



9.29 Town of Riverhead

This section presents the jurisdictional annex for the Town of Riverhead.

9.29.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
David J. Hegermiller, Chief of Police 210 Howell Avenue Riverhead, NY 11901 Phone: 631-727-4500 x335 E-mail: djh@townofriverheadny.gov	Jill Lewis, Deputy Supervisor 210 Howell Avenue Riverhead, NY 11901 Phone: 631-727-3200, x655 Email: lewis@townofriverheadny.gov

9.29.2 Municipal Profile

This section provides a summary of the community.

Population

According to the U.S. Census, the 2010 population for the Town of Riverhead was 33,506.

Location

The Town of Riverhead is located on the east end of Long Island in Suffolk County, approximately 75 miles east of Manhattan. It has a land area of 67.4 square miles and is bounded on the west by the Town of Brookhaven, on the north by the Long Island Sound with Connecticut on the opposite shore, on the east by the Town of Southold, and on the south by Southampton Town with the dividing line being the Peconic River and the Great Peconic Bay. The eastern terminus of Interstate 495, the Long Island Expressway, brings you close to the center of our Town. The Long Island Railroad services the Town with one station located in downtown.

Brief History

The Town was originally part of Southold Town and became its own township when it was incorporated in 1792 at which time it also became the County Seat. It remains the County Seat until this date. The name signifies that the Town is the mouth of the Peconic River.

Governing Body Format

The five-member Riverhead Town Board is the governing legislative body and consists of a Supervisor and four council members; all of whom are elected at large. The body will assume the responsibility for the adoption and implementation of this plan. The Town consists of numerous departments and divisions encompassing police, juvenile aid bureau, emergency management, emergency medical services, accounting, highway, community development, planning, personnel, information technology, engineering, building and grounds, recreation, assessors, animal control, Empire development zone, industrial development agency, fire marshal, justice court, municipal garage, purchasing, sanitation,





seniors, sewer, tax receiver, town attorney, town attorney investigations unit, town clerk, and water district.

Growth/Development Trends

The following table summarizes major residential/commercial development and major infrastructure development that are identified for the next five (5) years in the municipality. Refer to the map in section 9.28.8 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.29-1. Growth and Development

Property Name	Type (Residential or Commercial)	Number of Structures	Parcel ID(s)	Known Hazard Zone*	Description / Status
Super Walmart	Commercial		West end of CR58	None	Completed and open
Cosco + Plaza	Commercial		West end of CR58	None	Due to open April 2014
Dick's Sporting Goods + Plaza	Commercial		West end of CR58	None	Open
Subdivision at EPCAL	Commercial		SR25, Calverton	None	Subdivision of the Grumman property for an industrial park

* Only location-specific hazard zones or vulnerabilities identified.

9.29.3 Natural Hazard Event History Specific to the Municipality

Suffolk County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. The table below presents a summary of natural events that have occurred to indicate the range and impact of natural hazard events in the community. Information regarding specific damages is included if available based on reference material or local sources. For details of events prior to 2008, refer to Volume I, Section 5.0 of this plan.

Table 9.29-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
February 8-9, 2013	Severe Winter Storm and Snowstorm	DR-4111	Yes - PA (Public Assistance)	\$189,264.00
October 27-November 8, 2012	Hurricane Sandy	DR-4085	Yes - IA (Individual Assistance) and PA	\$1,151,213.00
August 26 - September 5, 2011	Hurricane Irene	EM 3328 DR 4020	Yes - IA and PA	\$196,299.00
December 26-27, 2011	Severe Winter Storm and Snowstorm	DR 1957	Yes - PA	\$113,668.00
March 13-31, 2010	Severe Storms and Flooding	DR 1899	Yes - PA	\$376,697.00 w/o \$3.6M HMGP
November 12-14, 2009	Severe Storms and Flooding associated	DR 1869	Yes - PA	\$0



Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
	with TD Ida and Nor'Easter			

EM Emergency Declaration (FEMA)
 FEMA Federal Emergency Management Agency
 DR Major Disaster Declaration (FEMA)
 IA Individual Assistance
 N/A Not applicable
 PA Public Assistance

9.29.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Riverhead. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for Town of Riverhead.

Table 9.29-3. Hazard Risk/Vulnerability Risk Ranking

Hazard Ranking	Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c, e}	Probability of Occurrence ^b	Risk Ranking Score (Probability x Impact)
4	Coastal Erosion	RCV in CEHA: \$215,982,152	Frequent	21
9	Drought	Damage estimate not available	Occasional	6
6	Earthquake	500-Year MRP: \$13,398,647 2,500-Year MRP: \$204,013,353	Rare	16
10	Expansive Soils	Damage estimate not available	Rare	6
4	Flood	1% Annual Chance: \$24,859,626 0.2% Annual Chance: \$51,798,550	Frequent	21
8	Groundwater Contamination (natural)	Damage estimate not available	Occasional	8
3	Hurricane	Category 1 SLOSH: \$280,279,453 Category 2 SLOSH: \$912,474,055 Category 3 SLOSH: \$1,439,181,786 Category 4 SLOSH: \$2,363,817,066	Occasional	36
7	Infestation	No measurable impact to property	Occasional	12
1	Nor'Easter	100-Year RCV: \$325,488,894 500-Year RCV: \$30,769,153	Frequent	54
2	Severe Storm	100-Year RCV: \$325,488,894 500-Year RCV: \$30,769,153	Frequent	48
1	Severe Winter	1% of GBS: \$119,452,442	Frequent	54





Hazard Ranking	Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c, e}	Probability of Occurrence ^b	Risk Ranking Score (Probability x Impact)
	Storm	5% of GBS: \$597,262,211		
5	Shallow Groundwater Flooding	Damage estimate not available	Frequent	18
7	Wildfire	Estimated RCV in Interface/Intermix: \$7,966,414,453	Occasional	12

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
 - b. The valuation of general building stock and loss estimates was based on the custom inventory developed for Suffolk County and probabilistic modeling results and exposure analysis as discussed in Section 5.
 - c. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages and the Tribes within the Town boundary.
 - d. Frequent = Hazard event that occurs more frequently than once in 10 years; Occasional = Hazard event that occurs from once in 10 years to once in 100 years, Rare = Hazard event that occurs from once in 100 years to once in 1,000 years; None = Hazard event that occurs less frequently than once in 1,000 years
 - e. The estimated potential losses for Nor'Easter and Severe Storm are from the HAZUS-MH probabilistic hurricane wind model results. See footnote c.
- CEHA = Coastal Erosion Hazard Area
 GBS = General building stock
 MRP = Mean return period
 RCV = Replacement cost value

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the municipality.

Table 9.29-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)	# Policies in 500-Boundary (3)	# Policies Outside the 500-year Flood Hazard (3)
Town of Riverhead	744	751	\$12,371,429	43	4	129	66	549

Source: FEMA Region 2, 2014
 Note (1): Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of January 31, 2014. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents the number of claims closed by January 31, 2014.
 Note (2): Information regarding total building and content losses was gathered from the claims file provided by FEMA Region 2.
 Note (3): The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file. FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1- and 0.2-percent annual chance flood events.



Table 9.29-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event			Potential Loss from 0.2% Flood Event		
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100-Percent ⁽²⁾	Percent Structure Damage	Percent Content Damage	Days to 100-Percent ⁽²⁾
POD	POD	A	X						
Larry's Lighthouse Marina	SC Gov't Facility	A	X						
Great Peconic Bay Yacht Basin	SC Gov't Facility	A	X						
East Creek Marina	SC Gov't Facility	A	X				0.7	4.2	
Pump Station #14	Wastewater	A	X						
Pump Station #15	Wastewater		X						
Pump Station #13	Wastewater		X						

Source: HAZUS-MH 2.1

Note: x = Facility located within the 0.2-percent annual chance flood boundary.

Please note it is assumed that wells have electrical equipment and openings are three-feet above grade.

(1) HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

(2) In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type.

Other Vulnerabilities Identified by Municipality

In addition to those identified above, the municipality has identified the following vulnerabilities:

- Major hazard problem facing the Town of Riverhead is coastal flooding/erosion. Sandy brought record flooding to the Town's bay/river front communities and decimated the entire north shore leaving no beach at high tide and exposing the fragile bluffs to erosion.



9.29.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the municipality.

Table 9.29-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	Y	Y	Building, Planning, Engineering & Fire Marshal Depts. Town has adopted International Building Code 1984 - NYS Executive Law 381
Zoning Ordinance	Y	Y	Y	Planning Board SC Planning Commission has the authority to review certain actions. Town ZBA can present findings and disapprove the action, if they have the greater majority. Riverhead Town Code Chapter 108 Suffolk County Charter
Subdivision Ordinance	Y	Y	Y	Planning Board SC Planning Commission has the authority to review certain actions. Town ZBA can present findings and disapprove the action, if they have the greater majority. Riverhead Town Code Chapter 108 Riverhead Town Code Chapter 108-76
Special Purpose Ordinances (floodplain management, critical or sensitive areas)	Y	Y	Y	Building Dept. Riverhead Town Code Chapter 65 NYS DEC
Growth Management	Y	Y	Y	Building Dept.
Floodplain Management/Basin Plan	Y	Y	Y	Building & Planning Depts. Riverhead Town Code chapter 108
Stormwater Management Plan/ordinance	Y	Y	Y	Planning Dept. NYS DEC Phase II Permits. Chapter 110
General Plan or Comprehensive Plan	Y	Y	Y	Planning Dept. & Town Board
Capital Improvements Plan	N	N	N	
Site Plan Review Requirements	Y	Y	Y	Building & Planning Depts. Federal ADA compliance required. Riverhead Town Code Chapter 108-129
Habitat Conservation Plan	Y	Y	Y	NYS DEC & Conservation Advisory Council
Economic Development	Y	N	N	Community Development



Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Plan				
Emergency Response Plan	Y	Y	Y	Supervisor's Office & Police Dept.
Shoreline Management Plan	Y	Y	Y	Administration – Planning Board Review – ZBA Riverhead Town Code Chapters 12 & Chapter 108-76
Post Disaster Recovery Plan	Y	Y	Y	Supervisor's Office & Police Dept.
Post Disaster Recovery Ordinance	N	N	N	
Real Estate Disclosure req.	Y	Y	Y	Tax Assessors & Receivers
NFIP Flood Damage Protection Ordinance	Y	Y	Y	Chapter 65 Flood Damage Prevention
NFIP- Freeboard				State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other
Other				

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Riverhead.

Table 9.29-7. Administrative and Technical Capabilities

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Planning & Engineering Depts.
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Planning, Engineering, Fire Marshal & Building Depts.
Planners or engineers with an understanding of natural hazards	Y	Engineering & Building Depts.
NFIP Floodplain Administrator	Y	Leroy Barnes, Head of the Building Dept.
Surveyor(s)	N	Private Contractors
Personnel skilled or trained in "GIS" applications	Y	IT/GIS Dept.
Scientist familiar with natural hazards in the municipality.	N	Private Contractors
Emergency Manager	Y	Supervisor's Office & Police Dept.
Grant Writer(s)	Y	Community Development
Staff with expertise or training in benefit/cost analysis	Y	Accounting, Community Development, Engineering & Planning Depts.
Professionals trained in conducting damage assessments	Y	Building Department to the level of determining Substantial Damage



Fiscal Capability

The table below summarizes financial resources available to the Town of Riverhead.

Table 9.29-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact Fees for homebuyers or developers of new development/homes	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	Don't Know
Mitigation grant programs	Don't Know
Other	Not aware of any

Community Classifications

The table below summarizes classifications for community program available to the Town of Riverhead.

Table 9.29-9. Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	Not participating	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	4/4	2004
Public Protection	4/9*	-
Storm Ready	Not participating	N/A
Firewise	-	2013

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual





- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

National Flood Insurance Program

The following section provides details on the National Flood Insurance Program (NFIP) as implemented within the municipality:

NFIP Floodplain Administrator: Jeffrey Murphree, Building Inspector

Program and Compliance History

Town of Riverhead joined the NFIP on March 1, 1978, and is currently an active member of the NFIP. The current effective Flood Insurance Rate Maps are dated September 25, 2009. The community's Flood Damage Prevention Ordinance (FDPO), found at Chapter 65 of the local code, was last updated on March 7, 1995.

As of January 31, 2014 there are 744 policies in force, insuring \$210,038,200 of property with total annual insurance premiums of \$839,814. Since January 31, 2014, 751 claims have been paid totaling \$12,371,429. As of January 31, 2014 there are 43 Repetitive Loss and 4 Severe Repetitive Loss properties in the community.

The community is currently in good standing in the NFIP and has no outstanding compliance issues. The current NFIP Floodplain Administrator has no knowledge of when the last CAV was performed. The municipality sees no specific need for a CAV at this time.

Loss History and Mitigation

Since January 31, 2014, 751 claims have been paid totaling \$12,371,429. As of January 31, 2014 there are 43 Repetitive Loss and 4 Severe Repetitive Loss properties in the community.

Following Hurricane Sandy a total of 53 structures were damaged- 22 residences, 39 bulkheads, and two commercial buildings. Four Substantial Damage determination letters were issued for damaged buildings following Hurricane Sandy. Substantial Damage Estimates are not made by the Floodplain Administrator. The financial information is provided by the property owner and then the damages are compared to the FEMA requirements. Then a determination letter is sent out regarding the status of the property. Eight property owners came forward with an interest in mitigation- seven were interested in various types of mitigation and one was interested in acquisition. Funding sources including private funds, flood insurance and ICC, grant funding, and FEMA funding.

Planning and Regulatory Capabilities

The communities Flood Damage Prevention Ordinance (FDPO) was last updated on March 7, 1995, and is found at Chapter 65 of the local code.



Floodplain management regulations and ordinances meet FEMA and New York State minimum requirements. Chapter 107 of Town Code, the Conservation Advisory Committee, further supports floodplain management by mapping 150 feet inland from freshwater sources and 300ft inland from coastal sources.

Administrative and Technical Capabilities

The community FDPO identifies the GIS Coordinator and the Building Inspector as the local NFIP Floodplain Administrator, currently Jeff Murphree, for which floodplain administration is an auxiliary duty.

In addition to the NFIP FPA, the community has supplementary staff for which NFIP is an auxiliary duty; personnel including the Senior Building Inspector.

Duties and responsibilities of the Building Inspector/NFIP Administrator are permit review, inspections, damage assessments, record-keeping, GIS, and education and outreach. An inventory is maintained of all flood-damaged properties however there is no indication of whether or not property owners were interested in mitigation. Substantial Damage Estimates are not made by the Floodplain Administrator. The financial information is provided by the property owner and then the damages are compared to the FEMA requirements. Then a determination letter is sent out regarding the status of the property. There were four Substantial Damage determination letters issued following Hurricane Sandy.

Jeff Murphree feels he is adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. Jeff Murphree is not certified in floodplain management, however attends regular continuing education programs for code enforcement.

Public Education and Outreach

In the Town of Riverhead, the following educational and/or outreach activities related to the NFIP: posting of information to the bulletin board in Town Hall and the Town website, including information with permit applications, and addressing the issues of the public when they walk in with questions or concerns.

Duties and responsibilities of the Building Inspector/NFIP Administrator are permit review, inspections, damage assessments, record-keeping, GIS, and education and outreach.

Actions to Strengthen the Program

At this time there are no barriers to running an effective floodplain management program in the Town of Riverhead. More support from the State and local government is always welcomed. Additional training and education on both floodplain management and the Community Rating System (CRS) are welcomed and encouraged. The Town of Riverhead is not currently a CRS community. Attending a seminar on the CRS is something of interest to the community to see if joining would benefit the flood insurance policy holders in Riverhead.



Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

It is the intention of this municipality to incorporate hazard mitigation planning and natural hazard risk reduction as an integral component of ongoing municipal operations. The following textual summary and table identify relevant planning mechanisms and programs that have been/will be incorporated into municipal procedures, which may include former mitigation initiatives that have become continuous/ongoing programs and may be considered mitigation “capabilities”:

- **Floodplain Management-** Restoring Wading River Creek to original location to diminish the constant depositing of sand
- **Public Education and Outreach/ Emergency Response Plan-** Create a Public Awareness Program natural disasters and emergency preparedness
- **Emergency Response Plan-** Conduct Joint Annual Drills for all facets of emergency services in the Town and their partner agencies
- **Infrastructure Protection/ Emergency Response Plan-** Create a Generator Plan to designate personnel, guide distribution of equipment from County and pre-wire facilities to accommodate generators.
- **Public Education and Outreach/ Emergency Response Plan-** Create a Volunteer Program to help recruit volunteers for Red Cross and Town Shelters, POD’s and Ham Radio Operation during a disaster
- **Emergency Response Plan-** Create County-Wide Debris Removal Plan to develop protocols and designate shared sights to manage debris removal
- **Infrastructure Protection-** Road Elevation of flood prone Peconic Bay Roads & Creek Road
- **Continuity of Operations (COOP) Plan-** Town Hall Basement and Records Storage Facility Remediation from Groundwater and Flooding



9.29.6 Mitigation Strategy and Prioritization

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

Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2008 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.29-8. Past Mitigation Initiative Status

Description	Status	Review Comments
R-1: Enhance & Upgrade County-Wide Communications Plan bringing all agencies onto one system with individual talk groups	Completed	The Town of Riverhead’s is currently on the County 800 MHz system with individual talk groups and designated emergency channels. Not carried over as completed.
R-2: Develop and Implement a County-Wide Early Warning System to alert the public of potential hazards	Completed	The County currently has early warning system called Code Red; however, you must sign up to receive emergency broadcasts. Not carried over as completed.
R-3: Retrofit existing Police Department Headquarters to establish a dedicated EOC	5% Completed, Continuous	The Town is looking to move its existing police facility to the old NYS armory on CR58. Currently we are in the design/feasibility process with engineers which includes a state of the art EOC. Carried over.
R-4: Create a Point of Distribution Plan to establish locations, personnel, training and procedures to streamline distribution of vital necessities post disaster	5% Completed, Continuous	The Town. Carried over
R-5: Create a Generator Plan to designate personnel, guide distribution of equipment from County and pre-wire facilities to accommodate generators.	10% Completed, Continuous	Currently the Town does have and maintain a County owned generator that in the past has been placed at a Red Cross Shelter. No pre-wire as of yet. Carried over.
R-6: Establish Jetties at the mouth of the Wading Creek to diminish the constant depositing of sand	10% Completed, Continuous	The Town did submit a LOI in the past for jetties at the mouth of the Wading River Creek, but was denied. Recently, the Town did submit a LOI to reroute the creek back to its original location between the two jetties at the abandoned nuclear power plant at Shoreham. The LOI was approved, but the Town was not ready to proceed to the application stage at this time. Carried over
R-7: Establish Jetties at the Town Boat Ramp at Iron Pier to diminish the depositing of sand onto one of the only maintained emergency accesses to the LI Sound thereby reducing the weekly removal of the sand by the Highway Department	No Progress	Carried over.
R-8: Create a Public Awareness Program natural disasters and emergency preparedness	100% Completed, Continuous	The Town has come up with a trifold brochure about emergency preparedness. REMEMBER THE “P’s” OF PREPAREDNESS, PLAN – PACK – PAY ATTENTION. The Town maintains a website that includes emergency preparedness not only for people, but their pets



Description	Status	Review Comments
		too. Carried over.
R-9: Conduct Joint Annual Drills for all facets of emergency services in the Town and their partner agencies	25% Completed, Continuous	The Town has co-sponsored a hazardous material drill that included all facets of emergency services. Other drills are in the planning stages. Carried over.
R-10: Create a Volunteer Program to help recruit volunteers for Red Cross and Town Shelters, POD's and Ham Radio Operation during a disaster	5% Completed, Continuous	Carried over.
R-11: Relocation/Acquisition Residences on the North Shore Bluffs that are at risk of destruction from bluff erosion	No Progress	North shore bluff erosion was severe during Sandy. Bluff stabilization is a priority. Without it relocation/acquisition will be required. Carried over.
R-12: Elevation of Residences on the South Shore that are in designated flood prone areas	No Progress	There are several homes that need to be elevated. This became very apparent during Sandy. No Town program in place to assist with elevation. Carried over.
R-13: Create County-Wide Debris Removal Plan to develop protocols and designate shared sights to manage debris removal	10% Completed, Continuous	Preliminary meetings have been held on a County-wide debris removal plan. Carried over.
R-14: Road Elevation on flood prone South Shore Roads & Creek Road	No Progress	Carried over.
R-15: Build a new Salt Storage Barn to house and maintain a larger quantity of road salt thereby requiring less deliveries during severe conditions	Completed	Fabric on one of the barns failed and needs to be replaced. Fabric has been replaced.
R-16: Town Hall Basement and Records Storage Facility Remediation from Groundwater and Flooding	5% Completed, Continuous	Records have been moved to a higher level. Carried over.
R-17: Consider participation in incentive-based programs such as, CRS and "Storm-Ready".	No Progress	Not carried over.

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

- The Town received a \$3.6M dollar HMGP for the acquisition, demolition, site preparation and constructed wetland of 12 residences/ 10 properties on Horton Avenue in Riverhead. Horton Avenue was a flood prone area due to storm water runoff that was inundated during the March 2010 rain event. The project was broken down into two phases with the constructed wetland being the latter phase. Phase one has been completed. The Town is not continuing with phase two at this time due to a funding issue.



Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Riverhead identified mitigation initiatives they would like to pursue in the future. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Table 9.29-9 identifies the municipality's updated local mitigation strategy.

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

Table 9.29-10 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.29-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
R-1 (Sandy HMGP LOI #346)	The DeFriest Pump Station Rehabilitation	New/Existing	Nor'Easter, Severe Winter Storm, Severe Storm, Hurricane, Flood		See Action Worksheet (R-1-LOI 346-032814)						
R-2 (Sandy HMGP LOI #1227)	Riverhead Sewer District Sanitary Collection Inflow Mitigation. □	Existing	Nor'Easter, Severe Winter Storm, Severe Storm, Hurricane Flood		See Action Worksheet (R-2-LOI 1227-032814)						
R-3 (Sandy HMGP LOI #1269)	Wading River Creek Restoration.	New/Existing	Nor'Easter, Severe Winter Storm, Severe Storm, Hurricane, Flood, Coastal Erosion		See Action Worksheet (R-3-LOI 1269-032814)						
R-4 (Sandy HMGP LOI #1960)	Town Hall and Police Headquarters Generator Upgrade.	New	All		See Action Worksheet (R-4-LOI 1960-032814)						
R-5 (former R-7)	Establish Jetties at the Town Boat Ramp at Iron Pier to diminish the depositing of sand onto one of the only maintained emergency accesses to the LI Sound thereby reducing the weekly removal of the sand by the Highway Department										
	See above	Existing	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane, Coastal Erosion	2,5,15	RHD	Medium	High	General Fund	Short-term	High	SIP/NRP
R-6 (former R-9)	Conduct Joint Annual Drills for all facets of emergency services in the Town and their partner agencies										
	See above	N/A	All	1,7,14	RHD	High	Low	General Fund	Short-term	High	LPR
R-7 (former R-11)	Relocation/Acquisition Residences on the North Shore Bluffs that are at risk of destruction from bluff erosion										
	See above	Existing	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane, Coastal Erosion	1,2,15	RHD	Low	High	PDM, General Fund	Long-term, DOF	Medium	SIP
R-8 (former R-12)	Elevation of Residences on the South Shore that are in designated flood prone areas										
	See above	Existing	Nor'easter, Severe Winter Storm,	1,2,15	RHD	Low	High	PDM, General	Long-term,	Medium	SIP





Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
			Severe Storm, Hurricane, Flood, Coastal Erosion					Fund	DOF		
R-9 (former R-14)	Road Elevation on flood prone South Shore Roads & Creek Road See above	Existing	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane, Flood, Coastal Erosion	13,15,16	RHD	High	High	PDM, General Fund	Long-term, DOF	Medium	SIP
R-10 (NEW)	Acquire, demolish and prepare land for constructed wetlands at twelve residences (ten properties) on Horton Avenue. See above	New/Existing	Nor'Easter, Severe Winter Storm, Severe Storm	?	RHD	High	High	HMGP, General Fund	Short-Term	Medium	NRP
R-11 (NEW)	Undertake an analysis of the engineering options to harden the Northshore beach and bluff. Implement the improvements once funding has been secured. See above	New	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane, Flood, Coastal Erosion		RHD	High	High	PDM, General Fund	Long Term	Medium	NRP
R-12 (former R-3)	Retrofit existing Police Department Headquarters to establish a dedicated EOC See above	Existing	All	1,12,14	RHD	High	High	PDM, General Fund	Short-term	Medium	SIP
R-13 (NEW)	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable. Phase 1: Identify appropriate candidates and determine most cost-effective mitigation option (in progress). Phase 2: Work with the property owners to implement selected action based on available funding and local match availability. See above	Existing	Flood, Coastal Erosion, Hurricane, Nor'Easter, Severe Storm, Wildfire, Winter Storm		Town/Village Engineering via NFIP FPA) with NYSOEM, FEMA support	High	High	Federal and State Mitigation Grant Programs and local budget (or property owner) for cost share	Ongoing (outreach and specific project identification); Long term DOF (specific project application and implementation)	Medium	SIP



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
R-14 (NEW)	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1), specifically: <ul style="list-style-type: none"> Mitigation Education for Natural Disasters (natural hazard awareness and personal scale risk reduction/mitigation public education and outreach program) Build Local Floodplain Management and Disaster Recovery Capabilities (enhanced floodplain management, and post-disaster assessment and recovery capabilities) County-Wide Debris Management Plan Jurisdictional Knowledge of Mitigation Needs of Property Owners (improved understanding of damages and mitigation interest/activity of private property owners) Create a Multi-Jurisdictional Seismic Safety Committee in Suffolk County (build regional, county and local capabilities to manage seismic risk, both pre- and post-disaster) Alignment of Mitigation Initiatives through all levels of Government (effort to build State and Federal level recognition and support of the County and local hazard mitigation planning strategies identified in this plan). 										
	See above	New and Existing	All Hazards	All Objectives	Suffolk County, as supported by relevant local department leads,	High (comprehensive improvements mitigation and risk-reduction capabilities)	Low-Medium (locally)	Local (staff resources)	Short	High	LPR
R-15 (NEW)	Work with County and PSEG (formerly LIPA) to identify roads within the municipality that are considered “critical”, and to be the first priority for clearing after an event involving downed power lines.										
	See above	Existing	Severe Storm; Severe Winter Storm; Hurricane; Nor’Easter	1,4,7,14,16				TBD	DOF	Low	SIP
R-16 (former R-4)	Create a Point of Distribution Plan to establish locations, personnel, training and procedures to streamline distribution of vital necessities post disaster										
	See above	N/A	All	1,12	RHD	High	Medium	General Fund	Short-term	Medium	LPR
R-17 (former R-5)	Create a Generator Plan to designate personnel, guide distribution of equipment from County and pre-wire facilities to accommodate generators.										
	See above	N/A	Nor’easter, Severe Winter Storm, Severe Storm, Hurricane, Flood, Wildfire	7,16	RHD	High	Medium	General Fund	Short-Term	Medium	LPR/SIP
R-18 (former R-8)	Create a Public Awareness Program natural disasters and emergency preparedness										
	See above	N/A	All	1,7	RHD	High	Medium	General Fund	Short-term	High	LPR
R-19 (former R10)	Create a Volunteer Program to help recruit volunteers for Red Cross and Town Shelters, POD’s and Ham Radio Operation during a disaster										
	See above	N/A	Nor’easter, Severe Winter Storm, Severe Storm,	1,7	RHD	High	Low	General Fund	Short-term	Medium	LPR





Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
			Hurricane, Flood, Wildfire								
R-20 (former R-13)	Create County-Wide Debris Removal Plan to develop protocols and designate shared sights to manage debris removal See above	N/A	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane	7,12,13	Suffolk County	High	Medium	General Fund	Short-term	Medium	LPR
R-21 (former R-16)	Town Hall Basement and Records Storage Facility Remediation from Groundwater and Flooding See above	Existing	Nor'easter, Severe Winter Storm, Severe Storm, Hurricane, Flood, Shallow Groundwater	2,16	RHD	High	High	PDM, General Fund, Capital Project Municipal Bonds	Long-term, DOF	Medium	SIP
R-22 (NEW)	Continue to support the implementation, monitoring, maintenance and updating of this plan. See above	Existing	All Hazards	All Objectives	Town			TBD	DOF	High	LPR
R-23 (NEW)	Strive to maintain compliance with and good standing in National Flood Insurance Program See above	NA	Flooding, Hurricanes, Coastal Erosion	1,2,3,4,	Town			TBD	DOF	Medium	LPR

Notes:

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FMA Flood Mitigation Assistance grant program
- HMA Hazard Mitigation Assistance grant program (including FMA, HMGP, PDM)
- HMGP Hazard Mitigation Grant Program
- N/A Not applicable
- NFIP National Flood Insurance Program
- NYSOEM New York State Office of Emergency Management
- PDM Pre-Disaster Mitigation grant program
- PSEG Public Service Electric and Gas (formerly LIPA)

Costs:

Where actual project costs have been reasonably estimated:

- Low = < \$10,000
- Medium = \$10,000 to \$100,000
- High = > \$100,000





Where actual project costs cannot reasonably be established at this time:

Low = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Medium = Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

High = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low = < \$10,000

Medium = \$10,000 to \$100,000

High = > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low = Long-term benefits of the project are difficult to quantify in the short term.

Medium = Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.

High = Project will have an immediate impact on the reduction of risk exposure to life and property.

Timeline:

Short = 1 to 5 years

Long Term = 5 years or greater

OG = On-going program

DOF = Depending on funding

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NRP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.



Table 9.29-10. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
R-1 (Sandy HMGP LOI #346)	The DeFriest Pump Station Rehabilitation	1	1	0	1	1	1	-1	1	0	1	1	1	1	0	9	High
R-2 (Sandy HMGP LOI #1227)	Riverhead Sewer District Sanitary Collection Inflow Mitigation. □	1	1	1	1	0	1	-1	1	0	1	1	1	1	0	9	High
R-3 (Sandy HMGP LOI #1269)	Wading River Creek Restoration.	1	0	1	1	0	-1	-1	1	0	-1	0	1	0	0	2	High
R-4 (Sandy HMGP LOI #1960)	Town Hall and Police Headquarters Generator Upgrade.	1	0	1	1	1	1	-1	1	0	1	1	1	1	0	9	High
R-5 (former R-7)	Establish Jetties at the Town Boat Ramp at Iron Pier to diminish the depositing of sand onto one of the only maintained emergency accesses to the LI Sound thereby reducing the weekly removal of the sand by the Highway Department	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	High
R-6 (former R-9)	Conduct Joint Annual Drills for all facets of emergency services in the Town and their partner agencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	High
R-7 (former R-11)	Relocation/Acquisition Residences on the North Shore Bluffs that are at risk of destruction from bluff erosion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
R-8 (former R-12)	Elevation of Residences on the South Shore that are in designated flood prone areas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
R-9 (former R-14)	Road Elevation on flood prone South Shore Roads &	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium





Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	Creek Road																
R-10 (NEW)	Acquire, demolish and prepare land for constructed wetlands at twelve residences (ten properties) on Horton Avenue.	0	1	0	1	0	0	0	1	0	0	1	1	0	1	6	Medium
R-11 (NEW)	Undertake an analysis of the engineering options to harden the Northshore beach and bluff. Implement the improvements once funding has been secured.	0	1	0	1	0	0	0	1	0	0	1	1	0	1	6	Medium
R-12 (former R-3)	Retrofit existing Police Department Headquarters to establish a dedicated EOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
R-13 (NEW)	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable. Phase 1: Identify appropriate candidates and determine most cost-effective mitigation option (in progress). Phase 2: Work with the property owners to implement selected action based on available funding and local match availability.	0	1	1	1	1	1	0	0	1	0	1	1	0	1	9	Medium
R-14 (NEW)	Support and participate in county led initiatives	1	1	1	1	1	1	0	0	0	1	1	1	0	1	10	High





Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1).																
R-18 (former R-8)	Create a Public Awareness Program natural disasters and emergency preparedness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Low
R-19 (former R10)	Create a Volunteer Program to help recruit volunteers for Red Cross and Town Shelters, POD's and Ham Radio Operation during a disaster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	High
R-20 (former R-13)	Create County-Wide Debris Removal Plan to develop protocols and designate shared sights to manage debris removal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
R-21 (former R-16)	Town Hall Basement and Records Storage Facility Remediation from Groundwater and Flooding	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium
R-22 (NEW)	Continue to support the implementation, monitoring, maintenance and updating of this plan.	1	1	1	1	0	1	0	1	0	1	1	1	0	1	10	High
R-23 (NEW)	Strive to maintain compliance with and good standing in National Flood Insurance Program	1	1	1	1	0	1	1	0	0	1	1	0	0	1	9	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

- = Prioritization remained the same as the 2008 HMP.



9.29.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.29.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Riverhead that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Riverhead has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.29.9 Additional Comments

None at this time.



Figure 9.29-1. Town of Riverhead Hazard Area Extent and Location Map 1

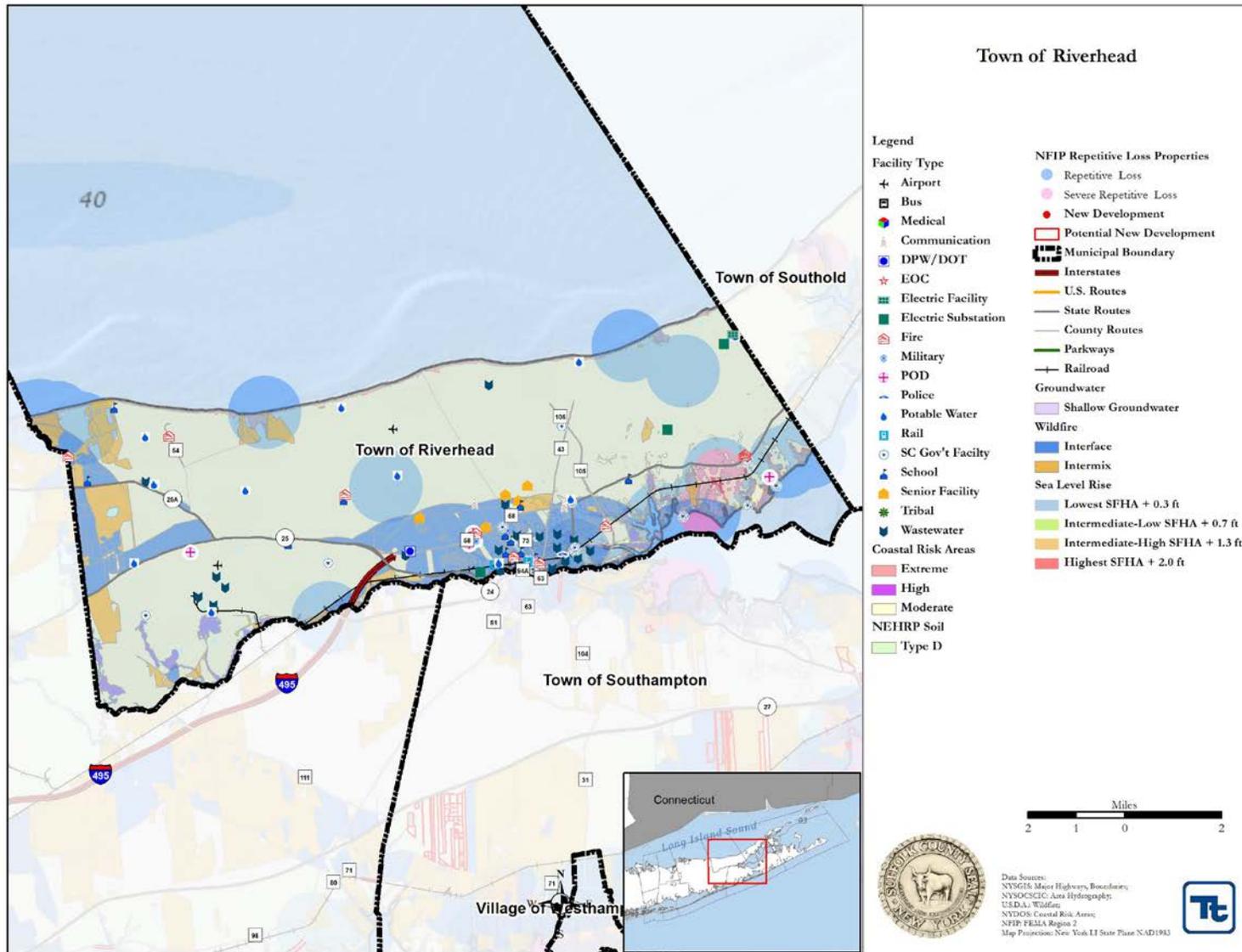
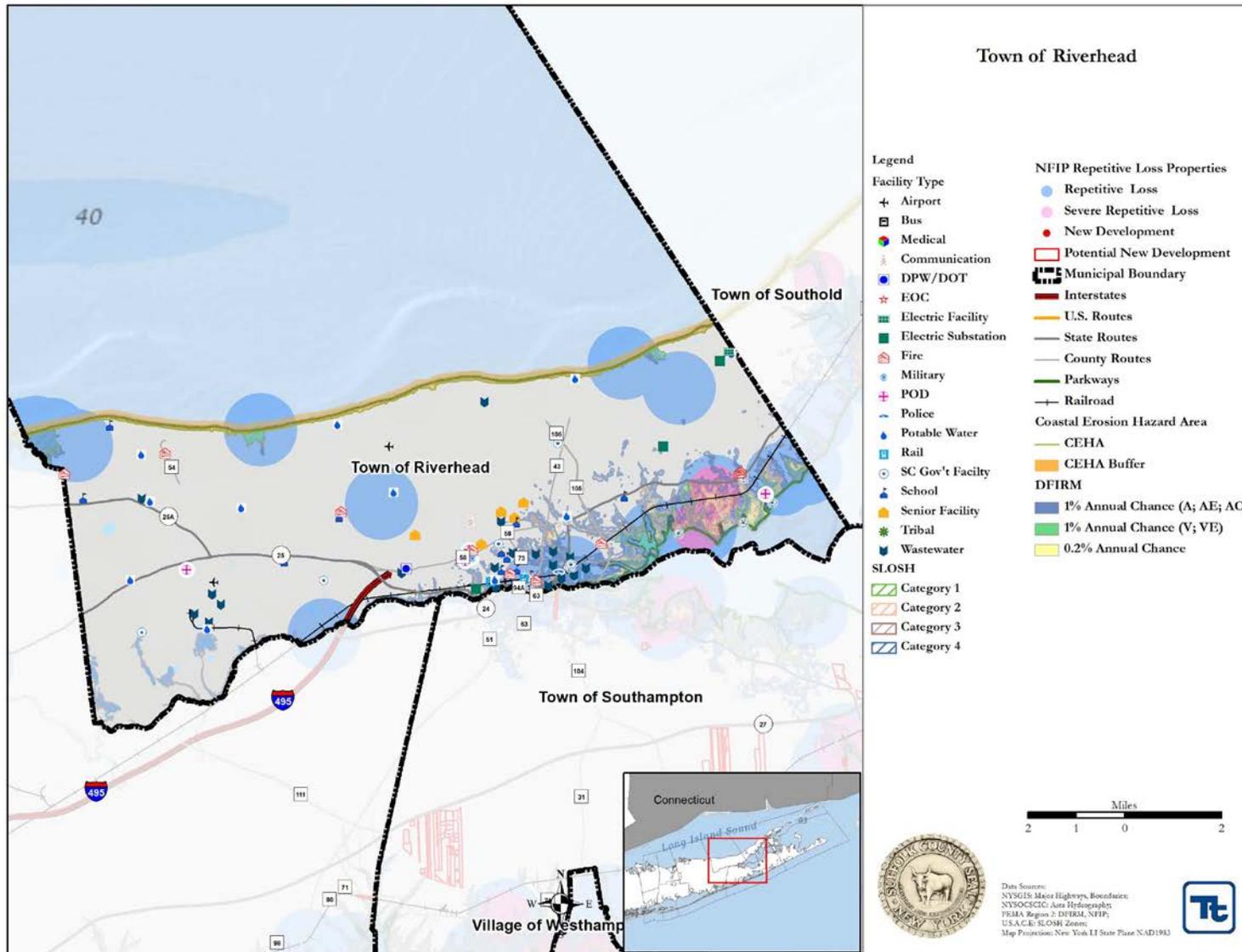




Figure 9.29-2. Town of Riverhead Hazard Area Extent and Location Map 2





Mitigation Action Worksheet

Please complete one sheet per action/project with as much detail as possible, using the guidance beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Town of Riverhead
Number: Sandy HMGP LOI #: 346
Mitigation Action/Initiative: The DeFriest Pump Station Rehabilitation

Assessing the Risk	
Hazard(s) addressed:	Flooding, Hurricane, Nor'Easters, Severe Storms, Severe Winter Storms
Specific problem being mitigated:	<p>The DeFriest pump station is located adjacent to the river banks of the Peconic River which is part of a Federally designated estuary. The pump station is below the current 100-year flood plain elevation and was inundated by the storm surge caused by Hurricane Sandy. The wet well overflowed into the dry pit which housed the pumping equipment, submerging the equipment and making it inaccessible until the water receded. The existing electrical system was unable to handle the fluctuating voltages and repetitive brown outs of the incoming power caused the emergency power generator to cycle on an off repeatedly. The two fluctuating power sources caused the pump station control system to trip off. These issues resulted in the pump station being off line until the flood water receded and the equipment was accessible and could be safely reactivated. In the meantime, properties within the area serviced by the pump station experienced sewage backups and surcharging.</p> <p>Emergency response of DeFriest pump station immediately following Hurricane Sandy included required around the clock pumping of the flood water from the pump station in order to prepare and reactivate the emergency standby generator until normal utility power was restored. Additionally, the fuel and manpower to safely maintain the operation of the emergency standby power generator during the power outage. The cost of equipment and man-hours associated with the emergency response was approximately \$10,000.00.</p> <p>A Map and Plan dated March 9, 2009 was prepared and submitted to NYSEFC to address the upgrade of this aging pump station by relocation of the critical pump station structures above the 100-year flood plain.</p>
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No other project is feasible 2. 3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>The Town of Riverhead has been planning an upgrade to DeFriest pump station since 2009. The Town has already acquired property for the replacement pump station, to be located adjacent to the existing pump station. The project's plans include the construction and installation of a submersible pump type pump station with the top of the new wet well and new standby generator enclosure located well above the FEMA 100-year flood plain elevation. The pump station requires a total reconstruction to an</p>





	adjacent site where the electrical and emergency power system can be raised to a higher elevation to allow the station to continue to function in the event of future severe weather. The proposed mitigation measure will provide assurances that during future storm events that pump station will remain operational and continue to move sanitary sewer from the collection system to the wastewater treatment plant and protect the Peconic Estuary from potential of raw sewage overflows emanating from this location.
Mitigation Action/Project Type	SIP
Objectives Met	2, 16
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Recent Damages: \$10,000
Estimated Cost	\$8,500,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Riverhead: David J Hegermiller, Chief of Police
Local Planning Mechanism	Sewer District Budget
Potential Funding Sources	HMGP; 25% for Local Match
Timeline for Completion	Short
Reporting on Progress	





**Date of Status Report/
Report of Progress**

Date:
Progress on Action/Project:

*** Refer to results of Prioritization (page 2)**





Prioritization

Number: Sandy HMGP LOI #: 346

Mitigation Action/Initiative: The DeFriest Pump Station Rehabilitation

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevents sewer spillage into river/bay/streets and overflow of pump stations and bypass of waste treatment plant to surface water discharge
Property Protection	1	Prevents backups into basements
Cost-Effectiveness	0	Estimate of environmental damage impossible to quantify
Technical	1	Conceptually designed
Political	1	In public's interest the project is a high priority
Legal	1	Sewer District has the authority
Fiscal	-1	No money
Environmental	1	Will comply with all environmental regulations
Social	0	No adverse effect on any portion of the community within the district.
Administrative	1	Sewer District will administer, work to be bid out
Multi-Hazard	1	As stated
Timeline	1	2 Years
Agency Champion	1	Sewer Department
Other Community Objectives	0	Peconic Estuary Program
Total	9	
Priority (High/Med/Low)	High	





Mitigation Action Worksheet

Please complete one sheet per action/project with as much detail as possible, using the guidance beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Town of Riverhead
Number: Sandy HMGP LOI #: 1227
Mitigation Action/Initiative: Riverhead Sewer District Sanitary Collection Inflow Mitigation

Assessing the Risk	
Hazard(s) addressed:	Flooding, Hurricane, Nor'Easters, Severe Storms, Severe Winter Storms
Specific problem being mitigated:	<p>Portions of the Town of Riverhead Sewer District's sanitary collection system are located within the 100-year flood plain and the SLOSH (Sea, Lake and Overland Surge from Hurricane) for category 1, 2, 3 and 4 rated storms. During Hurricane Sandy, areas were inundated by the storm surge, which caused severe inflow to the collection system. This inflow in concert with power outages at some of the District's pump stations resulted in hydraulic surges in the collection system which could have lead to backing up through building connections, and sanitary sewer overflows. The flow surge inflow into the collection system could result in damage to personal and public property and contamination of the Peconic River and Peconic Estuary.</p> <p>Additionally, during heavy rainfall events the sewer collection system is inundated with surface runoff inflow due to: non-watertight manholes located in low lying areas and drainage ways, cracked/broken sewer lines, abandoned open service connections, and cross connections between private storm collection and sump pump systems. The surface runoff inflow can have the same effect on the sewer collection system in localized areas as the more widespread surge inflow condition.</p>
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. Replacing all of the infrastructure in the sub-collection district – not cost effective 2. 3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>The Town of Riverhead performed an initial Inflow & Infiltration (I & I) monitoring program following devastating rain events in March 2010. This I & I program was isolated to portions of the collection system where past flooding is prevalent. Additional flooding was observed in these areas of concern during Hurricane Irene (2011) and Hurricane Sandy (2012) since the initial I&I field work was done in 2010. Based on this initial investigation, The Town determined that repairs would be performed in problematic sewers within the SLOSH zones for category 1,2,3 & 4 storm events. The proposed repair strategy for these SLOSH Zone areas includes televising to confirm sub-surface conditions of collection system piping and structures; cleaning to remove debris and potential blockages; and lining of any breaks or blockages; and installation of manhole inserts to provide physical barriers for inflow through manhole lids.</p>





	<p>The proposed mitigation measure is to continue and expand the initial I&I monitoring program beyond the SLOSH Zones. This expanded I & I Program will document potential I&I source locations through a field survey of manholes in road curb/drainage ditch lines and flood prone areas. The survey will also document the potential flooding the sewerlines along easement/creek areas.</p> <p>Strategic manholes in the system will be opened and visually inspected during night time periods to document areas of groundwater infiltration into sewers. Strategic manholes in the system will be inspected during a heavy rain event to document areas of potential inflow (storm water runoff).</p> <p>Based on this field investigation, sewer lines that require further investigation by internal sewer line televising will be isolated and manholes prone to inflow will be evaluated for repair needs. The mitigation measures for these areas of the collection system will be similar to those planned for the sewer lines in the SLOSH Zones: manhole inserts and lining, and sewer lining and sewer repair.</p>
Mitigation Action/Project Type	SIP
Objectives Met	16
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Recent Damages: \$0
Estimated Cost	\$6,500,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Riverhead: David Hegermiller, Emergency Manager
Local Planning Mechanism	Sewer District Budget
Potential Funding Sources	HMGP; 25% for Local Match
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)





Prioritization

Number: Sandy HMGP LOI #: 1227

Mitigation Action/Initiative: Riverhead Sewer District Sanitary Collection Inflow Mitigation

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevents sewer spillage into river/bay/streets and overflow of pump stations and bypass of waste treatment plant to surface water discharge caused by storm surge and surface runoff
Property Protection	1	Prevents backups into basements
Cost-Effectiveness	1	Estimate of environmental damage impossible to quantify
Technical	1	Technically designed with map and plan in place
Political	0	In public's interest the project is a high priority
Legal	1	Sewer District has the authority
Fiscal	-1	No budget, no funding
Environmental	1	Will comply with all environmental regulations
Social	0	No adverse effect on any portion of the community within the district
Administrative	1	Sewer District will administer, work to be bid out
Multi-Hazard	1	As stated
Timeline	1	1.5 Years
Agency Champion	1	Sewer Department
Other Community Objectives	0	Peconic Estuary Program
Total	9	
Priority (High/Med/Low)	High	





Mitigation Action Worksheet

Please complete one sheet per action/project with as much detail as possible, using the guidance beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Town of Riverhead

Number: Sandy HMGP LOI #: 1269

Mitigation Action/Initiative: Wading River Creek Restoration

Assessing the Risk	
Hazard(s) addressed:	Coastal Erosion, Flooding, Hurricane, Nor'Easters, Severe Storms, Severe Winter Storms
Specific problem being mitigated:	Wading River Creek is the east west boundary line between Brookhaven and Riverhead towns and has been the natural discharge into the Long Island Sound of the Wading River Ponds and Estuary. In the early 60's LILCO, now LIPA/Keyspan, disrupted that flow of the Creek by establishing the Shoreham Nuclear Power Plant and building two jetties for the Plant. LILCO agreed to maintain the newly rerouted Creek and has, over the years, routinely dredged the Creek's newly established path with an average cost of \$50,000 annually. Every major storm from Nor'easters to Hurricanes fills the creek in with sand. The Town of Riverhead has submitted a project worksheet for each of the last several storms and has repetitively received Federal reimbursement for each and every submittal. The Town has proposed creating jetties at the mouth of the creek to mitigate the hazard and repetitive loss. This proposal has been rejected by the NYS Department of Conservation, Army Corps of Engineers and, as of late, the prior round of funding through the HMGP.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Construct Jetties – Rejected by NYSDEC and Army Corp
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Town proposes to re-establish the mouth of the Creek back between the two jetties constructed by LILCO by creating a channel between the existing Creek and the jetties. This proposal would reduce the annual maintenance cost and the repetitive damage cost from weather related disasters. The Town has had preliminary discussions with the Nature Conservancy. Both agencies agree that this plan could be beneficial not only to the environment, but to the residents of both Brookhaven and Riverhead Towns as well as all NYS residents. This plan would provide one of the only safe and reliable boat launches into the Long Island Sound east of Port Jefferson not only for recreational use, but, and more importantly, for emergency access to the Long Island Sound.
Mitigation Action/Project Type	NRP
Objectives Met	5
Applies to existing structures/infrastructure,	Existing





future, or not applicable	
Benefits (losses avoided)	Recent Damages: \$300,000
Estimated Cost	\$2,000,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Riverhead: David Hegermiller, Emergency Manager
Local Planning Mechanism	Local Budget
Potential Funding Sources	HMGP; 25% for Local Match; Nature Conservancy
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)





Prioritization

Number: Sandy HMGP LOI #: 1269

Mitigation Action/Initiative: Wading River Creek Restoration

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Only safe access to the LI Sound east of Port Jefferson
Property Protection	0	Does not affect private property owners
Cost-Effectiveness	1	Continuous repetitive loss will be mitigated
Technical	1	Long-term solution that is technically feasible
Political	0	Brookhaven and Riverhead Townships
Legal	-1	Project encompasses public and private property
Fiscal	-1	No budget, no funding
Environmental	1	Positive effect for Wading River Estuary
Social	0	Does not adversely affect any segment of the population
Administrative	-1	Engineering Department to administer project, construction to be bid out
Multi-Hazard	0	As stated
Timeline	1	2-3 years
Agency Champion	0	Public safety for safe access to Long Island Sound
Other Community Objectives	0	The Nature Conservancy
Total	3	
Priority (High/Med/Low)	High	





Mitigation Action Worksheet

Please complete one sheet per action/project with as much detail as possible, using the guidance beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Town of Riverhead
Number: Sandy HMGP LOI #: 1960
Mitigation Action/Initiative: Town Hall and Police Headquarters Generator Upgrade

Assessing the Risk	
Hazard(s) addressed:	Flooding, Hurricane, Nor'Easters, Severe Storms, Severe Winter Storms
Specific problem being mitigated:	To provide a complete emergency stand-by power generation system to serve Town Hall and Police Headquarters.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Solar – Not Feasible
	2. Relocation of EOC to Suffolk County EOC – Not Feasible
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	1) Analysis of existing building system loads, space requirements for equipment and utility bills for generator sizing. 2) Review of existing as-built drawings and site visit field analysis to determine locations of generators, transfer switches and connections.3)Determination of availability and capacity to use natural gas versus diesel fuel systems for generators. 4) Analyze existing generator serving Police HQ and the re-use as a parallel source for proposed natural gas or diesel generation equipment. 5) Preparation of cost estimates for Natural Gas vs. Diesel generation solutions. 6) Preparation of report and recommendations based on analysis and field inspections for Natural Gas vs. Diesel generation system. 7) Preliminary coordination study and arc flash analysis for electrical distribution.8) Select type of system based on study and recommendations. 9) Prepare contract docs and bid project. 10) Select lowest responsive bidder and contract work.
Mitigation Action/Project Type	SIP
Objectives Met	16
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Recent Damages: \$5,000
Estimated Cost	\$353,750
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Riverhead: David Hegermiller, Emergency Manager
Local Planning Mechanism	Local Budget





Potential Funding Sources	HMGP; 25%for Local Match
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)





Prioritization

Number: Sandy HMGP LOI #: 1960

Mitigation Action/Initiative: Town Hall and Police Headquarters Generator Upgrade

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Maintains operational status of PD and Town Hall during loss of power
Property Protection	0	Maintains operational status of PD and Town Hall during loss of power
Cost-Effectiveness	1	Protection of lives and property impossible to quantify
Technical	1	Concept design and cost estimate in place
Political	1	Support of Public and Town Board
Legal	1	Town has authority
Fiscal	-1	No budget, no funding
Environmental	1	Diesel to Natural Gas
Social	0	Neutral social impact
Administrative	1	Town Engineer to administer and construction to be bid out
Multi-Hazard	1	Maintains operational status for all hazards
Timeline	1	Approximately one year with funding
Agency Champion	1	Emergency manager and project manager
Other Community Objectives	0	Although not voiced agencies, businesses and residence rely on the continuous functioning of government and public safety
Total	8	
Priority (High/Med/Low)	High	

