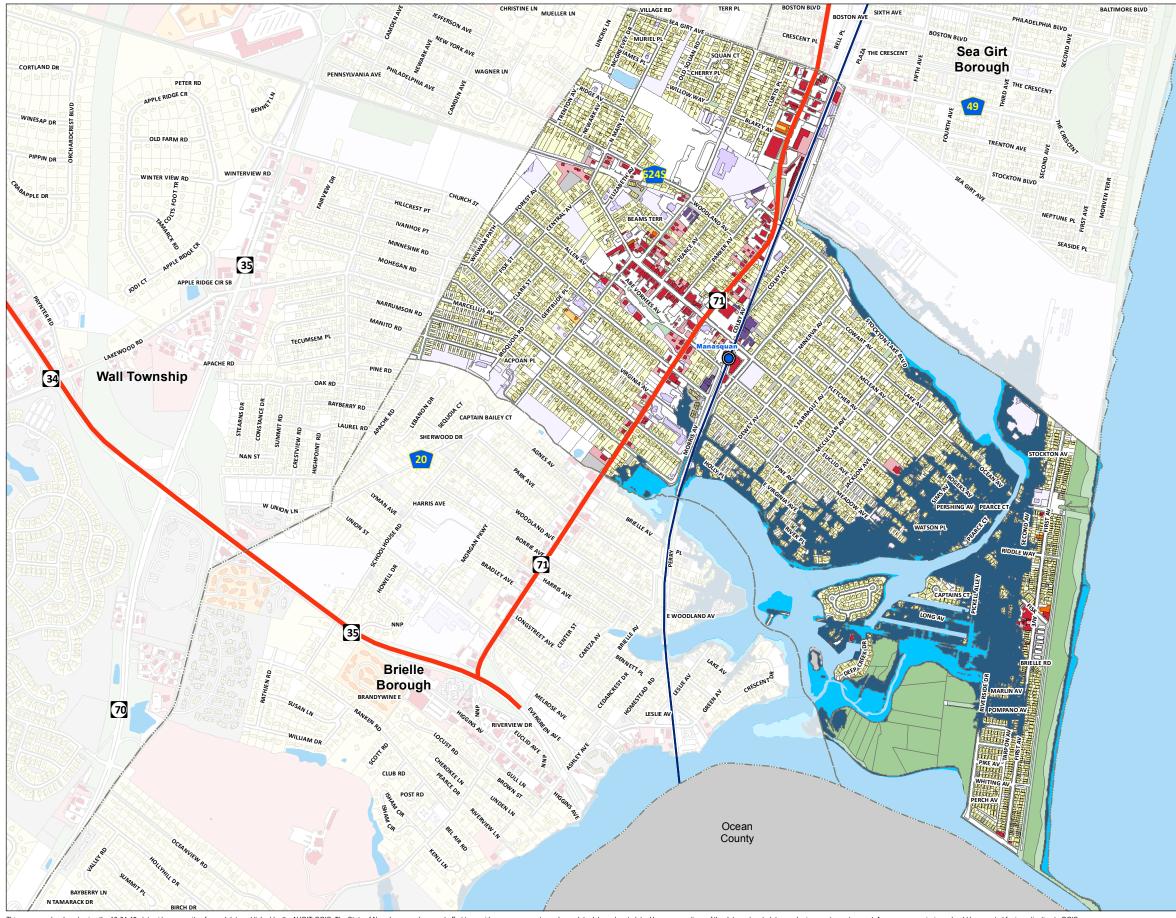


Evacuation Route

Flood Hazard Areas are a composite of Effective FIRMs (06/20/2018) and Preliminary FIRMs (01/30/2015)



ILLAGE RD



ap was developed using the 10-04-18 statewide composite of parcel data published by the NJOIT-OGIS. The State of New Jersey makes great effort to provide secure, accurate, and complete data and metadata. However, portions of the data and metadata may be incorrect or not current. Any errors or omissions should be reported for investigation to OGIS.



BALTIMORE BLVD

Source: 2014 Esri; Monmouth County; NJOIT-OGIS; NJGIN MODIV Parcel, FEMA Projection: New Jersey State Plane, NAD 1983





#### POTENTIAL SEA LEVEL RISE **INUNDATION AREAS**

1 Foot Sea Level Rise (2050)



Evacuation Route

Spatial Resolution and Accuracy: This map depicts inland extent and relative depth of inundation for 1ft. and 3ft. of SLR using NOAA SLR data with a vertical datum of Mean Higher High Water (MHHW). These inundation ranges are consistent with the Rutgers University's New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel Report (STAP Report). The STAP Report estimates New Jersey will experience SLR between 1.0 and 1.8 feet prior to 2050, regardless of future greenhouse gas emissions. The data displayed on this map represents current conditions and does not consider natural processes such as erosion or marsh migration that will be affected by future sea level rise. Due to coarse spatial resolution, the user should not interpret the layers as precise inundation extents.





#### **MEETING NOTES**

Topic: Manasquan- Monmouth County HMP Meeting

Date: May 8, 2019

#### Time: 2:00 PM- 3:00 PM

Location: Borough Hall (2nd Floor) 201 East Main Street, Manasquan, NJ 08736

Attendees: Frank DiRoma, Supervisor, Constr. Code Planning Zoning

Edward Donovan, Mayor

Thomas Flarity, Administrator

Tom Schofield, Deputy Chief Fire Department

Chris Tucker, Engineer

Nick Tumminello, Captain Police Department

Brittany Ashman, MB Planner

#### Drafted by: Paige Kaspar

#### Introductions (Brittany):

- What is Hazard Mitigation?
- Matching actions with Goals
- New Hazards
- HMP Pamphlet
- Funding

#### **Mitigation Actions:**

- 1. Rank vulnerable structures → Ongoing action from 2015; water level risk has been assessed. Borough plans to continue assessing risk for the remaining hazards.
- 2. Establish Funding Mechanism  $\rightarrow$  Completed
- 3. Monitor Mitigation Plan Implementation → Ongoing This action is ongoing from 2015; Manasquan needs assistance with the engineering and detailed elevations.
- 4. Implement a Program for Public Information on Hazard Awareness & Mitigation → Completed
- 5. Increase Public Warning Capabilities → Ongoing action from 2015; 90 complete. IPAWS held up at the State.

#### Monmouth County Multi-Jurisdictional Hazard Mitigation Plan Update



- Develop a Drought Emergency Plan → Ongoing action from 2015; the Borough still priorities a Drought Emergency Plan and is seeking funding.
- Retrofit Existing Structures, Facilities & Equipment to Make Resistant to Seismic Loading→ Ongoing action from 2015; Borough still values an inventory of vulnerable buildings to earthquakes and is seeking potential grants to complete the project. Funding gaps between the planning and engineering costs.
- 8. Provide Back-up Power Generation for Critical Facilities and Equipment  $\rightarrow$  Completed
- Provide Lightning Protection for Critical Facilities and Equipment→ Ongoing action from 2015; about 50 complete.
- 10. Provide Erosion and Wave Protection along the Oceanfront  $\rightarrow$  Ongoing action from 2015; action is not popular among residents however the beach remains vulnerable to future coastal storms.
- 11. Natural Resource Restoration → Ongoing action from 2015; the Borough applied for funding but was not selected. However, the parking in Fisherman's Cove is in the process of relocation and a maritime forest will be created on the existing parking lot. There is still a need for funding to cover the remaining natural resource protection.
- 12. Increased Compliance with NFIP/CRS Program→ Complete
- 13. Provide Floodproofing for Residential and Non-Residential Structures & Equipment→ Ongoing
- 14. Elevate Residential and Non-residential Structures & Equipment → Ongoing action from 2015; all (2) controls and pump stations are elevated;
- 15. Relocate Structures, Critical Facilities & Equipment → Ongoing action from 2015; about 5 complete. Relocating lifesaving center to Borough Hall and a plan is underway to relocated beach operations.
- 16. Protect Roads and Infrastructure → Ongoing action from 2015; about 20 complete. The Borough's focus is to elevate Brielle Rd. and Stockton Lake Blvd.
- 17. Construct a Seawall and Flood Gate → Ongoing from 2015 plan; Army Corp of Engineers is responsible for this project but the Borough strongly supports this project.
- 18. Retrofit Existing Structures, Facilities & Equipment → Ongoing action from 2015; wind and seismic risks have been assessed. Funding gaps between the planning and engineering costs.

#### 2020 Mitigation Actions (NEW):

- Top priority: flooding of roads. Need to elevate roads (crown of roads)
- Need to elevate infrastructure (pump stations, control tide vales, and drainage

#### Problems:

• Application process hard on small staff; OEM grant software is hard to use

#### Successes:

- However, the parking in Fisherman's Cove is in the process of relocation and a maritime forest will be created on the existing parking lot.
- All (2) controls and pump stations are elevated
- Relocating lifesaving center to Borough Hall and a plan is underway to relocated beach operations.
- No watershed management plan but county is working on this- county hazard mitigation action

Monmouth County	Multi-Jurisdictional Haza

onmouth County Ilti-Jurisdictional Hazard Mitigation Plan Update





Michael Baker International

Meeting: Manasayan HMP

Date: 05-08-10

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