

Appendix Vol I.33 Middletown Township

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



NFIP Statistics

2,648 *Polices In-force*

1,693 *Total Losses*

\$59,437,930 *Total Payments*

163 *Number of RL Properties*

42 *Number Mitigated
RL Properties*

398 *RL - Total Losses*

\$13,996,103 *RL - Total Paid*

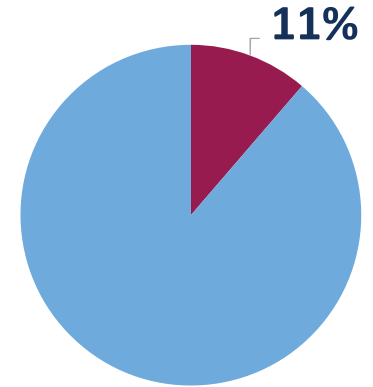


5 *Number of SRL Properties*

0 *Number Mitigated SRL
Properties*

22 *SRL - Total Losses*

\$712,270 *SRL - Total Paid*



Percent Land Area Within SFHA

13

*Total Mitigation
Actions*

1



Education and Awareness Programs

6



Structure and Infrastructure Projects

5



Local Plans and Regulations

1



Natural Systems Protection

Critical Facilities

106 *Critical Facilities*

1 *Critical Infrastructure*

59 *Historic & Cultural Resources*



1 *SV Population At Risk (2017)*

7,459 *Population at Risk (2017)*

Middletown, Township 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
33_01	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Substantially Damaged, Repetitive Loss (RL), and Severe Repetitive Loss (SRL) properties	Elevate 248 structures determined to be substantially damaged and mitigate (elevate or acquire for open space) RL and SRL properties.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Medium	State of New Jersey, Monmouth County, Township of Middletown.	FEMA HMA	\$13,500,000.00	5 + years	Ongoing
33_02	De-snag and Desilt Streams and Provide Wetlands Maintenance	Management of riparian buffers along rivers and streams, channel desnagging to preserve the function of natural drainage channels and floodplains, wetlands maintenance and removal of invasive plant species, desilting and dredging of streams and ditches of the following: Waackaack Creek/L.F. 12,500; Pew's Creek/L.F. 10,500; Compton's Creek/L.F. 39,300; Ware Creek/L.F. 10,800; Wagner's Creek/L.F. 12,000; Claypit Creek/L.F. 14,400; McClees Creek L.F. 19,200. The total stream cleaning is 118,700 LF and assumed silt removal rate 0.75 cu.	Maintenance/Response/Recovery	Natural Systems Protection	Flood, Nor'easter, Hurricane and Tropical Storm, Wildfire	High	Low	Middletown Township (in conjunction with Monmouth County and Army	Municipal budget, EPA, National Fish and Wildlife Foundation (NFWF), NOAA, New Jersey Corporate	\$3,294,900.00	5 + years	Ongoing
33_03	Construct and Install an Automatic Slide Gate at Wilson Avenue at Pews Creek	Construct and install an additional automatic tide-activated electrically-actuated slide gate device at Wilson Avenue at Pews Creek.	Mitigation - Risk Reduction	Structure and Infrastructure Project	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge			Mayor and Township Committee	FEMA HMA	\$170,000.00		Completed
33_04	Purchase Temporary/Portable Pumps to Remove Stormwater	Installing temporary/portable pumps in certain areas will allow stormwater from major nuisance flooding events in Leonardo and Belford sections. The goal is to pump stormwater from the system, discharging into Pew's Creek. Once the water level in the system reaches a certain elevation below existing street elevations, pumps would be activated, and system water would be discharged into the creek. Slide gates would be closed during the pumping to prevent stormwater from re-entering the drainage systems.	Maintenance/Response/Recovery	Structure and Infrastructure Project	Flood, Nor'easter, Hurricane and Tropical Storm	High	Low	Middletown Township	Municipal budget	\$110,000.00	5 + years	Ongoing
33_05	Purchase and Install Generators for Critical Facilities	Generators for three fire houses (River Plaza, Port Monmouth, Belford), transfer station (Fire House, Tanya Keller, Crossroads), community Center for shelter, pump station (N. Middletown storm sewer - new generator & new pumps), and five communication towers need generators and have backup batteries.		Structure and Infrastructure Project	All Hazards			HMPG Energy Allocation - no match required.		\$800,000.00		Completed
33_06	Provide for Continuity of Operations by Elevating Generators and Switches at Fire Stations	Elevate generators and switches at all fire stations located in the flood hazard area.	Mitigation - Continuity of Fuctional Use	Structure and Infrastructure Project	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Low	Each Fire Company, Township	FEMA HMA	\$300,000.00	1 year	Ongoing

Middletown, Township 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
33_07	Develop a Microgrid Feasibility Study (2017)	In August 2017, Middletown Township was awarded a \$150,000 grant from the New Jersey Board of Public Utilities to hire experts to conduct an initial study to determine a cost-effective configuration that will allow the Township to use local resources to power critical facilities, especially during times of emergency.	Administrative	Local Plans and Regulations	All Hazards	Low	Low	Township	Municipal budget		2 years	New
33_08	Enhance Security at Township Facilities	Increase surveillance systems in Township critical facilities.	Maintenance/Response/Recovery	Structure and Infrastructure Project	Terrorism	Low	Low	Middletown Township	Homeland Security grants, Municipal budget		2 years	New
33_09	Increase the Number of Drones and Provide Drone Training	More drones and drone training for police officers. Two officers have completed the training already.	Maintenance/Response/Recovery	Education and Awareness Programs	All Hazards	Medium	Low	Township Police	Homeland Security grants, Municipal budget		1 year	New
33_10	Conduct Compton Creek Marsh Restoration and Build a Maritime Forest; Repair Bulkhead at Belford Harbor	The proposed project is primarily north of Broadway where Compton Creek enters a 2,000-foot wide Salt Hay Grass-dominated floodplain characterized by historic drainage and mosquito ditches. Current mitigation strategies include an existing bulkhead, a rock groin breakwater, and possible future maintenance dredging by the USACE. However this area needs marsh restoration, an upland berm maritime forest along Church Road, and repairs to the existing bulkhead along Belford Harbor.	Mitigation - Continuity of Functional Use	Natural Systems Protection	Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Medium	Township, County	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife		2 years	New
33_11	Conduct Ware Creek Marsh Restoration and Build a Upland Berm Maritime Forest	This action includes marsh restoration and an upland maritime forest berm along Ware Creek.	Mitigation - Continuity of Functional Use	Natural Systems Protection	Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Medium	Township, County	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife		2 years	New
33_12	Coordinate with NWS Earle on Protecting the Navy Base and the Belford Neighborhood through Resiliency and Risk Reduction Projects	The project proposes restoring marshlands to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves, as well as upland restoration to provide a buffer to Normandy Road. Upland dune restoration landward of the replenished beach and expansion of the wave-attenuating oyster reef, currently within the NWS Earle Security Zone, could serve as nature-based solutions to mitigate flooding, erosion, and storm surge.	Mitigation - Risk Reduction	Natural Systems Protection	Flood, Hurricane and Tropical Storm	High	Medium	Township, County	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife		2 years	New
33_13	Build Upland Dune Restoration Install Wave-attenuating Oyster Reefs to Protect the Leonardo Neighborhood from Flooding	This action proposes marsh restoration bordered to the west by a maritime forest berm to provide a buffer to Normandy Road and neighboring properties. Upland dune restoration landward of the replenished beach, along with the expansion of the wave-attenuating oyster reefs within the NWS Earle Security Zone could serve as nature-based solutions to mitigate flooding and storm	Mitigation - Continuity of Functional Use	Natural Systems Protection	Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	High	Township, County	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife		3 years	New

Middletown, Township 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
33_14	Create a Plan to Define Steep Slope/High-risk Areas to Manage Development in Landslide Areas	Create a plan to implement reinforcement measures in high-risk areas.	Administrative	Local Plans and Regulations	Landslide	Low	Low	Township	Municipal budget		3 years	New

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_01

Middletown, Township of

Describing the Action

Action Name:	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Substantially Damaged, Repetitive Loss (RL), and Severe Repetitive Loss (SRL) properties
Action Category:	Mitigation - Risk Reduction
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Structure Elevation
Action Description:	Elevate 248 structures determined to be substantially damaged and mitigate (elevate or acquire for open space) RL and SRL properties.

Evaluating the Action

Hazard(s) Addressed:	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge
Goals:	1, 2, 3, 6
Risk Reduction:	Several residential structures throughout the community are prone to flooding, with their main floor elevations below current BFEs. A substantial portion of Middletown lies within mapped storm surge hazard areas, including locations well inland of the Sandy Hook Bay shore, as well as areas along the Navesink River and its tributaries. During Superstorm Sandy, Middletown's Sandy Hook Bay communities of Port Monmouth, Belford, and Leonardo experienced storm surge flooding over a very large area generally north of Route 36 (though tidal flooding along Pews Creek and Compton Creek did extend south of Route 36). Communities in these areas were severely impacted. Along the Navesink and its tributaries, flooding tended to be more constrained to undeveloped floodplains and marina areas; however, along the meandering Swimming River, overbank flooding did affect some homes and businesses. Sea level rise and climate change will contribute to more frequent and severe flooding and surge events.
Technical:	Elevation is technically feasible.
Political:	Our political leadership supports this type of project.
Legal:	While the municipality does not own the structures in question, we fully support the homeowners in moving forward.
Environmental:	No environmental impacts are anticipated as a result of elevating the homes.
Social:	No particular social group in our community is likely to be disproportionately impacted by this project.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	Affected homeowners and businesses.
Other Community Objectives:	Elevating homes in flood hazard areas will represent a benefit to the community as a whole by reducing the emergency response, cleanup, and social costs inflicted by future flood events.
STAPLEE Evaluation:	11

Implementing the Action

Cost Estimate:	\$13,500,000.00
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	State of New Jersey, Monmouth County, Township of Middletown, HMA
Local Planning Mechanism:	Funding. LOIs for HMPG programs have been submitted. The Township has not received funding to date. Elevation co
Likely Funding Source(s):	FEMA HMA
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing 2015 action; new flood prevention ordinance has language on substantially damaged properties.

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_02

Middletown, Township of

Describing the Action

Action Name:	De-slag and Desilt Streams and Provide Wetlands Maintenance
Action Category:	Maintenance/Response/Recovery
Action Type:	Natural Systems Protection
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	Management of riparian buffers along rivers and streams, channel desnagging to preserve the function of natural drainage channels and floodplains, wetlands maintenance and removal of invasive plant species, desilting and dredging of streams and ditches of the following: Waackaack Creek/L.F. 12,500; Pew's Creek/L.F. 10,500; Compton's Creek/L.F. 39,300; Ware Creek/L.F. 10,800; Wagner's Creek/L.F. 12,000; Claypit Creek/L.F. 14,400; McClees Creek L.F. 19,200. The total stream cleaning is 118,700 LF and assumed silt removal rate 0.75 cu.

Evaluating the Action

Hazard(s) Addressed:	Flood, Nor'easter, Hurricane and Tropical Storm, Wildfire
Goals:	2, 3, 5, 6
Risk Reduction:	Streams and ditches in Special Flood Hazard Areas do not convey storm flows as efficiently as they should, which results in flooding in several areas. In addition to a flood hazard, accumulated dead vegetation poses a fire hazard. Invasive plant species are becoming prominent in wetland areas, thus decreasing storage capacities.
Technical:	Excavation is technically feasible.
Political:	Our political leadership supports this type of project.
Legal:	This proposal is consistent FEMA program eligibility guidance, and local mitigation plans.
Environmental:	Permit required for dredging.
Social:	No particular social group in our community is likely to be disproportionately impacted by this project.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	Residents in affected areas in Middletown support the township in moving forward.
Other Community Objectives:	To prevent blockages in our waterways and mosquito control.
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	\$3,294,900.00
Priority:	High
Scale of Ease of Implementation:	Low
Responsible Party:	Middletown Township (in conjunction with Monmouth County and Army Corp)
Local Planning Mechanism:	In the post Sandy environment more than stream and ditch maintenance. We need a high priority with other agencies
Likely Funding Source(s):	Municipal budget, EPA, National Fish and Wildlife Foundation (NFWF), NOAA, New Jersey Corporate Wetlands Restor
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing 2015 action; FEMA, post-Sandy grant denied. The Township will continue to search for funding for wetlands maintenance and management.

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_03

Middletown, Township of

Describing the Action

Action Name:	Construct and Install an Automatic Slide Gate at Wilson Avenue at Pews Creek
Action Category:	Mitigation - Risk Reduction
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Localized Flood Risk Reduction Projects
Action Description:	Construct and install an additional automatic tide-activated electrically-actuated slide gate device at Wilson Avenue at Pews Creek.

Evaluating the Action

Hazard(s) Addressed:	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge
Goals:	2, 3, 5
Risk Reduction:	During extreme lunar tides, the flood protection provided by the newly constructed Wilson Ave. slide gate is compromised and there is a tidal flow of water from Compton's Creek across Main Street into the residential properties between Main St. and Brainard Ave. The drainage system is then quickly inundated, and the streets become flooded, negating the intended positive effects of the Wilson Ave flood gate.
Technical:	Construction is technically feasible.
Political:	Our political leadership supports this type of project.
Legal:	No apparent legal issues.
Environmental:	No environmental impacts are anticipated as a result of construction and installation.
Social:	No particular social group in our community is likely to be disproportionately impacted by this project.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	Affected homeowners, and businesses support the construction and installation of the gate.
Other Community Objectives:	We are continuing to review shoreline protection in the post Sandy environment regarding maintenance and upgrades.
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	\$170,000.00
Priority:	
Scale of Ease of Implementation:	
Responsible Party:	Mayor and Township Committee
Local Planning Mechanism:	We continue to monitor and maintain flood gates during normal tidal conditions.
Likely Funding Source(s):	FEMA HMA
Timeline:	
Action Status:	Completed
Notes:	Awarded FEMA funds. When the Pews Creek slide gate is closed and the tide is very high, water from Comptons Creek floods the underground drainage system in the streets and the roads stay flooded until the gate opens again near low tide.

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_04

Middletown, Township of

Describing the Action

Action Name:	Purchase Temporary/Portable Pumps to Remove Stormwater
Action Category:	Maintenance/Response/Recovery
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Miscellaneous/Other/NA
Action Description:	Installing temporary/portable pumps in certain areas will allow stormwater from major nuisance flooding events in Leonardo and Belford sections. The goal is to pump stormwater from the system, discharging into Pew's Creek. Once the water level in the system reaches a certain elevation below existing street elevations, pumps would be activated, and system water would be discharged into the creek. Slide gates would be closed during the pumping to prevent stormwater from re-entering the drainage systems.

Evaluating the Action

Hazard(s) Addressed:	Flood, Nor'easter, Hurricane and Tropical Storm
Goals:	2, 3, 5, 6
Risk Reduction:	Stormwater management infrastructure does not convey storm flows as efficiently as it should in Leonardo and Belford.
Technical:	The project is technically feasible with existing staff and vehicles capable of moving the pumps. The goal is to pump stormwater from the system, discharging into Pew's Creek. Once the water level in the system reaches a certain elevation below existing street elevations, pumps would be activated and system water would be discharged into the creek. Slide gates would be closed during the pumping to prevent stormwater from reentering the drainage systems.
Political:	Our political leadership supports this type of project.
Legal:	No apparent legal issues.
Environmental:	No environmental impacts are anticipated as a result of temporary usage and installation.
Social:	No particular social group in our community is likely to be disproportionately impacted by this project.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	Affected homeowners and businesses
Other Community Objectives:	Protecting lives and property from flooding.
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	\$110,000.00
Priority:	High
Scale of Ease of Implementation:	Low
Responsible Party:	Middletown Township
Local Planning Mechanism:	To eliminate tidal and nuisance flooding.
Likely Funding Source(s):	Municipal budget
Timeline:	5 + years
Action Status:	Ongoing
Notes:	Ongoing 2015 action; removing Port Monmouth from this action since the Army Corp project will mitigate the issue there. Township is still interested in finding funding for the Leonardo and Belford sections. The Emory Drive Pump Station was awarded \$531,000 of HMGP funding to elevate the station. The Township was also awarded HMGP funding of \$153,000 for Port Monmouth Drainage II.

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_05

Middletown, Township of

Describing the Action

Action Name:	Purchase and Install Generators for Critical Facilities
Action Category:	
Action Type:	Structure and Infrastructure Project
HMA Eligible Activity:	Generators
Action Description:	Generators for three fire houses (River Plaza, Port Monmouth, Belford), transfer station (Fire House, Tanya Keller, Crossroads), community Center for shelter, pump station (N. Middletown storm sewer - new generator & new pumps), and five communication towers need generators and have backup batteries.

Evaluating the Action

Hazard(s) Addressed:	All Hazards
Goals:	5, 7
Risk Reduction:	Reduce or eliminate loss of service at 3 critical facilities. Installation of standby generators will improve response time to service calls during emergencies and improve safety conditions for the responders utilizing the buildings (for example, crucial time was often lost while responders were working in the dark manually opening bay doors).
Technical:	Technically feasible.
Political:	Our political leadership supports this type of project.
Legal:	No legal issues anticipated.
Environmental:	No environmental impacts are anticipated.
Social:	No particular social group in our community is likely to be disproportionately impacted by this project.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	affected homeowners and businesses.
Other Community Objectives:	Fire Stations & First Aid Squads that remain fully operational during emergencies can also be of greater assistance to the community by serving as short-term shelters, warming and charging stations, and points of distribution for emergency supplies.
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	\$800,000.00
Priority:	
Scale of Ease of Implementation:	
Responsible Party:	HMPG Energy Allocation - no match required.
Local Planning Mechanism:	The project is designed to provide the labor and materials necessary for the upgrade of the delivery of emergency po
Likely Funding Source(s):	
Timeline:	
Action Status:	Completed
Notes:	The following HMGP grants were awarded to the Township: Port Monmouth Fire Company Generator: \$93,220.00 Belford Independent Fire Company Generator: \$52,840.00 River Plaza Fire Company Generator: \$55,383.00 Crossroad Shelter: \$15,500.00 Croydon Hall - Field House: \$14,900.00 Wastewater Treatment Plant: \$593,079.64 Tonya Keller Community Center: \$14,400.00

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_06

Middletown, Township of

Describing the Action

Action Name: Provide for Continuity of Operations by Elevating Generators and Switches at Fire Stations

Action Category: Mitigation - Continuity of Fuctional Use

Action Type: Structure and Infrastructure Project

HMA Eligible Activity: Structure Elevation

Action Description: Elevate generators and switches at all fire stations located in the flood hazard area.

Evaluating the Action

Hazard(s) Addressed: Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge

Goals: 7

Risk Reduction: All the fire companies are located in flood hazard areas and are prone to flooding and power outages.

Technical: Technically feasible. Suitable land would be to be acquired.

Political: Fire Company membership and community could be oppose relocation of Fire House. Reduction of the total number of fire houses within the township would be considered further. Several stations in this area are fairly close to each other. Adjusting response area of remaining nine firehouses would be considered.

Legal: No apparent legal issues.

Environmental: No apparent environmental issues.

Social: No apparent effect on any social group.

Administrative Capability: It is unlikely the Fire Companies have sufficient in-house administrative capabilities. Assistance from contracted services.

Local Champion: Possibly the Fire Department

Other Community Objectives: Fire stations that remain fully functional can also be of greater assistance to the community by serving as short-term shelters, warming and charging stations and points of distribution for emergency supplies.

STAPLEE Evaluation: N/A

Implementing the Action

Cost Estimate: \$300,000.00

Priority: Low

Scale of Ease of Implementation: Low

Responsible Party: Each Fire Company, Township

Local Planning Mechanism: Emergency Planning

Likely Funding Source(s): FEMA HMA

Timeline: 1 year

Action Status: Ongoing

Notes: Ongoing 2015 action was "Relocate Critical Facilities out of Flood Zones" which is not realistic as all are in a flood zone. Changed to elevate generators and switches.

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_07

Middletown, Township of

Describing the Action

Action Name:	Develop a Microgrid Feasibility Study (2017)
Action Category:	Administrative
Action Type:	Local Plans and Regulations
HMA Eligible Activity:	Miscellaneous/Other/NA
Action Description:	In August 2017, Middletown Township was awarded a \$150,000 grant from the New Jersey Board of Public Utilities to hire experts to conduct an initial study to determine a cost-effective configuration that will allow the Township to use local resources to power critical facilities, especially during times of emergency.

Evaluating the Action

Hazard(s) Addressed:	All Hazards
Goals:	7
Risk Reduction:	The Distributed Energy Resource (DER) microgrid would reinforce the Township's power supply. The microgrid would prevent prolonged power outages such as the one we experienced during Superstorm Sandy, and also help insulate Naval Weapons Station Earle, multiple fire departments, schools, and other critical facilities. A microgrid can remain connected to the wider electric grid but can also function independently during an emergency situation.
Technical:	Technically feasible. The study is already complete.
Political:	Supported by administration.
Legal:	No legal issues are anticipated
Environmental:	No adverse environmental effects.
Social:	Does not adversely affect any particular social group. Perceived by the public to be a good thing because it keeps critical facilities operational during storms.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	OEM, Fire, Police, Mayor
Other Community Objectives:	
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	
Priority:	Low
Scale of Ease of Implementation:	Low
Responsible Party:	Township
Local Planning Mechanism:	Microgrid Feasibility Study, Hazard Mitigation Plan
Likely Funding Source(s):	Municipal budget
Timeline:	2 years
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_08

Middletown, Township of

Describing the Action

Action Name: Enhance Security at Township Facilities

Action Category: Maintenance/Response/Recovery

Action Type: Structure and Infrastructure Project

HMA Eligible Activity: Miscellaneous/Other

Action Description: Increase surveillance systems in Township critical facilities.

Evaluating the Action

Hazard(s) Addressed: Terrorism

Goals: 1, 2, 6

Risk Reduction: Township critical facilities are vulnerable to terrorism or vandalism. Increased security will lower the risk of such hazards.

Technical: Technically feasible.

Political: No adverse political ramifications are expected.

Legal: No legal impediments anticipated.

Environmental: No adverse environmental impact anticipated

Social: Does not adversely affect any particular social group.

Administrative Capability: Township has sufficient capacity and experience to administer this action.

Local Champion: Township staff

Other Community Objectives:

STAPLEE Evaluation: N/A

Implementing the Action

Cost Estimate:

Priority: Low

Scale of Ease of Implementation: Low

Responsible Party: Middletown Township

Local Planning Mechanism: Hazard Mitigation Plan

Likely Funding Source(s): Homeland Security grants, Municipal budget

Timeline: 2 years

Action Status: New

Notes:

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_09

Middletown, Township of

Describing the Action

Action Name:	Increase the Number of Drones and Provide Drone Training
Action Category:	Maintenance/Response/Recovery
Action Type:	Education and Awareness Programs
HMA Eligible Activity:	Green Infrastructure
Action Description:	More drones and drone training for police officers. Two officers have completed the training already.

Evaluating the Action

Hazard(s) Addressed:	All Hazards
Goals:	5, 7
Risk Reduction:	Drones can assist with any hazard, such as a fire or terrorist attack. The drones can give eyes to the first responders.
Technical:	Technically feasible; Township already bought two drones and had two officers complete the training.
Political:	No adverse political ramifications are expected.
Legal:	No legal impediments anticipated.
Environmental:	No adverse environmental impact anticipated.
Social:	Does not adversely affect any particular social group. Perceived by the public to be a good thing because it supports local services during emergencies.
Administrative Capability:	Township has sufficient capacity and experience to administer this action.
Local Champion:	Police, Fire, Mayor, OEM, Mayor
Other Community Objectives:	
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	
Priority:	Medium
Scale of Ease of Implementation:	Low
Responsible Party:	Township Police
Local Planning Mechanism:	Hazard Mitigation Plan
Likely Funding Source(s):	Homeland Security grants, Municipal budget
Timeline:	1 year
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_10

Middletown, Township of

Describing the Action

Action Name:	Conduct Compton Creek Marsh Restoration and Build a Maritime Forest; Repair Bulkhead at Belford Harbor
Action Category:	Mitigation - Continuity of Functional Use
Action Type:	Natural Systems Protection
HMA Eligible Activity:	Floodplain and Stream Restoration
Action Description:	The proposed project is primarily north of Broadway where Compton Creek enters a 2,000-foot wide Salt Hay Grass-dominated floodplain characterized by historic drainage and mosquito ditches. Current mitigation strategies include an existing bulkhead, a rock groin breakwater, and possible future maintenance dredging by the USACE. However this area needs marsh restoration, an upland berm maritime forest along Church Road, and repairs to the existing bulkhead along Belford Harbor.

Evaluating the Action

Hazard(s) Addressed:	Nor'easter, Hurricane and Tropical Storm, Storm Surge
Goals:	5, 6, 7
Risk Reduction:	Belford and Port Monmouth (Middletown Township) are at risk of coastal flooding due to their low-lying locations containing Compton Creek.
Technical:	Technically feasible.
Political:	The County and NWS Earle support this action.
Legal:	Project will be completed on public lands owned by the County or Township; NJDEP permits and Soil Erosion and Sediment Control approvals may be required.
Environmental:	This action will improve the natural environment.
Social:	Does not adversely affect any particular social group.
Administrative Capability:	Township has the capability to oversee this action, and the County is willing to help implement the Raritan/Sandy Hook Bay Coastal Resilience Planning Study projects.
Local Champion:	This project is one of 11 projects listed in the 2019 Raritan/Sandy Hook Bay Coastal Resilience Planning Study (by Monmouth County) and is supported by the County, the Township, NWS Earle, and the Planning Study Technical
Other Community Objectives:	
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Township, County
Local Planning Mechanism:	Raritan/Sandy Hook Bay Coastal Resilience Planning Study, NWS Earle Joint Land Use Study, Monmouth County Mast
Likely Funding Source(s):	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife Foundatio
Timeline:	2 years
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_11

Middletown, Township of

Describing the Action

Action Name:	Conduct Ware Creek Marsh Restoration and Build a Upland Berm Maritime Forest
Action Category:	Mitigation - Continuity of Functional Use
Action Type:	Natural Systems Protection
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	This action includes marsh restoration and an upland maritime forest berm along Ware Creek.

Evaluating the Action

Hazard(s) Addressed:	Nor'easter, Hurricane and Tropical Storm, Storm Surge
Goals:	5, 6, 7
Risk Reduction:	Belford (Middletown Township) experiences coastal flooding in the low-lying locations between the tidal waterways of Compton Creek and Ware Creek. This location includes the Belford Ferry Terminal and other utility facilities that serve NWS Earle.
Technical:	Technically feasible.
Political:	The County and NWS Earle support this action.
Legal:	Project will be completed on public lands owned by the County or Township; NJDEP permits and Soil Erosion and Sediment Control approvals may be required.
Environmental:	This action will improve the natural environment.
Social:	Does not adversely affect any particular social group.
Administrative Capability:	Township has the capability to oversee this action, and the County is willing to help implement the Raritan/Sandy Hook Bay Coastal Resilience Planning Study projects.
Local Champion:	This project is one of 11 projects listed in the 2019 Raritan/Sandy Hook Bay Coastal Resilience Planning Study (by Monmouth County) and is supported by the County, the Township, NWS Earle, and the Planning Study Technical
Other Community Objectives:	
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Township, County
Local Planning Mechanism:	Raritan/Sandy Hook Bay Coastal Resilience Planning Study, NWS Earle Joint Land Use Study, Monmouth County Mast
Likely Funding Source(s):	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife Foundatio
Timeline:	2 years
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_12

Middletown, Township of

Describing the Action

Action Name:	Coordinate with NWS Earle on Protecting the Navy Base and the Belford Neighborhood through Resiliency and Risk Reduction Projects
Action Category:	Mitigation - Risk Reduction
Action Type:	Natural Systems Protection
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	The project proposes restoring marshlands to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves, as well as upland restoration to provide a buffer to Normandy Road. Upland dune restoration landward of the replenished beach and expansion of the wave-attenuating oyster reef, currently within the NWS Earle Security Zone, could serve as nature-based solutions to mitigate flooding, erosion, and storm surge.

Evaluating the Action

Hazard(s) Addressed:	Flood, Hurricane and Tropical Storm
Goals:	5, 6, 7
Risk Reduction:	The NWS Earle Pier and Normandy Road (transportation route for the Navy) is at risk of flooding due to Sea Level Rise. The neighborhood of Belford is also at risk to Sea Level Rise as it is located at a very low elevation.
Technical:	Technically feasible.
Political:	The County and NWS Earle support this action.
Legal:	Project will be completed on public lands owned by the County or Township; NJDEP permits and Soil Erosion and Sediment Control approvals may be required.
Environmental:	This action will improve the natural environment.
Social:	Does not adversely affect any particular social group.
Administrative Capability:	Township has the capability to oversee this action, and the County is willing to help implement the Raritan/Sandy Hook Bay Coastal Resilience Planning Study projects.
Local Champion:	This project is one of 11 projects listed in the 2019 Raritan/Sandy Hook Bay Coastal Resilience Planning Study (by Monmouth County) and is supported by the County, the Township, NWS Earle, and the Planning Study Technical
Other Community Objectives:	
STAPLEE Evaluation:	10

Implementing the Action

Cost Estimate:	
Priority:	High
Scale of Ease of Implementation:	Medium
Responsible Party:	Township, County
Local Planning Mechanism:	Raritan/Sandy Hook Bay Coastal Resilience Planning Study, NWS Earle Joint Land Use Study, Monmouth County Mast
Likely Funding Source(s):	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife Foundatio
Timeline:	2 years
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_13

Middletown, Township of

Describing the Action

Action Name:	Build Upland Dune Restoration Install Wave-attenuating Oyster Reefs to Protect the Leonardo Neighborhood from Flooding
Action Category:	Mitigation - Continuity of Functional Use
Action Type:	Natural Systems Protection
HMA Eligible Activity:	Miscellaneous/Other
Action Description:	This action proposes marsh restoration bordered to the west by a maritime forest berm to provide a buffer to Normandy Road and neighboring properties. Upland dune restoration landward of the replenished beach, along with the expansion of the wave-attenuating oyster reefs within the NWS Earle Security Zone could serve as nature-based solutions to mitigate flooding and storm surge.

Evaluating the Action

Hazard(s) Addressed:	Nor'easter, Hurricane and Tropical Storm, Storm Surge
Goals:	5, 6, 7
Risk Reduction:	Adjacent to Sandy Hook Bay in Leonardo (Middletown Township) is a small depressed area surrounding an unnamed tidal creek. Located between the NWS Earle Pier Complex and Leonardo State Marina, the site contains a sandy beach, low and high marsh areas grading up into upland wooded habitat surrounded by residential lots. Stormwater collects in this 'bowl' particularly during high tides and contributes to nuisance flooding.
Technical:	Technically feasible.
Political:	The County and NWS Earle support this action.
Legal:	Project will be completed on public lands owned by the County or Township; NJDEP permits and Soil Erosion and Sediment Control approvals may be required.
Environmental:	This action will improve the natural environment.
Social:	Does not adversely affect any particular social group.
Administrative Capability:	Township has the capability to oversee this action, and the County is willing to help implement the Raritan/Sandy Hook Bay Coastal Resilience Planning Study projects.
Local Champion:	This project is one of 11 projects listed in the 2019 Raritan/Sandy Hook Bay Coastal Resilience Planning Study (by Monmouth County) and is supported by the County, the Township, NWS Earle, and the Planning Study Technical
Other Community Objectives:	
STAPLEE Evaluation:	N/A

Implementing the Action

Cost Estimate:	
Priority:	High
Scale of Ease of Implementation:	High
Responsible Party:	Township, County
Local Planning Mechanism:	Raritan/Sandy Hook Bay Coastal Resilience Planning Study, NWS Earle Joint Land Use Study, Monmouth County Mast
Likely Funding Source(s):	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, National Fish and Wildlife Foundatio
Timeline:	3 years
Action Status:	New
Notes:	

Monmouth County Mitigation Action Worksheets

Community Action Number: 33_14

Middletown, Township of

Describing the Action

Action Name: Create a Plan to Define Steep Slope/High-risk Areas to Manage Development in Landslide Areas

Action Category: Administrative

Action Type: Local Plans and Regulations

HMA Eligible Activity: Miscellaneous/Other/NA

Action Description: Create a plan to implement reinforcement measures in high-risk areas.

Evaluating the Action

Hazard(s) Addressed: Landslide

Goals: 1, 3, 5

Risk Reduction: There is a high probability of future landslide events (mostly slumps and slump blocking) in the northeast portion of the County along the coastal bluffs of Sandy Hook and along the shore of the Navesink River.

Technical: Technically feasible.

Political: o adverse political ramifications are expected.

Legal: No legal impediments anticipated.

Environmental: o adverse environmental impact anticipated.

Social: No apparent effect on any social group.

Administrative Capability: Township has the capability to oversee this action, and the County is willing to help implement the Raritan/Sandy Hook Bay Coastal Resilience Planning Study projects.

Local Champion: OEM

Other Community Objectives:

STAPLEE Evaluation: N/A

Implementing the Action

Cost Estimate:

Priority: Low

Scale of Ease of Implementation: Low

Responsible Party: Township

Local Planning Mechanism: Hazard Mitigation Plan

Likely Funding Source(s): Municipal budget

Timeline: 3 years

Action Status: New

Notes:

CAPABILITY ASSESSMENT WORKSHEET

Name: Charles Rogers

Title: OEM Coordinator

Jurisdiction: Middletown Township

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. What is the date/year of the plan? 2. Does the plan address hazards? 3. Does the plan identify projects to include in the mitigation strategy? 4. Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	No	
Capital Improvements Plan	Yes	
Economic Development Plan	Yes	
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan		
Post-Disaster Recovery Plan	Yes	
Transportation Plan		
Stormwater Management Plan		
Community Wildfire Protection Plan		



CAPABILITY ASSESSMENT WORKSHEET

Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes	<ul style="list-style-type: none"> • Town Center Middletown Micro Grid Study • Monmouth County Joint Land Use Study (2017) • Getting to Resilience (2017) • NJ FRAMES • Raritan/Sandy Hook Bay Coastal Resilience Planning Study
Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code	Yes	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire Department ISO rating		Rating:
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	
Subdivision Ordinance	Yes	
Floodplain Ordinance		
Natural hazard ordinance (stormwater, steep slope, wildfire)		
Flood Insurance Rate Maps		
Acquisition of Land for Open Space and Public Recreation Uses		
Post-Disaster Recovery Ordinance	Yes	
Real Estate Disclose Ordinance	Yes	



CAPABILITY ASSESSMENT WORKSHEET

Other (ie. Special Purposes Ordinance)	Yes	Special Purposes Ordinance
How can the above capabilities be expanded and improved to reduce risk?		

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	Local Emergency Planning Committee
Maintenance Programs to Reduce Risk (e.g., tree trimming, clearing drainage systems)	Yes	Regular maintenance on beach, trees, storm sewers, and pumps
Mutual Aid Agreements	Yes	As part of the County Mutual Agreement and appointed/distrubted by the county: Fire/EMS: All towns nearby, at their request Police: Sandy Hook , as needed nearby Police Dogs: As requested RDF: Large scale event
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		
Floodplain Administrator	Yes	
Emergency Manager	Yes	



CAPABILITY ASSESSMENT WORKSHEET

Community Planner	Yes	
Civil Engineer	Yes	
Surveyor	Yes	
GIS Coordinator	Yes	
Scientists familiar with the hazards of the community	Yes	
Other		
Technical	Yes/No	Describe capability Has capability been used to access/mitigate risk in the past?
Warning Systems/Services (Reverse 911, outdoor warning signals)	Yes	
Hazard Data and Information		
Grant Writing	Yes	
Hazus Analysis	Yes	
Other		5 or 6 communication towers have battery backup
How can the above capabilities be expanded and improved to reduce risk?		



CAPABILITY ASSESSMENT WORKSHEET

Financial

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

Funding Resource	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?
Capital Improvements Project Funding	Yes	
Authority to Levy Taxes for Specific Purposes	No	
Fees for Water, Sewer, Gas, or Electric Services	No	
Impact Fees for New Development	No	
Stormwater Utility Fee		
Incur Debt Through Private Activities	Yes	
Community Development Block Grant	No	
Other Federal Funding Programs	No	
State Funding Programs		
Other (e.g., withhold spending in hazard-prone areas)	Yes	Incur Debt through General Obligation Funds and Incur Debt through Special Tax and Revenue Bonds
How can these capabilities be expanded and improved to reduce risk?		



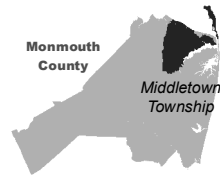
CAPABILITY ASSESSMENT WORKSHEET

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	
Ongoing Public Education or Information Programs (e.g., responsible water use, fire safety, household preparedness, environmental education)		
Natural Disaster or Safety Related School Programs		
StormReady Certification		
Firewise Communities Certification		
Public-Private Partnership Initiatives Addressing Disaster Related Issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		





Parcel Classification

Industrial	Commercial	Apartment	Residential (four families or less)	
Farm	Vacant	Civic/Public (Tax Exempt)	Unclassified	Open Space

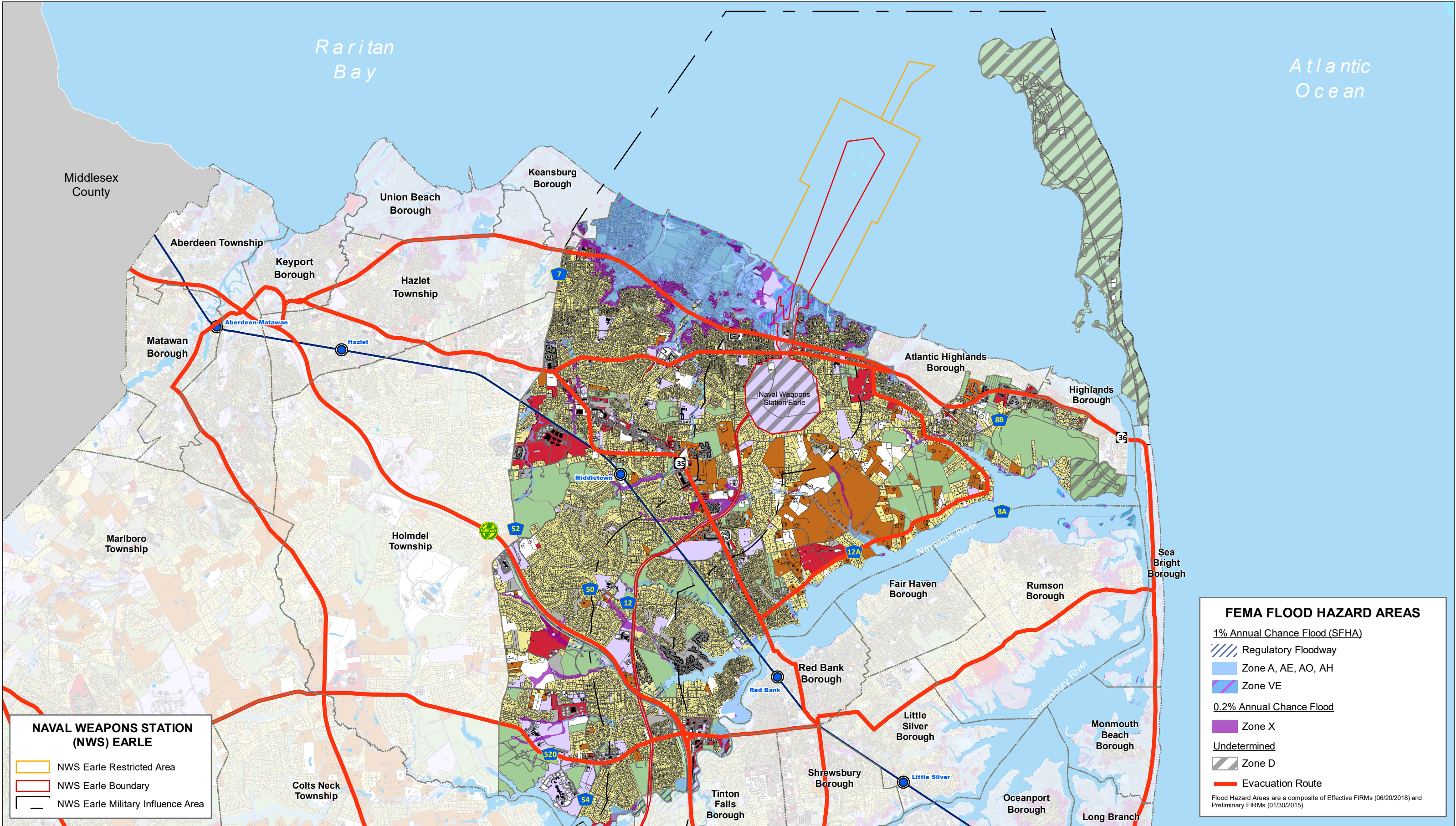
0 3,250 6,500
Feet

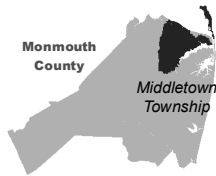


Source: 2014 Esri; Monmouth County;
NJOIT-OGIS; NJGIN MODIV Parcel, FEMA
Projection: New Jersey State Plane, NAD 1983



**Michael Baker
INTERNATIONAL**





Parcel Classification

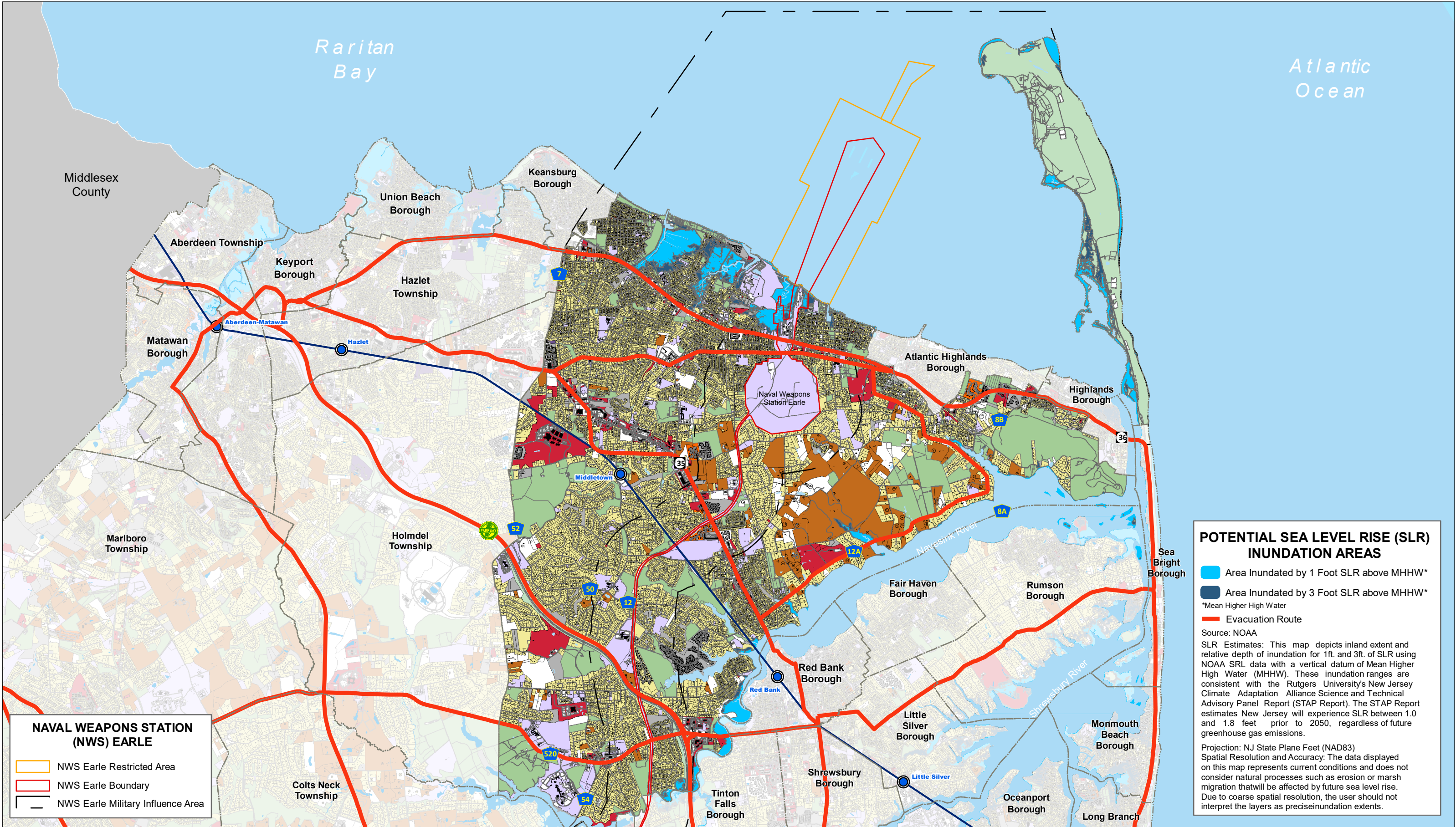
Industrial	Commercial	Apartment	Residential (four families or less)	
Farm	Vacant	Civic/Public (Tax Exempt)	Unclassified	Open Space

0 3,250 6,500 Feet


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




Michael Baker
INTERNATIONAL




POTENTIAL SEA LEVEL RISE (SLR) INUNDATION AREAS

 Area Inundated by 1 Foot SLR above MHHW*

 Area Inundated by 3 Foot SLR above MHHW*

*Mean Higher High Water

 Evacuation Route

Source: NOAA

SLR Estimates: This map depicts inland extent and relative depth of inundation for 1ft. and 3ft. of SLR using NOAA SRL 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.

Projection: NJ State Plane Feet (NAD83)
Spatial Resolution and Accuracy: 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: Middletown Township HMP Meeting

Date: June 13, 2019

Time: 10:00 AM

Location: Middletown Township Arts Center - 36 Church Street, Middletown 07748 - in the Gallery

Drafted by: Paige Kaspar

Introductions (Brittany):

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

Mitigation Actions:

- Community Action 33_01 – Elevate Substantially Damaged Structures – **ongoing**
 - Elevate 248 structures determined to be substantially damaged
 - Flood prevention ordinance has language on substantially damaged
 - If built to 1% flood event then would reduce funding, but must be shown on FIRMS
 - Homeowners can challenge FRIMS if they feel so
 - Can Army Corp project can mitigate RL, as it reduces risk, broadly speaking?
 - properties are not elevated or moved by deadline then the town can serve notification of non-compliance and as a last resort write to FEMA that people are living there. The town is not able to evict and only if/when owners abandon the property will it become the towns problem?
- Community Action 33_02 – Wetlands Maintenance and Riparian Buffer Management - **ongoing**
 - FEMA, post-Sandy grant denied
 - Army Corp project will mitigate, can designate neighborhood
 -
- Community Action 33_03 – Automatic Slide Gate at outfall to Compton's Creek - **ongoing**
- Community Action 33_04 – Temporary/portable pumps to remove stormwater – **ongoing**
 - Port Monmouth out since Army Corp
 - Leonardo and Belford remain
- Community Action 33_05 – Generators for Critical Facilities – **completed**



- 3 Fire houses (River Plaza, Port Monmouth, Belford Independent)
 - Transfer stations (Field House, Tanya Keller, Crossroads)
 - Community Center for shelter
 - Pump station (N. Middle storm sewer - new generator & new pumps)
 - 5 communication towers need generators and have backup batteries.
- Community Action 33_06 – Relocate Critical Facilities out of Flood Zones – withdrawn?
 - Not realistic as all in a flood zone – generators and switches

2020 Mitigation Actions (NEW):

- 07 – Implement Micro Grid Study
- 08 – New Emergency Operation Center Funded
 - Need to generator
- 09 – Enhanced Security Building
- 10 – More drones and drone training for police officers
 - 2 officers are trained already

June 13, 2019

Signature

Charlie Rogers	B. Amadio
Barbara Amadio	B. Amadio
J. P. Van Nest	B. Amadio
Sanyogita Chavan	B. Amadio
ROBERT STEFANSKI, DK.	B. Amadio
CRAIG WEBER	B. Amadio
Michael McGlennon	B. Amadio
JOE KACHINSKY Top of Middlestown	B. Amadio
Colleen Lapp	B. Amadio
Tara Berson	B. Amadio
Floyd Goldstein	B. Amadio
Brittany Ashman	B. Amadio
TED MALONEY	B. Amadio
LORI HUBBARD	B. Amadio
TONY MERCANTANTE	B. Amadio
VICTOR WYMBBS	B. Amadio
Lynn MATTI	B. Amadio
TONY FERRIS	B. Amadio