

9.1 ROCKLAND COUNTY

This section presents the jurisdictional annex for Rockland County.

9.1.1 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
Christopher Jensen, Program Coordinator Rockland County Office of Fire & Emergency Services 35 Firemen’s Memorial Drive, Pomona, NY 10970 (845) 364-8902 jensenc@co.rockland.ny.us	Andy Connors, Deputy Superintendent Rockland County Highway Department 23 New Hempstead Road, New City, NY (845) 638-5060 connorsa@co.rockland.ny.us

9.1.2 County Profile

Please refer to Section 4 of this HMP for details on Rockland County’s population, location, climate, history, growth and development.

9.1.3 Natural Hazard Event History Specific to the Municipality

Rockland County has a history of hazard events as detailed in 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.

9.1.4 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 County. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for Rockland County.

Table 9.1-1. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Drought	Damage estimate not available	Frequent	39	High
Earthquake	100-Year GBS: \$196,873 500-Year GBS: \$31,944,097 2,500-Year GBS: \$543,956,855	Occasional	28	Medium
Extreme Temperature	Damage estimate not available	Frequent	30	Medium
Flood	1% Annual Chance: \$1,786,006,000	Frequent	36	High
Landslide	GBS Exposed: \$5,813,518,000	Occasional	12	Low
Severe Storm	100-Year MRP: \$20,627,867	Frequent	48	High

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
	500-year MRP: \$140,874,443 Annualized: \$1,292,899			
Winter Storm	1% GBS: \$362,724,360 5% GBS: \$1,813,621,800	Frequent	51	High
Wildfire	Estimated GBS in the WUI: \$26,424,313,000	Frequent	54	High

Notes:

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
 - b. The valuation of general building stock (GBS) and loss estimates was based on custom inventory for the municipality (replacement cost value).
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
 - c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
 - d. Loss estimates for the flood and earthquake hazards represent both structure and contents.
 - e. The HAZUS-MH earthquake model results are reported by Census Tract.
- MRP – Mean Return Period
WUI – Wildfire Urban Interface

National Flood Insurance Program (NFIP) Summary

Table 9.1-1 below summarizes the NFIP statistics for the County.

Table 9.1-1. NFIP Summary

Jurisdiction	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Properties (1)	# Severe Rep. Loss Properties (1)	# Policies in 100-year Boundary (3)
Rockland County	1,656	2,459	\$38,723,445	85	20	497

- Source: FEMA Region 2, 2016
- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 06/30/2016. The total number of repetitive loss properties does not include the severe repetitive loss properties. The number of claims represents claims closed by 06/30/16.
 - (2) Total building and content losses from the claims file provided by FEMA Region 2.
 - (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.
- Notes: 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. A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case. Number of policies and claims and claims total exclude properties located outside county boundary, based on provided latitude and longitude.

Other Vulnerabilities Identified

The County has identified the following vulnerabilities related to County-owned structures and infrastructure:

- The Rockland County Highway Department facility is located in the floodplain. Repairs to drainage culverts damaged by Hurricane Irene are still needed. Bridges and roads have been identified for mitigation as well. Refer to the Rockland County Highway Department’s mitigation strategy in Table 9.1-8.
- The sewage pump stations have aging on-site emergency generators, fuel tanks and transfer switches that need replacement. In addition, there are pump stations that are located in the floodplain (Pascack Pump Station, Fourth Street Pump Station, Mahwah Pump Station, Montebello Pump Station, Pomona

Pump Station, Lincoln Street Pump Station). The Rockland County Sewer District identified mitigation actions in the updated mitigation strategy later in this annex to protect these assets to the 500-year flood event and replace the aging infrastructure (Table 9.1-8).

9.1.5 Capability Assessment

This section identifies the following capabilities of the County:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- NFIP
- Integration of mitigation planning into existing and future planning mechanisms.

Planning and Regulatory Capability

Table 9.1-2 below summarizes regulatory tools available to the County.

Table 9.1-2. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Authority (local, county, state, federal)	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	State, Local	Rockland County Department of Planning; Chapter 220 (Building Construction) of the County Code (and/or local municipalities)
Zoning Ordinance	Local	Rockland County Department of Planning – Land Use Division (and/or local municipalities)
Subdivision Ordinance	Local	See above.
Site Plan Review Requirements	Local	See above.
National Flood Insurance Program (NFIP) Flood Damage Protection Ordinance	Federal, State, Local	
Comprehensive Plan / Master Plan	County and Local	Yes – Rockland Tomorrow: Rockland County Comprehensive Plan (Adopted March 1, 2011)
Capital Improvements Plan	County	Capital Improvement Program 2017-2022 (December 2016)
Stormwater Management Plan/Ordinance	County, Local	Rockland County Division of Environmental
Floodplain Management / Basin Plan	Local	
Open Space or Greenway Plan	County	Open Space Acquisition Program
Emergency Management and/or Response Plan	County and Local	
Economic Development Plan	County	
Local Waterfront Revitalization Plan (for waterfront communities)	Local	
Post Disaster Recovery Plan and/or Ordinance	County	
Growth Management	Local	
Real Estate Disclosure req.	State and local	New York State (NYS) mandate, Property Condition Disclosure Act, <i>NY Code</i> – Article 14 §460-467

Tool / Program (code, ordinance, plan)	Authority (local, county, state, federal)	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Habitat Conservation Plan	-	
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Local	<ul style="list-style-type: none"> Rockland County Five-Year Consolidated Plan and 2015 Annual Action Plan Chapter 846 – Stream Control Act

Note: NYS Subdivision laws provide a general framework, but allow room for local ordinances and interpretation.

Administrative and Technical Capability

Table 9.1-3 below summarizes potential staff and personnel resources available to the County.

Table 9.1-3. Administrative and Technical Capabilities

Staff/ Personnel Resources	Available (Yes or No)	Department/ Agency/Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Rockland County Planning Department – Land Use Division
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Rockland County Highway Department – Engineering Division
Planners or engineers with an understanding of natural hazards	Yes	Rockland County Planning Department – Land Use Division; Rockland County Department of Fire and Emergency Services
NFIP Floodplain Administrator (FPA)	-	-
Surveyor(s)	Yes	Highway Department's Engineering division
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Rockland County Geographic Information Systems (GIS) Division
Scientist familiar with natural hazards in the County		
Emergency Manager	Yes	Rockland County Department of Fire and Emergency Services
Grant writer(s)		
Staff with expertise or training in benefit/cost analysis		

Fiscal Capability

Table 9.1-4 below summarizes financial resources available to the County.

Table 9.1-4. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes – Rockland County Capital Project Budget
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Incur debt through general obligation bonds	Yes

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Federal and state grant programs	Yes
Other	Economic Development Loan Program NY Rising Community Reconstruction Program U.S. HUD HOME Investment Partnerships U.S. HUD Emergency Solutions Grant Department of Homeland Security grants

Community Classifications

Table 9.1-5 below summarizes classifications for community program available to the County.

Table 9.1-5. Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	N/A	N/A
Public Protection	N/A	N/A
Storm Ready	NP	N/A
Firewise	NP	N/A

Note:

- N/A Not applicable
- NP Not participating

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 <https://www.isomitigation.com/ppc/>
- The National Weather Service Storm Ready website at <http://www.stormready.noaa.gov/index.html>
- The National Firewise Communities website at <http://firewise.org/>

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Rockland County Planning Department

County Planning remains available to provide courtesy reviews and input to local Comprehensive Plan updates to ensure that they incorporate the information, findings and recommendations of this Plan as appropriate.

Planning

Rockland County Comprehensive Plan - Rockland County created a comprehensive plan that will serve as the basis for all County government planning and development issues for the next 10 to 20 years and provide guidance for future planning and zoning actions by towns and villages. The plan also creates a framework for future capital expenditure decisions by the County government. The current plan was adopted by County legislature on March 1, 2011. The goals of the plan include:

- Provide general recommendations on future land uses within the County of Rockland and possible alternative strategies.
- Recommend general policies that could be undertaken at both the County and municipal levels to implement these strategies.
- Address those matters that are under direct jurisdiction of the County of Rockland.
- Identify issues of land use and zoning conflicts between and among municipalities that should be resolved to allow the various municipal zoning regulations to work more effectively.

The Comprehensive Plan includes several references to the 2010 County Hazard Mitigation Plan. This includes the total area of the County that is located within flood risk zones, total dollar amount of flood losses, and discussion of the hazard mitigation initiative (Office of Fire and Emergency Services). As noted in the updated mitigation strategy, the County Planning Department will work with municipalities to integrate hazard mitigation and hazard areas into local comprehensive plans and conduct a courtesy review of draft plans.

Regulatory and Enforcement (Ordinances)

Rockland Codes Initiative – The mission of the Rockland Codes Initiative is to fairly and impartially enforce codes and other ordinances of the County. The goal is to ensure compliance for a safe and desirable living and working environment, protecting health, property and the quality of life for all residents. This was launched in 2015 by the County Executive to oversee the Unified Neighborhood Inspection Team (UNIT). The UNIT focuses on blight remediation, code compliance, public health and safety issues.

In May 2017, Rockland County signed an Executive Order that will prohibit County departments from issuing permits for developments that have not complied with General Municipal Law. General Municipal Law requires towns and villages comply with the findings of the County Planning Commissioner or file a reason why a decision has not been made to comply. Failure to do so will result in the County not issuing permits for such uses as water and sewer connections, well permits, rooming house permits, drainage permits, road opening permits, issuance of new addresses and others.

Operation and Administration

Land Use Division - The Land Use Division performs a variety of tasks, focusing on topics related to housing, environmental and natural issues, historic and cultural resources, recreation and open space, and infrastructure. A primary function of the division is the review of site plans, subdivisions, variances, zone changes, zoning

code amendments, special permits and other land use, zoning or environmental actions under the State mandated General Municipal Law (GML) application process.

GIS Division - The GIS Division is the lead agency for GIS data development for Rockland County government. The Division has digital data and maps available through their GIS Portal. This is an interactive mapping application that offers users the opportunity to customise and print their own maps. This portal includes an application that allows users to view existing and preliminary flood map information and determine their Advisory Base Flood Elevation.

Rockland County Task Force on Water Resources Management – The mission of this task force is to develop a County Water Plan that ensures a safe, long-term water supply for Rockland County. The task force will assemble, examine, and investigate relevant data, further County goals regarding protection of floodplains, woodlands, and wetlands, increasing groundwater supply, reducing storm water runoff, and preventing flood damages to residents and businesses. Additionally, the task force will also develop education and outreach programs, seek funding opportunities, and report its findings, conclusions, and recommendations to the Legislative and Executive branches of County government. Lastly, the task force’s website has a resources tab that displays the current drought status, if applicable, for the County.

Rockland County Planning Board - The Board is comprised of a diverse group of county residents. It includes engineers, architects, contractors, utility company employees, educators, and retirees. The Planning Board members serve in an advisory capacity to the Commissioner of Planning with regard to the reviews undertaken by the Department of Planning as required under New York State General Municipal Law (GML).

Rockland Riverfront Communities Council - The Council enhances and utilize assets of the Hudson River and nearby parks through inter-municipal cooperation between riverfront communities and other appropriate agencies in Rockland County. They encourage and promote the preservation of natural, scenic, historic and cultural resources; environmental education; sustain economic development and public access to the river, where possible.

Funding

Rockland County receives three different entitlement grants from U.S. HUD: Community Development Block Grant (CDBG), HOME Investment Partnerships, and Emergency Solutions Grant. The County receives Housing Opportunities for People with Aids funds through a consortium with the City of New York. Rockland County’s Continuums of Care funds are used to promote the development of the County’s Supportive Housing Program.

Education and Outreach

Rockland Municipal Planning Federation – The Federation was organized and created in March 1989 as a result of an outgrowth of a concept from several planning and zoning board members who wanted to share planning and zoning-related issues that existed in the County. One of the main purposes of the Rockland Municipal Planning Federation is to promote the exchange of information, education, and training on planning and zoning methods and techniques. The Federation has formed standing committees which can be served by either the General or Associate Members: Government Affairs Committee, Program and Public Relations Committee, Planning Coordination Committee, and Committee on Certification & Licensing Review.

Floodplain Management: The County will work to promote or facilitate workshops and seminars intended to build local capabilities in floodplain management, natural hazard risk reduction and disaster recovery, specifically in such areas as grant writing and Benefit/Cost Analysis, NFIP floodplain management and

Certified Floodplain Manager (CFM) Training and Certification, NFIP Community Rating System (CRS), Substantial Damage Estimating (SDE), and preparing NFIP Elevation Certificates (EC).

As part of the HMP update process, Rockland County ensured that the NFIP Floodplain Administrators were specifically included as part of the planning process. During the HMP update, the NFIP Floodplain Administrators were identified in each jurisdiction's flood ordinance and officials informed of who serves in this role. In addition, interviews with each NFIP Floodplain Administrator were conducted to acquire information on each community's NFIP enforcement. This information is summarized in each jurisdictional annex.

As described in Section 6, as part of Rockland County's continued commitment to support communities participating in the NFIP, the Rockland County Office of Fire and Emergency Services distributed NFIP education and awareness materials to all communities. During the HMP update, many communities were unaware of the most recent Community Assistance Visit (CAV) from FEMA. This information was requested from NYS on their behalf, distributed to all jurisdictions and included in their annexes to this HMP update. This correspondence also included a summary of the last CAV conducted, and information regarding an upcoming webinar regarding NFIP requirements. All NFIP Floodplain Administrators and municipal staff that support NFIP compliance were encouraged to attend.

Climate Change and Sea Level Rise: While considering, planning, engineering and undertaking projects throughout the County, and particularly along the Hudson River, the County will review and incorporate the latest information on climate change and sea level rise projections. Current sea level rise and coastal flooding adaptation information is available from the following sources:

- NYSERDA's ClimAid report and 2014 updated sea level rise projections (<http://www.nyserda.ny.gov/Cleantech-and-Innovation/Environment/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York.aspx>)
- Scenic Hudson's sea level rise mapper (<http://www.scenichudson.org/slr/mapper>)
- FEMA's Coastal Construction Manual (<https://www.fema.gov/media-library/assets/documents/3293>)
- NYS DEC's Climate Smart Communities program (<http://www.dec.ny.gov/energy/50845.html>)
- NYS Community Risk and Resiliency Act (adopted Sep 2014) (http://assembly.state.ny.us/leg/?default_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=Y&Text=Y)

County Planning developed an application to help residents to understand the location of shelter facilities. The County as well as the Towns and Villages have sheltering plans. The County Department of Social Services works with the American Red Cross to provide staffing and staffing plans. The County has several memorandums of understanding with school districts to utilize buildings for shelters. Evacuation plans are only available as related to Indian Point.

County Planning developed a GIS-based emergency management application, targeted to local and County users, to support emergency management planning and response activities, which includes the input of such things as road closures and obstructions. The County would like to upgrade the GIS system (refer to the updated mitigation strategy for further information).

Rockland County Highway Department

The Rockland County Highway Department has the responsibility for the administration, construction, maintenance, supervision, repair and care of approximately 340 lane miles of roadways, 83 bridges and 115 culverts within the county jurisdiction. The department mission is to provide a safe, well maintained and

efficient operation of the county highway and bridge system. The Drainage Agency is a part of the Highway Department.

Planning

The Highway Department issues permits to ensure compliance and is therefore involved in the planning stage of all projects; permits are required to access or work near a County road and off-system bridge. The Department is involved with subdivisions as reviewed by Planning Board to have compliance with standards. Permits are required to access or work near a County road and off-system bridge. Approvals are needed prior to construction.

Regulatory and Enforcement (Ordinances)

The Drainage Agency issues permits that occurs within the floodplain of the County stream system.

Rockland County Drainage Agency (RCDA) - established to regulate construction and maintenance along designated County regulated streams. In conjunction with the NYSDEC, USACE, and local municipalities, the RCDA regulates development and activity along 14 streams - approximately 78 miles - within the County. The Drainage Agency also performs inspections of County Regulated Streams to identify obstructions or damage.

Engineering Division - The Highway Department's Engineering division is composed of licensed professional engineers, surveyors, engineering technicians and draftsmen. The Engineering Division plans, engineers, designs and constructs capital projects in conformance with the standards and specifications of the American Association of State Highway and Transportation Officials and the New York State Department of Transportation.

Operation and Administration

The Rockland County Highway Department conducts maintenance of and has jurisdiction of Rockland County roads and bridges. The Highway Department is actively updating/rebuilding bridges (as funds provide) to current standards and is aggressively maintaining road pavement and drainage systems to promote drainage for preservation. The Drainage Agency assesses County streams for debris removal to prevent erosion.

Funding

Most capital projects are federally funded; with a few state grants.

Education and Outreach

Annually, the Highway Department has a public hearing on MS4 permit. The Drainage Agency performs outreach to various communities and organizations as a general information session. The Department has been invited to speak to Planning Boards in the past and is willing to continue to do so. There are public sessions on all capital programs.

The County has an annual services day (Youth Fest) that all Departments participate in. The Highway Department maintains a website that contains information for residents.

The Highway Department in cooperation with NYSDOT and the Federal Highway Administration is developing design plans for permanent repairs to six Rockland County storm drainage culverts damaged by Hurricane Irene. The Highway Department is holding a public informational meeting is part of the continuing efforts to encourage public input into the development of transportation projects. Refer to the updated mitigation strategy for the repair of these damaged culverts.

Rockland County Department of Fire & Emergency Services

The Rockland County Office of Fire & Emergency Services (OFES) plays a lead role in planning, mitigation, coordination, response and recovery for natural disasters, such as hurricanes, floods, and winter-weather storm events. The Rockland County OFES responds to natural disasters such as snowstorms, floods, and hurricanes; technical disasters such as chemical spills; and hazardous materials incidents. They provide 911 service for the residents of Rockland County where they dispatch fire companies and ambulance squads. They also conduct Indian Point drills on a regular basis.

The department oversees and equips specialized teams for hazardous materials, and technical rescue incidents. Physically housed within the training facility is the Rockland County Sheriff Dispatch Center, 44-Control; responsible for cellular 9-1-1, fire, ambulance dispatch along with specialized units such Haz-Mat, REACT and Technical Rescue.

The Indian Point Energy Center (IPEC) is a nuclear power plant located in Buchanan, NY, approximately 40 miles north of New York City in Westchester County. Rockland County is part of a multi-agency response plan related to the center, a portion of which is evacuation of residents from specifically identified areas within the County. The OFES staff is fully trained to respond to a nuclear event due to the proximity of the Entergy-owned IPEC.

The Office of Emergency Services considers the identification of the following to be of highest importance.

- The coordination with all municipalities and the importance of these items should again be captured within each municipal updated section.
- Identification of multiple options to temporarily house residents displaced due to natural disaster.
- Sites within multiple communities suitable for relocation or replacement of homes identified as unsuitable or located within an unsuitable area such as a floodplain.

Planning

The County has a Comprehensive Emergency Management Plan that is reviewed bi-annually. Four of the five Towns have CEMPs (updated within the year); 6 of the 19 Villages of CEMPs and some Villages defer to the Town's plan. The County also has a Continuity of Operations Plan (COOP). The County also has a Hurricane/Coastal Storm Plan and Winter Storm Plan updated annually.

Rockland County has an evacuation plan specific to an IPEC event.

Operation and Administration

Local Emergency Planning Committee - The local committee's primary responsibility was to develop an emergency response plan for Rockland County and to establish procedures for receiving and processing public requests for information concerning chemicals and chemical spills within the county. The county's hazardous materials response plan was completed in October 1988. The plan was rewritten in the fall of 1991 and is revised annually.

Funding

The Department has received funding through the following sources: Department of Homeland Security Funding; State funding; and emergency funding through Indian Point.

Education and Outreach

Emergency Notifications - Rockland County also utilizes NY-Alert (<https://www.nyalert.gov/>) and CodeRed (Community Notification System; the backup to NY-Alert) for emergency notifications; all Towns and

Villages have access to it. There is a mailbox for known flood inundation areas to target outreach as needed; and have license for FEMA's Integrated Public Alert & Warning System (IPAWS) to send out notifications.

The web-based emergency management software used by Rockland County is 'DisasterLan'. The Towns are granted access to Disaster Land where flood inundation zones are incorporated. All municipal Emergency Coordinators have access to this 24/7 on smart phone/laptop/desktop.

Emergency Preparedness - Rockland County has developed and maintained an access and functional-needs registry since 2010 that is available as a link from their Emergency Preparedness webpage (<http://rocklandgov.com/departments/fire-and-emergency/emergency-preparedness/>). This registry is for residents with limited mobility and special needs which might impact a timely response during an emergency. Facilities and residents can go on-line and notify the County of their needs. The site also contains information on personal preparedness, recommending all residents have an individual or family plan in case of an emergency, creating and maintaining an emergency preparedness kit (or "Go Bag") and have regular emergency drills.

There are links to natural hazard event brochures with safety tips for residents for the following hazards: hurricanes, flooding, thunderstorms, tornado, snow/blizzard and winter weather. These brochures provide general information on the hazard event, and tips on how to be prepared.

The Department has information on their website regarding Indian Point, preparedness and response activities (<http://rocklandgov.com/departments/fire-and-emergency/emergency-preparedness/indian-point/>). They also link to the Indian Point Interactive GIS Mapping System to see a map to display protection areas, evacuation routes and more.

The Department provides pamphlet organizers to hang in municipal halls and populate with information regarding safety tips on various hazards. At the request of the municipalities, the County will speak to an organization/school/non-profit on emergency preparedness and mitigation.

Training – The Department offers a variety of training programs for firefighters and emergency responders, as well as fire safety courses for business and industry. Training and courses include the following: National Fire Academy Outreach Courses, New York State Office of Fire Prevention and Control Fire Service Outreach Courses, and over 300 Rockland County Fire Training Courses. The courses are provided at the Fire Training Center.

Rockland County Division of Environmental Resources

The Rockland County Division of Environmental Resources was established by Local Law No. 19 of 1996. The Division is the core natural resources department in the County. Located within the Division are the Parks Department, Environmental Management Council, Soil and Water Conservation District, Water Quality Committee, Agriculture and Farmland Protection Board and the Parks Commission.

Operation and Administration

The Division of Environmental Resources serves as a liaison between the community and the Rockland County Executive and Legislature. The department is responsible for informing the County Executive and Legislature on state and federal environmental initiatives, new programs, funding sources and concerns of residents.

Regulatory and Enforcement

The Park Commission is responsible for the management and stewardship of the County park system pursuant to Chapter 319 of the Laws of Rockland County. The Division staff along with representatives from the Environmental Management Council and Agricultural and Farm Protection Board reviews development proposals adjacent to County parkland and farms pursuant to General Municipal Law

The Soil and Water Conservation District (SWCD) considered a political sub-division of the State of New York pursuant to New York State Conservation Law is responsible for developing SWCD programs to protect and conserve soil, water, prime and unique farmland, wildlife, energy and other renewable resources to meet the needs of the local land user on non-federal lands. Additionally, they assess culverts and bridges for flood risk and aquatic passability (the ability for migratory fish to swim into and out of structure).

Operational Funding

Funding for the Divisions operational and personnel budgets is part of the County budget. Funding for SWCD natural resource programs is obtained from the New York State Soil and Water Committee. Preserving open space is still a priority for the County. Although County funding is not currently available; open space is being acquired through donations (e.g., properties in the floodplain that cannot be developed), gifts, tax delinquency and state or federal funding sources.

Education and Outreach

The Rockland County Division of Environmental Resources Soil and Water Conservation District, Parks Department and Environmental Management Council lead the Citizen Science Programs described further below.

Road Stream Crossing Assessments - In 2015, 2016 and 2017, the Rockland County Soil & Water Conservation District (RC SWCD) assessed hundreds of road-stream crossings (i.e. culverts and bridges) across the Cedar Pond Brook, Minisceongo Creek and Sparkill Creek sub-watersheds located in the towns of Stony Point and Haverstraw to identify barriers to fish and wildlife passage and flood risks. RC SWCD worked with local conservation experts to prioritize potential replacement projects based on their likelihood to restore stream habitat and decrease flood potential. Utilizing NYS DEC and Cornell University modeling developed by the US Forest Service, the modeling characterized how likely it is for each culvert to fail (i.e. flood the road) in different storm scenarios. Currently the inventory document is being created for Stony Point and Haverstraw before March 2018.

Town, County and State staff and officials held a Stakeholder meeting to identify high-priority replacement projects based on the results of our field assessments and modeling. A prioritization workshop ranked potential replacement projects at town-managed crossings, and identified 1-2 projects to bring into the design phase of this project.

Stream Bio-monitoring Program – Since 2006, the Rockland County Soil & Water Conservation District conducts an annual Stream Bio-monitoring program utilizing NYSDEC WAVE protocol (Wadable Assessments by Volunteer Evaluators) to document local stream health. Annually, 30 volunteers are trained in WAVE monitoring. The data gathered is shared with community leaders to assist in making informed decisions regarding development adjacent to streams, tracking of illicit discharges and natural resources preservation.

Green Infrastructure Program (GI) - The Division of Environmental Resources has taken the lead to encourage municipalities and residents to adopt Green Infrastructure projects to reduce stormwater runoff. Green Infrastructure projects can be both natural and engineered systems to manage stormwater. Education

and funding have been provided to municipalities to install both Rain Gardens and Rain Barrels. Several hundred students from K-12 and residents have been educated in GI practices.

Water Quality Education - Free education programs are provided to local elementary and middle school students from across Rockland County, including a pilot water quality, hiking, invasive plants and scientific understanding field trip where ~400 local students were educated by District staff in 2016.

Storm Drain Marking Program – Staff provides education and storm drain markers to residents and Eagle Scouts in storm drain marking installation. The program is designed to educate and discourage residents from disposing of unwanted and hazardous material in storm drains. Distributed 150 storm drain markers to dozens of residents for installation on storm drains.

Waterway Cleanups- Partnering with Keep Rockland Beautiful and Riverkeeper, staff provided education and logistics in removing debris from local waterways. In 2016, 40 volunteers participated.

Funding

The Rockland County Capital Program (2017-2022) was utilized as part of the HMP update to assist with the identification of new mitigation actions. Refer to the updated mitigation strategy in Table 9.1-8.

Rockland County Health Department

The mission of the Rockland County Department of Health is to promote and protect the health of our community.

Planning

The Rockland County Department of Health (RCDOH) works in collaboration with the New York State Department of Health (NYSDOH) as well as our Office of Fire and Emergency Services during all events, e.g., flooding, drought, wildfires, that may potentially impact public health and safety.

During large storm events that may potentially impact public water supply wells, the RCDOH reports any flooded wells or contaminated water systems to the NYSDOH, who tracks issues throughout the area impacted by the storm, and offers technical and logistical support as needed. The RCDOH also fields calls from County residents who have flooded wells, and provides technical support to ensure proper precautionary measures during and after the flooding event, including proper disinfection of the wells and plumbing systems once flood waters recede.

During drought conditions, the RCDOH monitors the status of our public water systems on a daily basis. In the event the rainfall deficit threatens the ability to supply a safe and adequate supply of water to residents, the Commissioner of Health has the authority to implement mandatory water use restrictions. These restrictions are promulgated in Article V of the Rockland County Sanitary Code, and are designed to reduce the demand for water by restricting discretionary use to preserve water for consumption, domestic sanitation and fire protection. RCDOH also provides regular status updates to both Rockland County officials and the NYSDOH throughout the duration of the drought conditions.

Regulatory and Enforcement

One of the routine RCDOH functions is oversight of the County's public water supply systems and enforcement of water supply regulations contained within Subpart 5-1 of the NYS Sanitary Code and Article II of the Rockland County Sanitary Code. As discussed in the section above on Planning, the RCDOH functions primarily in a support/advisory role during emergencies to ensure proper precautions are followed to protect the public health and safety. However, RCDOH does have the legal authority pursuant to Article V of the

Rockland County Sanitary Code to enforce mandatory water use restrictions as necessary during drought conditions.

Funding

The RCDOH receives funding via a NYSDOH Safe Drinking Water Enhancement Grant to assist with the routine operation of our Water Supply program. This grant also assists RCDOH in maintaining readiness for potential emergency response efforts.

Education and Outreach

The Rockland County Health Department webpage includes a vast amount of resources, including a page dedicated to Emergency Preparedness and the location of warming centers in the County (http://rocklandgov.com/files/4914/8588/1013/Warming_Centers_2016.pdf). The website also includes a link for residents with limited mobility or special needs to register with the County.

In addition to utilizing their website, to distribute information to residents, the Health Department issues press releases (e.g., extreme temperature events, air quality health advisories) and utilizes social media (Facebook and Twitter).

9.1.6 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 2010 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.1-7. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
1.B: Ensure that the local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department.	County Planning with support from RCOFES and municipal agencies	In progress	The County continues to offer and provide review of municipal Comprehensive Plan updates.	Include in 2018 HMP update.	Refer to the updated mitigation strategy for an enhanced action.
2.A: Expand and disseminate GIS and other hazard information on the internet.	County Planning and municipal agencies	In progress	Rockland County has expanded its GIS services; flood inundation zones are on the map web portal and the Towns have access to the portal and this data. The County anticipates continual updates of data being collected and accessed by the Towns (e.g., dam inundation areas).	Include in 2018 HMP update.	The Stormwater Consortium will work with the County to obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Funding from Cornell Cooperative in contracting stage. Mobile application for emergency service/responders regarding road closures/impediments; a means to store historic information to prioritize and strategy improvements and needs. RCFOES and Planning Department Refer to the updated mitigation strategy for an enhanced action.
Update information on the RCOFES website regarding preparing for emergencies and the family disaster plan checklist to incorporate profiled hazards not already	RCOFES	In progress	RCOFES continues to update their website to prepare residents for emergencies. As described in this annex, there are numerous resources including hazard specific pamphlets posted throughout the county. This is a current capability	Discontinue	This is a current capability of RCOFES.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
discussed in these documents, and ensure that the information continues to be maintained on the website.			of RCOFES.		
Work with local municipalities to pursue the development of an Emergency Notification System call perimeter for high risk locations of natural hazards with delineable hazard areas. Rockland County staff will make aerial mapping available, along with GIS mapping for natural hazards that was completed as part of the hazard mitigation planning project. The County will also facilitate the utilization of the Emergency Notification System by municipalities.	RCOFES, County Planning, Municipal Agencies	In progress	<p>The Rockland County interactive maps includes the following: ability for a user to search for an address and view the FEMA Flood Insurance Rate Map; obtain emergency preparedness information regarding Indian Point including evacuation routes and designated pick-up stops.</p> <p>With the Planning Department, notification mailboxes for high hazard dams to notify residents in inundation areas.</p> <p>As noted in the updated mitigation strategy, the Stormwater Consortium has an action to provide MS4 data to the GIS Portal.</p>		Refer to the updated mitigation strategy for additional GIS actions.
Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.	RCOFES, County Planning Department and Planning Federation, Municipal Agencies	In progress	The Planning Federation has previously held workshops regarding zoning and planning issues. Additional workshops are being considered for 2018. This is technical assistance and ongoing capability of the Planning Federation. This action will be removed.	Discontinue. This is a current capability.	

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Ensure that the principles of this hazard mitigation plan are integrated into the currently ongoing development of the Rockland County Comprehensive Plan.	County Planning	In Progress	The County would like to ensure the integration of the HMP into the County and municipal Comprehensive Plans. Currently, the County Comprehensive Plan references the 2010 HMP.	Include in 2018 HMP	Expanded to integrate into municipal Comprehensive Plans as well and new lead to coordinate with the Planning Department is RCOFES. Refer to the updated mitigation strategy.
3.D: Publish and distribute pamphlets (via the County website, with possible supplements by a more traditional hard copy distribution) on water conservation techniques and drought management strategies.	Division of Environmental Resources	In Progress	All County departments continue to expand their public outreach and education programs, using County and departmental resources.	Include in 2018 HMP	Refer to the updated strategy for more specific public education/outreach initiatives by department.
New highway facility (logistical support center), sufficiently protected from natural hazards.	Rockland County Highway Department	No Progress	Lack of funding resources has been the obstacle from implementing.	Include in 2018 HMP	Refer to the updated mitigation strategy.
4E: Flood gauge installation on all county streams	Rockland County Drainage Agency	No Progress	Lack of funding resources.	Discontinue	While flood gauging may be useful both for warning / response as well as a better long-term understanding of specific stream reaches, the County chooses to focus its attention on higher priority actions.
4M: Continue to implement open space preservation program. RCOFES will meet the Division of Environmental Resources to	Rockland County Division of Environmental Resources and	In Progress	County had a robust program with significant funding; since funding has been suspended. They are still acquiring donated properties, and intend to continue to work on acquisitions of open space	Include in 2018 HMP	Preserving open space is still a priority for the County. However, funding is not available to purchase open space. Open space is being obtained through

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
discuss the added benefit of acquiring open space in high hazard areas.	RCOFES		properties as needed and requested.		donations (e.g., properties in the floodplain that cannot be developed) and tax-delinquent properties where the County takes the lien.
4F: Continue to implement best management practices for floodplain areas.	RCOFES and Municipal Agencies	In Progress	Many departmental efforts are ongoing to address improved floodplain management.	Include in 2018 HMP	This action shall be incorporated into better defined countywide initiatives that meet this general objective and include the County Highway Department. Refer to the updated mitigation strategy for more specific floodplain management strategies.
4G: Identify and document repetitively flooded properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation, and floodproofing measures to protect these properties.	RCOFES and municipal agencies	In Progress	These are actions that are ongoing within the County at the municipal level; some municipalities have identified this as an updated mitigation action. The County continues to support this action and encourage all municipalities to include such an action to address flood vulnerable properties within their communities. However, implementation of this action is more appropriate at the municipal level.	Discontinue	
4J: Develop specific mitigation solutions for floodprone road systems (roads, bridges, intersections, drainage, etc.) under the leadership of County DPW.	RCOFES, Highway Department and municipal agencies	In Progress	This initiative represents a general county activity occurs regularly, however implementation of such solutions is always a challenge due to resources and regulations.	Discontinue	This very general objective shall be discontinued in lieu of specific projects for vulnerable infrastructure identified in the updated mitigation strategy.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
13A: Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.	RCOFES, Department of General Services – Facilities Management and Capital Projects Division, Planning Department and municipal agencies	In Progress		Include in 2018 HMP	Refer to the updated mitigation strategy.
9A: In consultation with NYSDEC Forest Protection & Fire Management and local forest rangers, develop mapping of wildland/urban interface areas.	RCOFES	No Progress	RCOFES collaborates with the NYSDEC. This is a State Level action – not appropriate at the County or local level.	Discontinue	
9E: Endorse and promote prescribed burning for hazard reduction.	RCOFES	No Progress	RCOFES collaborates with the NYSDEC. This is a State Level action – not appropriate at the County or local level.	Discontinue	
11B: Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and	RCOFES and municipal agencies	In Progress		Include in 2018 HMP	Refer to the updated mitigation strategy.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
provision of adequate shelter facilities.					
2F: Expand GIS via acquisition of HAZUS-MH to collect and develop more sophisticated mapping and loss estimation. Use information to update plan. Ensure information will be available to the public and to relevant communities and agencies.	RCOFES and Planning Department	In Progress	Part of this action has been completed as part of this plan update process.	Include in 2018 HMP	Include as part of an updated countywide enhanced Public Education and outreach program. Refer to the updated mitigation strategy.
New Highway Communications System	Rockland County Highway Department	Complete	A new system has been installed. This action is complete.		
GPS CORS (Continuing Operating Repeater System) for surveying work	Rockland County Highway Department	In Progress	This is an ongoing capability of the Rockland County Highway Department.	Discontinue	
Countywide survey assessment of all highway infrastructure conditions and locations by both aerial and land based photography and/or laser scanning techniques.	Rockland County Highway Department	In Progress	This is an ongoing capability of the Rockland County Highway Department; just bought a new laser scanner.	Discontinue	
Install icing detection and icing equipment on county bridges	Rockland County Highway Department	Complete	No further work is anticipated; current capabilities are deemed adequate	Discontinue	.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Install natural gas filling stations for highway equipment	Rockland County Highway Department	In Progress	Discontinue. When this project was identified in 2010 there was a movement to vehicles being fueled with natural gas; now moving toward electric-powered vehicles. No longer a priority.	Discontinue	
Upgrade emergency power systems for all county highway facilities	Rockland County Highway Department	In Progress	Stony Point has been upgraded with emergency power. New City yard still needs to be updated; currently built a substation on Hunt Road yard (built 2016) that does not have emergency power. This project will service the Highway Department and County Complex as well.	Include in 2018 HMP	Refer to the updated mitigation strategy for an enhanced and more detailed action for the New City yard that still needs emergency power.
Public awareness program on hazards, prevention and mitigation: assist CPG Chairperson in maintenance of mitigation planning web presence; assist CPG Chairperson in preparation of annual hazards and mitigation planning fact sheet and its distribution; assist CPG chairperson in preparation of hazards survey; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/TV announcements, etc. at the discretion of the jurisdiction (incorporating as much free information as possible from the FEMA publications warehouse and other	RCOFES lead with direct participation and involvement from each jurisdiction's CPG member	In Progress	In progress	Include in 2018 HMP	Include as part of an updated countywide enhanced Public Education and outreach program. Refer to the updated mitigation strategy.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
appropriate sources.					
Code update: review existing local codes and ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.	Each jurisdictional CPG member	In Progress	Ongoing capability at the municipal level.	Include in 2018 HMP	Refer to the updated mitigation strategy for the enhanced action. The Code Enforcement Task Force’s goal is to have a more cohesive approach by developing a central database at a parcel basis to record and monitor land development and infrastructure activity, permitting.
Code enforcement: enforcement of NYS and local building codes	Each jurisdictional CPG member	In Progress	Ongoing capability at the municipal level and supported by the County.	Discontinue	

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

Rockland County has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- An emergency generator was installed at the Highway Department Stony Point yard.
- On October 28, 2012, Superstorm Sandy created a storm surge of up to 14 feet in Hudson River at the location of Haverstraw Bay. The resulting storm surge caused wide spread damage to Haverstraw Bay County Park, which include the total destruction of the 180' long x 10' wide pedestrian footbridge which crossed a man-made inlet. FEMA mitigation funds were used to replace the bridge with a more hardened structure. This project was completed in 2015.
- In May 2017, Rockland County signed an Executive Order that will prohibit County departments from issuing permits for developments that have not complied with General Municipal Law. General Municipal Law requires towns and villages comply with the findings of the County Planning Commissioner or file a reason why a decision has not been made to comply. This is a strategy to hold municipalities accountable for development decisions.
- As noted earlier, a stream crossing assessment is in progress by RC SWCD to assess every culvert in connection with the Hudson River; assessed for size, flood resiliency and flood passability.
- The Ramapo River, considered a sole source aquifer, provides drinking water to over 81,000 residents of Rockland County and northern New Jersey. The Rockland County Task Force on Water Resources Management, has contracted with Rutgers University to complete a Watershed Assessment and Management Plan for this tri-county resource (Orange, Rockland, Bergen). The plan will include both the Ramapo and Mahwah Rivers watershed area. The final plan will include recommendations on source water protection and improve water qualities of these waterways. Refer to the updated mitigation strategy for additional details.
- The County has five weather stations are in place in the County; most recent was a weather station installed at Haverstraw Middle School. Weather Stations also have a camera and situational awareness of weather around the County and networked together. Program parameters and build an alert network for that site.
- The Rockland County Office of Fire and Emergency Services formed the Certified Emergency Response Team (CERT) two years ago. The CERT meets regularly and is conducting flood preparedness training in June 2017.
- The Rockland County Office of Fire and Emergency Services purchased generators with lighting attachments to provide adequate illumination and security to portions of our downtown areas as well as provide essential lighting at heavily congested intersections during power outages as needed. Further, the portable generates enable the County to provide temporary emergency power to facilities in need during/post-events such as dialysis facilities, healthcare clinics, and adult/group home locations.
- The Rockland County Highway Department increased the capacity of the Hollow Road drainage; historically two commercial downstream establishments flooded.
- New City Dam analysis was conducted by the County Drainage Agency.

Proposed Hazard Mitigation Initiatives for the Plan Update

Rockland County hosted and participated in a mitigation action workshop on February 16, 2017 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

Table 9.1-8 summarizes the comprehensive-range of specific mitigation initiatives Rockland County would like to pursue in the future to reduce the effects of hazards. 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.1-9 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
Fire and Emergency Services												
RC-001 (previous actions 2F and 3D, revised)	<p><u>Enhance Education and Outreach:</u></p> <p>Expand GIS via acquisition of HAZUS-MH to collect and develop more sophisticated mapping and loss estimation to include future changing conditions. Ensure information will be available to the public and to relevant communities and agencies.</p> <p>Continue to make available climate change resources on the hazard mitigation project website; resources currently located at: http://rocklandhmp.com/Pages/links.aspx</p> <p>Public awareness program on hazards, prevention and mitigation: assist CPG Chairperson in maintenance of mitigation planning web presence; assist CPG Chairperson in preparation of annual hazards and mitigation planning fact sheet and its distribution; assist CPG chairperson in preparation of hazards survey; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/TV announcements, etc. at the discretion of the jurisdiction (incorporating as much free information as possible from the FEMA publications warehouse and other appropriate sources).</p>											
	See above	Both	All Hazards	1, 2, 3, 5, 6, 7	<u>RCOFES</u>	High	Medium	FEMA; Local	Short (DOF)	High	EAP	PI
RC-002 (previous action 11B)	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.	N/A	All Hazards	1, 2, 5, 7	<u>RCOFES</u>	High	High	County Budget	Short (DOF)	High	LPR	ES
RC-003 (previous action)	Fully integrate the results and recommendations of this HMP into the pending update of the County Comprehensive Emergency Management Plan.	N/A	All Hazards	1, 2, 3, 4, 5, 6, 7	<u>RCOFES and Planning Department supporting all municipalities</u>	Medium	Low	County Budget	Short (DOF)	High	LPR	PR

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
RC-004 (previous action 13A)	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available; if located in the floodplain protect to the 500-year event.	Existing	All Hazards	1, 2, 5, 6	RCOFES, Department of General Services – Facilities Management and Capital Projects Division, Planning Department and municipal agencies	High	Medium	County Budget	Short (DOF)	High	LPR	PR
RC-005 (new)	Ensure continuity of operations at County buildings and shelters: <ul style="list-style-type: none"> Rockland Community College – final stage to secure contractor (GOSR funding \$1.3M) County Office Building (Capital Program) Highway Building (Capital Program) 	Existing	All Hazards	1, 2, 5, 6	RCOFES	High	High	GOSR, County Capital Program: FEMA HMA	Short (DOF)	High	SIP	ES
RC-006 (new)	Rockland County Department of Fire and Emergency Services will	Both	All Hazards	1, 2, 3	RCOFES	High	Low	County/Local	Short (DOF)	High	LPR	PR

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	explore and document the consideration for medical needs at identified shelters in the County and include as part of the update of the County Emergency Management Plan or the Countywide Sheltering Plan.											
RC-007 (new)	Redundant Backup Public Safety Radio to be developed to provide backup for 911 dispatch and cellular 911 phone calls	N/A	All Hazards	1, 5	<u>RCOFES</u>	High	High \$7.5M	Capital Program	Short (DOF)	High	SIP	ES
RC-008 (new)	Construct a new animal shelter facility	New	All Hazards	1, 5	<u>General Services</u>	High	High \$500K	Capital Program	Long (DOF)	Low	SIP	ES
RC-009 (new)	Upgrade radio communications room, equipment; and deploy new records management system being implemented in Sheriff Department that the local police can use (countywide system)	New	All Hazards	1, 5	<u>General Services</u>	High	High	Capital Program	Short (DOF)	High	SIP	ES
RC-010	Placeholder											
Planning Department												
RC-011 (previous action 1B enhanced)	Ensure that the local comprehensive plans incorporate hazard areas, changing conditions, and natural disaster mitigation techniques through a courtesy review of draft	N/A	All Hazards	1, 2, 3, 4, 6, 7	<u>County Planning</u> ; RCOFES; supporting all municipalities	High	Low	County Budget	Short In-progress	High	LPR	PR



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	plans by the County Planning Department.											
RC-012 (previous action 2.A enhanced)	<p>Enhance GIS services and data in the County:</p> <p>Upgrade the County – based GIS emergency management application, targeted to local and County users, to support emergency management planning and response activities, which includes the input of such things as road closures and obstructions.</p> <p>Develop a mobile application for emergency service/responders regarding road closures/impediments; this will serve as a means to store historic information and to prioritize and strategy improvements and needs.</p>	Both	All Hazards	1, 2, 5	<u>Planning Department</u> ; RCFOES	High	High	County	Short (DOF)	High	LPR	PR

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
RC-013 (new)	The Land Use Review and Permitting Committee, consisting of departments involved in the land planning review and/or permitting process, are looking to deploy a GIS-centric software solution, providing a central database solution. Those departments involved in land use reviews, permits, inspections and/or complaints would be provided access to the central repository for more efficient access to information and monitoring of land use activity.	Both	All Hazards	1, 2, 6	<u>Code Enforcement Task Force</u>	High	Medium	County	Short (DOF)	High	LPR	PR
Highway Department												
RC-014 (previous action number; modified)	Upgrade emergency power system at the New City yard. New City yard still needs to be updated; currently built a substation on Hunt Road yard (built 2016) that does not have emergency power. This project will service the Highway Department	Existing	All Hazards	1, 2, 5	<u>County Highway Department</u>	High	Medium	FEMA HMA; County	Short (DOF)	High	SIP	ES

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	and County Complex as well.											
RC-015 (previous action)	Relocate/construct a new highway department facility with emergency backup power out of the floodplain.	New	Flood, Severe Storm	1, 2, 5	<u>County Highway Department</u>	High	High (estimate \$30 Million)	County	Short (DOF)	High	SIP	PP
RC-016 (new)	Enhance scour protection on County bridges; not every bridge is built to current scour protection standards (standard changed 2006/2007 timeframe); require to drive the piles and expensive upgrade	Existing	Flood, Severe Storm, Severe Winter Storm	1, 2	<u>County Highway Department</u>	High	High	NYS DOT - Transportation Improvement Program	Short (DOF)	Medium	SIP	PP
RC-017 (new)	Identify site(s) to utilize in an emergency to stockpile equipment, snow, and/or debris. Further, develop a stockpile of material/equipment (or access to) for work to respond in a timely fashion.	Both	All Hazards	1, 2, 5	<u>County Highway Department; municipalities</u>	High	High	County and Local	Short (DOF)	Medium	LPR	PR
RC-018 (new)	Develop a robust communication system or plan to allow interoperability in the County to communicate on the same channel; redundancy is needed; and communicate with municipalities	Both	All Hazards	1, 2, 5	<u>County Highway Department</u>	High	High	County and Local	Short (DOF)	Medium	SIP	ES
RC-019 (new)	Pascack Brooke Easement – Stabilize banks and	Both	Flood, Severe	1, 2, 6	<u>County Drainage</u>	High	Medium-High	FEMA HMA,	Short (DOF)	High	SIP	PP

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	implement erosion control to reduce flooding including concrete structures and plantings.		Storm, Severe Winter Storm		<u>Agency</u>			State, Local				
RC-020 LOI	Enhance the current mapping capabilities and purchase hand-held portable devices for use to capture data in the field during emergencies.	N/A	All Hazards	1, 2, 5	<u>Rockland County Highway Department</u>	High	Medium	County	Short (DOF)	High	LPR	ES
RC-021 (new)	Conduct a countywide culvert study to determine if upgrades are needed for crossings in the County right-of-way.	Existing	Flood, Severe Storm, Severe Winter Storm	1, 2, 4, 6	<u>Rockland County Highway Department</u>	High	High \$300K	Capital Program	On-going	High	LPR	PR
RC-022 (new)	Rebuild the Spook Rock Road Spillway	Existing	Flood, Severe Storm, Severe Winter Storm	1, 2, 6	<u>Rockland County Highway Department</u>	High	\$2.25M	Capital Program	Short Design will be awarded later 2017 - in progress	High	SIP	PP
RC-023 (new)	Elevate Beach Road (County Road) (approximately 2-3 feet) to provide access to residents to evacuate flooding (Stony Point)	Existing	Flood, Severe Storm	1, 2, 3, 5, 6	<u>Rockland County Highway Department, Stony Point</u>	High	High	U.S. CDBG-DR through NY Rising	Short (DOF)	High	SIP	PP
RC-024 (new)	Armor shoreline to prevent erosion due to wave action in Grassy Point, Stony Point (Town of Haverstraw to intersection with Tompkins Cove hamlet)	N/A	Flood, Severe Storm, Severe Winter Storm	4, 6	<u>Rockland County Highway Department, Stony Point</u>	High	High	NY Rising	Short (DOF)	High	NSP	NR

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
RC-025 (new)	Conduct a study to determine feasible mitigation measures to address flooding in Suffern Squires Gate neighborhood	N/A	Flood, Severe Storm, Severe Winter Storm	1, 2, 3, 4, 6, 7	<u>Drainage Agency</u>	High	High \$400K	Capital Program	Short (DOF)	High	LPR	PR
RC-026 (new)	Conduct a Muddy Creek Flood Mitigation Study to explore mitigation actions to reduce/eliminate impacts to existing development	N/A	Flood, Severe Storm, Severe Winter Storm	1, 2, 3, 4, 6, 7	<u>Drainage Agency</u>		High \$100K	Capital Program In progress	Short (DOF)	High	LPR	PR
RC-027 (new)	Coordinate with NYS to identify mitigation measures to reduce impacts from flooding at the Palisades Mall (Route 303 and 59)	Existing	Flood, Severe Storm	1, 2, 4, 6	<u>Drainage Agency</u> , NYS DOT, Clarkstown	High	High	FEMA HMA; NYS DOT	Short (DOF)	High	SIP	PP
RC-028 (new)	Repair and consider upsizing six Rockland County storm drainage culverts that were damaged by Hurricane Irene. The proposed work locations are as follows: <ul style="list-style-type: none"> • CR 106, Route 210, just west of Central Highway in the Town of Stony Point • CR 23, Sickletown Road, just south of the Palisades Interstate Parkway bridge in the Town of Orangetown • CR 23, Strawtown Road, just south of Germonds 	Existing	Flood, Severe Storm	1, 2	<u>Rockland County Highway Department</u> , NYS DOT, Federal Highway Administration	High	High	FEMA HMGP	Short	High	SIP	PP

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	Road in the Town of Clarkstown • CR 108, Old Route 210, just west of Wayne Avenue in the Town of Stony Point • CR 23, Sickletown Road, just north of Fifth Avenue in the Town of Orangetown • CR 15, Western Highway, just north of Convent Road in the Town of Orangetown											
RC-029 (new)	Purchase inflatable tiger dam barrier system to deploy to locations in the County as needed to replace time-consuming and labor-intensive sand bags. This will help the county deploy a temporary mitigation measure to areas that flood in the future with a current unknown flood risk (changing future conditions/climate change).	Both	Flood, Severe Storm	1, 2, 5	<u>Drainage Agency</u>	High	High	FEMA HMA; County	Short (DOF)	Medium	SIP	PP
Solid Waste Management Authority												
RC-030 (new) LOI	Purchase and install five (5) Kohler Generac Generators (150 KW, 480V, 3Phase powered by natural gas). Back-up power is needed at each of	Existing	All Hazards	1, 2, 5	<u>Rockland County Solid Waste Management Authority</u>	High	High	FEMA HMA; County	Short (DOF)	High	SIP	PP

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	the Authority’s three (3) transfer stations, at the Authority’s Materials Recovery Facility (MRF), and at the Authority’s Household Hazardous Waste Facility (HHW) in order to maintain materials management operations and fuel dispensing at such times that there may be severe storms or emergencies with loss of power. Maintaining waste management operations without loss of service is critical to the health, safety and well-being of the communities within our Service Unit area.											
RC-031 LOI	Develop a plan to cover the five towns and 19 villages in the County to integrate roles and responsibilities between all jurisdictions and the Rockland County Solid Waste Management Authority	N/A	All Hazards	1, 2, 5, 7	<u>Rockland County Solid Waste Management Authority</u> ; municipalities	High	Medium	County	Short (DOF)	High	LPR	PR
Rockland County Soil and Water Conservation District												

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
RC-032 (new)	Develop Road/Stream Crossing Management Plans for climate-resilient and fish-friendly road/stream crossings in Hudson River Valley through 2018	Existing	Flood, Severe Storm, Severe Winter Storm	1, 2, 4, 6	<u>Rockland County Soil & Water Conservation District</u>	High	High	State	Short (DOF)	High	LPR	PR
RC-033 (new)	The Stormwater Consortium will work with the County to obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Data standardization is needed of outfall locations and attributes based on differing users and use of the data.	Existing	Flood, Severe Storm, Severe Winter Storm	2, 5, 7	Cornell Cooperative Extension <u>Stormwater Consortium of Rockland County</u> – grant administrator and subcontracting to Cornell Cooperative Extension	High	High \$410K	State DEC Water Quality Improvement Program	Short	High	LPR	PR
RC-034 (new)	The Ramapo River, considered a sole source aquifer, provides drinking water to over 81,000 residents of Rockland County and northern New Jersey. The Rockland	N/A	Flood, Severe Storm, Severe Winter Storm	4, 6, 7	<u>Rockland County Soil & Water Conservation District</u>	High	High	State DEC Water Quality Improvement Program	Short (DOF)	High	LPR	PR



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	County Task Force on Water Resources Management, has contracted with Rutgers University to complete a Watershed Assessment and Management Plan for this tri-county resource (Orange, Rockland, Bergen). The plan will include both the Ramapo and Mahwah Rivers watershed area. The final plan will include recommendations on source water protection and improve water qualities of these waterways.											
RC-035 (previous action 4.M)	Continue to identify funding sources and acquire open space in the County to increase flood storage.	N/A	Flood, Severe Storm	1, 2, 4, 6, 7	<u>Rockland County Soil & Water Conservation District</u>	High	High	Local	Short (DOF)	High	NSP	NR
Rockland County Sewer District												
RC-036 LOI	Replace aging on-site emergency generators, fuel tanks and transfer switches at sewage pumping stations. At this time 21 of the 27 locations have been identified.	Existing	All	1, 2, 5	<u>Rockland County Sewer District</u>	High	High \$9.65M	Hurricane Sandy Mitigation Loan Program; Capital Program	In progress	High	SIP	PP
RC-037 New	Identify feasible and cost-effective mitigation measures to protect the following County-owned	Existing	Flood, Severe Storm	1, 2, 5	<u>Rockland County Sewer District</u>	High	High	FEMA; Capital Program	Short (DOF)	High	SIP	PP

Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	pump stations to the 500-year event including purchasing and utilizing portable flood barriers to protect in the short-term: <ul style="list-style-type: none"> • Pascack Pump Station • Fourth Street Pump Station • Mahwah Pump Station • Montebello Pump Station • Pomona Pump Station (on a hill, determine elevation) • Lincoln Street Pump Station 											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*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:

CRS Community Rating System
 FEMA Federal Emergency Management Agency
 GOSR Governor’s Office of Storm Recovery
 HMA Hazard Mitigation Assistance
 N/A Not applicable
 NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program

Timeline:

Short 1 to 5 years
 Long Term 5 years or greater
 OG On-going program
 DOF Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low < \$10,000
 Medium \$10,000 to \$100,000

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



Costs:

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:

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.

Mitigation Category:

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

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities

Table 9.1-9. 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
Fire and Emergency Services																	
RC-001 (previous actions 2F and 3D, revised)	Expand GIS via acquisition of HAZUS-MH to collect and develop more sophisticated mapping and loss estimation. Public awareness program on hazards, prevention and mitigation.	1	1	1	1	1	1	1	0	0	1	1	1	1	1	12	High
RC-002 (previous action 11B)	Review existing emergency response plans for enhancement opportunities	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-003 (previous action)	Fully integrate the results and recommendations of this Plan into the pending update of the County Comprehensive Emergency Management Plan.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-004 (previous action 13A)	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High



Table 9.1-9. 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
	from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.																
RC-005 (new)	Ensure continuity of operations at County buildings and shelters	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High
RC-006 (new)	Rockland County Department of Fire and Emergency Services will explore and document the consideration for medical needs at identified shelters in the County and include as part of the update of the County Emergency Management Plan or the Countywide Sheltering Plan.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-007 (new)	Redundant Backup Public Safety Radio to be developed to provide backup for 911 dispatch and cellular 911 phone calls	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High
RC-008 (new)	Construct a new animal shelter facility	1	0	1	1	1	1	0	0	0	1	1	1	0	0	9	Low

Table 9.1-9. 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
RC-009 (new)	Upgrade radio communications room, equipment; problem - need to upgrade technology; new records management system being implemented in Sheriff Department that the local police use (countywide system)	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-010	Placeholder																
Planning Department																	
RC-011 (previous action 1B enhanced)	Ensure that the local comprehensive plans incorporate hazard areas, changing conditions, and natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-012 (previous action 2.A enhanced)	Upgrade the County – based GIS emergency management application	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-013 (new)	Develop a land use spatial repository to assist with land use planning, monitoring	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High



Table 9.1-9. 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
Highway Department																	
RC-014 (previous action no number; modified)	Upgrade emergency power system at the New City yard.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-015 (previous action)	Relocate/construct a new highway department facility with emergency backup power out of the floodplain.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-016 (new)	Enhance scour protection on County bridges	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	Medium
RC-017 (new)	Identify site(s) to utilize in an emergency to stockpile equipment, snow, and/or debris. Further, develop a stockpile of material/equipment (or access to) for work to respond in a timely fashion.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	11	Medium
RC-018 (new)	Develop a robust communication system or plan to allow interoperability in the County to communicate on the same channel; redundancy is needed; and communicate with municipalities	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	Medium

Table 9.1-9. 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
RC-019 (new)	Pascack Brooke Easement	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-020 LOI	Enhance the current mapping capabilities and purchase hand-held portable devices for use to capture data in the field during emergencies.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-021 (new)	Conduct a countywide culvert study to determine if upgrades are needed for crossings in the County right-of-way.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-022 (new)	Rebuild the Spook Rock Road Spillway	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
RC-023 (new)	Elevate Beach Road (County Road) (approximately 2-3 feet) to provide access to residents to evacuate flooding (Stony Point)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
RC-024 (new)	Armor shoreline to prevent erosion due to wave action in Grassy Point (Town of Haverstraw to intersection with Tompkins Cove)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
RC-025 (new)	Reevaluation and update study – Flood Mitigation in Suffern, NY area (Capital Program) –	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Table 9.1-9. 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
	Squires Gate																
RC-026 (new)	Conduct a Muddy Creek Flood Mitigation Study to explore mitigation actions to reduce/eliminate impacts to development	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-027 (new)	Coordinate with NYS regarding flooding at the Palisades Mall (Route 303 and 59) – County stream – Norishan runs through there	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
RC-028 (new)	Repair six Rockland County storm drainage culverts that were damaged by Hurricane Irene.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
RC-029 (new)	Purchase inflatable tiger dam barrier system to deploy to locations in the County as needed to replace time-consuming and labor-intensive sand bags. Develop a list of critical facilities and prioritize where it will be deployed.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	Medium
Solid Waste Management Authority																	
RC-030 (new)	Purchase and install five (5) Kohler	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High



Table 9.1-9. 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
LOI	Generac Generators Back-up power is needed at each of the Authority's three (3) transfer stations, at the Authority's Materials Recovery Facility (MRF), and at the Authority's Household Hazardous Waste Facility (HHW)																
RC-031 LOI	Develop a plan to cover the five towns and 19 villages in the County to integrate roles and responsibilities between all jurisdictions and the Rockland County Solid Waste Management Authority	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
Rockland County Soil and Water Conservation District																	
RC-032 (new)	Develop Road/Stream Crossing Management Plans for climate-resilient and fish-friendly road/stream crossings in Hudson River Valley through 2018	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
RC-033 (new)	The Stormwater Consortium will work with the County to	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High



Table 9.1-9. 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
	obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Data standardization is needed of outfall locations and attributes based on differing users and use of the data.																
RC-034 (new)	Complete a Watershed Assessment and Management Plan for this tri-county resource (Orange, Rockland, Bergen).	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
RC-035 (previous action 4.M)	Preserve open space in the County.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
Rockland County Sewer District																	
RC-036 LOI	Replace aging on-site emergency generators, fuel tanks and transfer switches at sewage pumping stations. At this time 21 of the 27 locations have been identified.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-037 New	Identify feasible and cost-effective mitigation measures to protect the County-	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High



Table 9.1-9. 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
	owned pump stations to the 500-year event																

Notes:

Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Project descriptions may be abbreviated; refer to Table 9.1-8 and worksheets for full description of projects.

9.1.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.1.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for Rockland County that illustrate the probable areas that may be impacted. These maps are based on the best available data at the time of the preparation of this HMP, 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 Rockland County has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this HMP.

9.1.9 Additional Comments

None at this time.

Action Number:

RC-001

Mitigation Action Name:

Enhance education and outreach

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Additional data collection and outreach is needed to inform residents on hazards, risk, mitigation
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards
Action/Project Intended for Implementation	
Description of Selected Action/Project	Expand GIS via acquisition of HAZUS-MH to collect and develop more sophisticated mapping and loss estimation to include future changing conditions. Ensure information will be available to the public and to relevant communities and agencies. Continue to make available climate change resources on the hazard mitigation project website; resources currently located at: http://rocklandhmp.com/Pages/links.aspx Public awareness program on hazards, prevention and mitigation; assist CPG Chairperson in maintenance of mitigation planning web presence; assist CPG Chairperson in preparation of annual hazards and mitigation planning fact sheet and its distribution; assist CPG chairperson in preparation of hazards survey; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/TV announcements, etc. at the discretion of the jurisdiction (incorporating as much free information as possible from the FEMA publications warehouse and other appropriate sources).
Mitigation Action Type	EAP
Goals Met	1, 2, 3, 5, 6, 7
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Hazard Mitigation, GIS, Planning, Emergency Services
Potential Funding Sources	FEMA HMGP; County/local budgets

Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: RC-001
Mitigation Action Name: Enhance education and outreach

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-002

Mitigation Action Name:

Review and update emergency response plans

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Emergency response plans need to be updated and enhanced to include monitoring and warning systems focused on vulnerable populations and provision to adequate shelters
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Update emergency response plans without enhanced opportunities – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.
Mitigation Action Type	LPR
Goals Met	1, 2, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Emergency management
Potential Funding Sources	County budget
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number:

RC-002

Mitigation Action Name:

Review and update emergency response plans

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-003

Mitigation Action Name:

Fully integrate the results and recommendations of this HMP into the pending update of the County Comprehensive Emergency Management Plan.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The current County Comprehensive Emergency Management Plan does not include the updated results and recommendations of the 2018 HMP update.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Update County Comprehensive Emergency Management Plan without incorporating HMP – Comprehensive Plan won't include up to date information on hazard mitigation
Action/Project Intended for Implementation	
Description of Selected Action/Project	Fully integrate the results and recommendations of this HMP into the pending update of the County Comprehensive Emergency Management Plan.
Mitigation Action Type	LPR
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Emergency Management
Potential Funding Sources	County budget
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: RC-003

Mitigation Action Name: Fully integrate the results and recommendations of this HMP into the pending update of the County Comprehensive Emergency Management Plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-004

Mitigation Action Name:

Enhance critical facility inventory

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	If critical facilities were built before a certain date, they could be more susceptible to damage from a hazard event.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Protect to 100-year event – does not meet standards
Action/Project Intended for Implementation	
Description of Selected Action/Project	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available; if located in the floodplain protect to the 500-year event.
Mitigation Action Type	LPR
Goals Met	1, 2, 5, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Department of General Services with support from RCOFES, Facilities Management and Capital Projects Division, Planning Department (GIS) and municipalities
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County budget
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: RC-004
Mitigation Action Name: Enhance critical facility inventory

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-005

Mitigation Action Name:

Ensure continuity of operations at County buildings and shelters

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Backup power is not available at County buildings and shelters to allow for continued operations pre, during and post-emergency situations.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Install solar panels – costly and weather dependent
Action/Project Intended for Implementation	
Description of Selected Action/Project	Ensure continuity of operations at County buildings and shelters: <ul style="list-style-type: none"> Rockland Community College – final stage to secure contractor (GOSR funding \$1.3M) County Office Building (Capital Program) Highway Building (Capital Program)
Mitigation Action Type	SIP
Goals Met	1, 2, 5, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Emergency management, hazard mitigation
Potential Funding Sources	GOSR, County capital program; FEMA HMA
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number:

RC-005

Mitigation Action Name:

Ensure continuity of operations at County buildings and shelters

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-006

Mitigation Action Name:

Explore and document the consideration of medical needs at identified shelters

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	There are no medical provisions documented for shelters in the County.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Send sheltered residents for medical care to local hospitals/urgent-care facilities – not preferred post-disaster as may have life-safety impacts due to delay of care
Action/Project Intended for Implementation	
Description of Selected Action/Project	Rockland County Department of Fire and Emergency Services will explore and document the consideration for medical needs at identified shelters in the County and include as part of the update of the County Emergency Management Plan or the Countywide Sheltering Plan.
Mitigation Action Type	LPR
Goals Met	1, 2, 3
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County/local budgets
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: RC-006
Mitigation Action Name: Explore and document the consideration of medical needs at identified shelters

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding may be
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-007

Mitigation Action Name:

Redundant Backup Public Safety Radio to be developed to provide backup for 911 dispatch and cellular 911 phone calls

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	There is no redundancy for public safety radio (911 dispatch and cell 911 calls)
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Establish back up online communication – failure of phone will likely be concurrent with internet failure
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a redundant backup Public Safety Radio to provide backup for 911 dispatch and cellular 911 phone calls
Mitigation Action Type	SIP
Goals Met	1, 5
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High (\$7.5 Million)
Priority*	High
Plan for Implementation	
Responsible Organization	RCOFES
Local Planning Mechanism	Emergency management
Potential Funding Sources	Capital program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/2017 Progress on Action/Project: Identified in capital program budget

Action Number:

RC-007

Mitigation Action Name:

Develop a redundant backup Public Safety Radio to provide backup for 911 dispatch and cellular 911 phone calls

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number: RC-008
Mitigation Action Name: Construct a new animal shelter facility

Assessing the Risk	
Hazard(s) addressed:	All Hazard
Specific problem being mitigated:	The current County animal shelter facility is in very poor shape/condition. A new facility is needed.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Rely on neighboring county's animal shelter facilities – may be at capacity, require residents with pets to travel farther in potentially dangerous conditions
Action/Project Intended for Implementation	
Description of Selected Action/Project	Construct a new animal shelter facility
Mitigation Action Type	SIP
Goals Met	1, 5
Applies to existing and or new development, or not applicable	New
Benefits (losses avoided)	High
Estimated Cost	High (\$500,000)
Priority*	Low
Plan for Implementation	
Responsible Organization	General Services
Local Planning Mechanism	Capital program, hazard mitigation
Potential Funding Sources	Capital program
Timeline for Completion	Long (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New Action

Action Number: RC-008
Mitigation Action Name: Construct a new animal shelter facility

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Low	

Action Number:

RC-009

Mitigation Action Name:

Upgrade radio communications room and equipment

Assessing the Risk	
Hazard(s) addressed:	All hazardsd
Specific problem being mitigated:	Need to upgrade technology and need to be utilizing a new record management system countywide (local police and Sheriff Department)
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Upgrade radio technology and new records management system without access for local police – not preferred action
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade radio communications room, equipment; and deploy new records management system being implemented in Sheriff Department that the local police can use (countywide system)
Mitigation Action Type	SIP
Goals Met	1, 5
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	General Services
Local Planning Mechanism	Emergency management
Potential Funding Sources	Capital program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New Action

Action Number: RC-009

Mitigation Action Name: Upgrade radio communications room and equipment

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:	RC-011 (previous action 1B enhanced)
Mitigation Action Name:	Ensure that the local comprehensive plans incorporate hazard areas, changing conditions, and natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Local comprehensive plans do not integrate updated hazard risk, including future changing conditions, as identified in the updated 2018 HMP that has a robust risk assessment
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Encourage towns to have plans reviewed by local colleges and universities – may not be capable/willing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Ensure that the local comprehensive plans incorporate hazard areas, changing conditions, and natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department.
Mitigation Action Type	LPR
Goals Met	1, 2, 3, 4, 6, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	In-progress
Plan for Implementation	
Responsible Organization	County Planning with support from RCOFES and all municipalities
Local Planning Mechanism	Planning
Potential Funding Sources	County and local budgets
Timeline for Completion	In-progress
Reporting on Progress	
Date of Status Report/ Report of Progress	6/2017 In progress working with municipalities as they update their local comprehensive plans

Action Number:

RC-011

Mitigation Action Name:

Ensure that the local comprehensive plans incorporate hazard areas, changing conditions, and natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-012

Mitigation Action Name:

Enhance GIS services in the County

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Additional data and applications need to be developed to properly capture, store and disseminate data to emergency managers/responders, planners and municipalities to assist in emergency and planning scenarios.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Municipalities establish their own GIS departments No action – problem will continue
Action/Project Intended for Implementation	
Description of Selected Action/Project	Enhance GIS services in the County. Identified at this time include the following: Upgrade the County –based GIS emergency management application, targeted to local and County users, to support emergency management planning and response activities, which includes the input of such things as road closures and obstructions. Develop a mobile application for emergency service/responders regarding road closures/impediments; this will serve as a means to store historic information and to prioritize and strategy improvements and needs.
Mitigation Action Type	LPR
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Short (DOF)
Plan for Implementation	
Responsible Organization	Planning Department with support from RCOFES
Local Planning Mechanism	Emergency management, GIS, Planning
Potential Funding Sources	County budget
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-012
Mitigation Action Name: Enhance GIS services in the County

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-013

Mitigation Action Name:

Develop a land use spatial repository to assist with land use planning, monitoring, etc.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	A central database solution with geospatial capabilities is needed to store land use data (plan, permit, etc) to effectively and efficiently utilize the data for planning, permitting, monitoring and to assist with land use decision making
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem remains Request assistance from local colleges and universities in developing repository– may not be feasible, willing, or sustainable
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Land Use Review and Permitting Committee, consisting of departments involved in the land planning review and/or permitting process, are looking to deploy a GIS-centric software solution, providing a central database solution. Those departments involved in land use reviews, permits, inspections and/or complaints would be provided access to the central repository for more efficient access to information and monitoring of land use activity.
Mitigation Action Type	LPR
Goals Met	1, 2, 6
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Code Enforcement Task Force
Local Planning Mechanism	Planning
Potential Funding Sources	County
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress at this time

Action Number: RC-013
Mitigation Action Name: Develop a land use spatial repository to assist with land use planning, monitoring, etc.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-014

Mitigation Action Name:

Upgrade emergency power at the New City yard

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	New City yard still needs to be updated; currently built a substation on Hunt Road yard (built 2016) that does not have emergency power.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No progress – problem remains Use solar panels for emergency power – costly, weather dependent
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade emergency power system at the New City yard. This project will service the Highway Department and County Complex as well.
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department
Local Planning Mechanism	Emergency management, engineering, highway
Potential Funding Sources	FFEMA HMA; County capital
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-014
Mitigation Action Name: Upgrade emergency power at New City yard

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-015

Mitigation Action Name:

Relocate/construct a new highway department facility with emergency backup power out of the floodplain.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The highway department facility is located in the floodplain with no power redundancy.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Elevate structures – not best solution because cannot elevate equipment as well No action – problem remains
Action/Project Intended for Implementation	
Description of Selected Action/Project	Relocate/construct a new highway department facility with emergency backup power out of the floodplain.
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	High (estimated \$30 Million)
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department
Local Planning Mechanism	Highway, Engineering
Potential Funding Sources	County, FEMA HMA
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-015
Mitigation Action Name: Relocate/construct a new highway department facility with emergency backup power out of the floodplain.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-016

Mitigation Action Name:

Enhance scour protection on County bridges

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Not every bridge is built to current scour protection standards (standard changed 2006/2007 timeframe); require to drive the piles and expensive upgrade
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Only implement scour protection standards during bridge replacements – not preferred solution
Action/Project Intended for Implementation	
Description of Selected Action/Project	Enhance scour protection on County bridges
Mitigation Action Type	SIP
Goals Met	1, 2
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Highway Department with support from NYS DOT Transportation Improvement Program
Local Planning Mechanism	Engineering
Potential Funding Sources	NYS DOT Transportation Improvement Program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-016
Mitigation Action Name: Enhance scour protection on County bridges

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	Medium	

Action Number:

RC-017

Mitigation Action Name:

Identify site(s) to utilize in an emergency to stockpile equipment, snow, and/or debris. Further, develop a stockpile of material/equipment (or access to) for work to respond in a timely fashion.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	There is a need to stockpile emergency equipment in the County to ensure faster emergency response and recovery times. The County is largely developed and sites need to be identified for this purpose.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Establish temporary stockpile locations with each hazard event – hard to secure space, may not be feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify site(s) to utilize in an emergency to stockpile equipment, snow, and/or debris. Further, develop a stockpile of material/equipment (or access to) for work to respond in a timely fashion.
Mitigation Action Type	LPR
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Highway Department, partner with municipalities
Local Planning Mechanism	Planning, Engineering
Potential Funding Sources	County and local budgets
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-017
Mitigation Action Name: Identify site(s) to utilize in an emergency to stockpile equipment, snow, and/or debris. Further, develop a stockpile of material/equipment (or access to) for work to respond in a timely fashion.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	Sites need to be identified to implement; may require acquisition of property
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (H/M/L)	Medium	

Action Number:	RC-018
Mitigation Action Name:	Develop a robust communication system or plan to allow interoperability in the County to communicate on the same channel; redundancy is needed; and communicate with municipalities

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Several communication systems in the county and same channel communication and interoperability is needed; no redundancy;
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Develop a secondary communications system only for County level communications – not efficient
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a robust communication system or plan to allow interoperability in the County to communicate on the same channel; redundancy is needed; and ability to communicate with municipalities
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Highway Department
Local Planning Mechanism	Planning, Engineering, Emergency Management
Potential Funding Sources	County and local
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number:

RC-018

Mitigation Action Name:

Develop a robust communication system or plan to allow interoperability in the County to communicate on the same channel; redundancy is needed; and communicate with municipalities

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	Medium	

Action Number:

RC-019

Mitigation Action Name:

Pascack Brooke Easement – Stabilize banks and implement erosion control to reduce flooding including concrete structures and plantings.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Pascack Brooke Easement - The bank erosion now threatens at a minimum one home and potentially others.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Elevate/flood-proof flood vulnerable properties that are threatened No action – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Pascack Brooke Easement – Stabilize banks and implement erosion control to reduce flooding including concrete structures and plantings.
Mitigation Action Type	SIP
Goals Met	1, 2, 6
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	High/Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County Drainage Agency
Local Planning Mechanism	Engineering
Potential Funding Sources	FEMA HMA; State; Local
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number:

RC-019

Mitigation Action Name:

Pascack Brooke Easement – Stabilize banks and implement erosion control to reduce flooding including concrete structures and plantings.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-020

Mitigation Action Name:

Enhance the current mapping capabilities and purchase hand-held portable devices for use to capture data in the field during emergencies.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	No ability to capture electronic geospatial data in the field real-time to assist with emergencies and risk-informed decision making
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Capture data with pen/paper – inefficient and no geolocation No action – problem remains
Action/Project Intended for Implementation	
Description of Selected Action/Project	Enhance the current mapping capabilities and purchase hand-held portable devices for use to capture data in the field during emergencies.
Mitigation Action Type	LPR
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department; support from Planning (GIS)
Local Planning Mechanism	Planning, GIS
Potential Funding Sources	County
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	County has ESRI licensing; no progress to date on this specific action

Action Number:

RC-020

Mitigation Action Name:

Enhance the current mapping capabilities and purchase hand-held portable devices for use to capture data in the field during emergencies

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	0	No impact on environment
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-021

Mitigation Action Name:

Conduct a countywide culvert study to determine if upgrades are needed for crossings in the County right-of-way.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Current data is not available for which culverts in County right-of-ways need to be upgraded/upsized
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Conduct repairs as needed and arise – does not mitigate flooding No action – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a countywide culvert study to determine if upgrades are needed for crossings in the County right-of-way.
Mitigation Action Type	LPR
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High (\$300,000)
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department
Local Planning Mechanism	Engineering
Potential Funding Sources	Capital program
Timeline for Completion	On-going
Reporting on Progress	
Date of Status Report/ Report of Progress	Study in progress

Action Number:

RC-021

Mitigation Action Name:

Conduct a countywide culvert study to determine if upgrades are needed for crossings in the County right-of-way.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-022

Mitigation Action Name:

Rebuild the Spook Rock Road Spillway

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Problem – 1) Spillway is undersized to handle storm events (3-sided weir discharges to a box under the road); length of the spillway cannot accommodate the flow 2) pond is silted in so storage capacity is low; 3) retaining wall is now classified as a dam by NYS – so the road is on top of the dam (Capital Program project 2017-2022)
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Build new Dam upstream of current Spook Rock Road Spillway – not preferred solution
Action/Project Intended for Implementation	
Description of Selected Action/Project	Rebuild the Spook Rock Road Spillway
Mitigation Action Type	SIP
Goals Met	1, 2, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High (\$2.25 Million)
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department
Local Planning Mechanism	Engineering
Potential Funding Sources	Capital program
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Design in progress

Action Number: RC-022
Mitigation Action Name: Rebuild the Spook Rock Road Spillway

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-023

Mitigation Action Name:

Elevate Beach Road (County Road) (approximately 2-3 feet) to provide access to residents to evacuate flooding (Stony Point)

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Beach Road, a County road, floods with no evacuation route for residents in Stony Point
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Acquire/elevate homes vulnerable to flooding – requires property owner consent but roadway still floods No action – problem remains
Action/Project Intended for Implementation	
Description of Selected Action/Project	Elevate Beach Road (County Road) (approximately 2-3 feet) to provide access to residents to evacuate flooding (Stony Point)
Mitigation Action Type	SIP
Goals Met	1, 2, 3, 5, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	County Highway Department partnering with Stony Point
Local Planning Mechanism	Engineering, Planning
Potential Funding Sources	NY Rising program (CDBG-DR)
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number:

RC-023

Mitigation Action Name:

Elevate Beach Road (County Road) (approximately 2-3 feet) to provide access to residents to evacuate flooding (Stony Point)

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-024

Mitigation Action Name:

Armor shoreline to prevent erosion due to wave action in Grassy Point (Town of Haverstraw to intersection with Tompkins Cove)

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Shoreline in the Town of Haverstraw intersection in Town of Stony Point to Tompkins Cove (hamlet in Stony Point) is eroding due to wave action
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Install living shoreline – wave action likely to make living shoreline unsuccessful.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Armor shoreline to prevent erosion due to wave action in Grassy Point (Town of Haverstraw to intersection with Tompkins Cove)
Mitigation Action Type	NSP
Goals Met	4, 6
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	County Planning Department, Stony Point
Local Planning Mechanism	Engineering
Potential Funding Sources	NY Rising
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	NY Rising planning has identified this project; no progress on implementation known

Action Number: RC-024

Mitigation Action Name: Armor shoreline to prevent erosion due to wave action in Grassy Point

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-025

Mitigation Action Name:

Conduct a study to determine feasible mitigation measures to address flooding in Suffern Squires Gate neighborhood

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Mahwah River floods the Squires Gate neighborhood in Suffern
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Acquire homes in Squires Gate – need consent of property owners; expensive; loss of tax revenue No action – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a study to determine feasible mitigation measures to address flooding in Suffern Squires Gate neighborhood
Mitigation Action Type	LPR
Goals Met	1, 2, 3, 4, 6, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High (\$400,000)
Priority*	High
Plan for Implementation	
Responsible Organization	Drainage Agency, partnering with Suffern
Local Planning Mechanism	Engineering, Mitigation
Potential Funding Sources	Capital program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Selection of firms to conduct study underway

Action Number: RC-025
Mitigation Action Name: Conduct a study to determine feasible mitigation measures to address flooding in Suffern Squires Gate neighborhood

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-026

Mitigation Action Name:

Conduct a Muddy Creek Flood Mitigation Study to explore mitigation actions to reduce/eliminate impacts to existing development

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Flooding along Muddy Creek is impacting existing development
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Elevate development – expensive; need consent of owners No action – problem remains
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a Muddy Creek Flood Mitigation Study to explore mitigation actions to reduce/eliminate impacts to existing development
Mitigation Action Type	LPR
Goals Met	1, 2, 3, 4, 6, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High (\$100,000)
Priority*	High
Plan for Implementation	
Responsible Organization	Drainage Agency, partner with local
Local Planning Mechanism	Engineering
Potential Funding Sources	Capital program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Study in progress

Action Number: RC-026

Mitigation Action Name: Conduct a Muddy Creek Flood Mitigation Study to explore mitigation actions to reduce/eliminate impacts to existing development

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-027

Mitigation Action Name:

Coordinate with NYS to identify mitigation measures to reduce impacts from flooding at the Palisades Mall (Route 303 and 59)

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Flooding occurs on Route 303 and 59 (Palisades Mall) – County stream causing flooding
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Elevate roads – expensive, will not address impacts to development Do nothing – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Coordinate with NYS to identify mitigation measures to reduce impacts from flooding at the Palisades Mall (Route 303 and 59)
Mitigation Action Type	SIP
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Drainage Agency; partner with NYS DOT and Clarkstown
Local Planning Mechanism	Engineering
Potential Funding Sources	FEMA HMA; NYS DOT
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to report at this time

Action Number:

RC-027

Mitigation Action Name:

Coordinate with NYS to identify mitigation measures to reduce impacts from flooding at the Palisades Mall (Route 303 and 59)

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-028

Mitigation Action Name:

Repair and potentially upsize County storm drainage culverts damaged by Hurricane Irene

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Hurricane Irene damaged County storm drainage culverts
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – problem continues Replace any damaged culverts with same size culverts – may not be sufficient
Action/Project Intended for Implementation	
Description of Selected Action/Project	Repair and consider upsizing six Rockland County storm drainage culverts that were damaged by Hurricane Irene. The proposed work locations are as follows: <ul style="list-style-type: none"> • CR 106, Route 210, just west of Central Highway in the Town of Stony Point • CR 23, Sickletown Road, just south of the Palisades Interstate Parkway bridge in the Town of Orangetown • CR 23, Strawtown Road, just south of Germonds Road in the Town of Clarkstown • CR 108, Old Route 210, just west of Wayne Avenue in the Town of Stony Point • CR 23, Sickletown Road, just north of Fifth Avenue in the Town of Orangetown • CR 15, Western Highway, just north of Convent Road in the Town of Orangetown
Mitigation Action Type	SIP
Goals Met	1, 2
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department and Drainage Agency, NYS DOT, Federal Highway Administration
Local Planning Mechanism	Engineering
Potential Funding Sources	FEMA HMGP
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	In progress

Action Number: RC-028
Mitigation Action Name: Repair and potentially upsize County storm drainage culverts damaged by Hurricane Irene

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-029

Mitigation Action Name:

Purchase inflatable tiger dam barrier system to deploy to locations in the County as needed to replace time-consuming and labor-intensive sand bags.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The County currently sandbags in locations where there is no flood protection as a temporary mitigation measure. With changing climate conditions, areas may flood in the future that we are not currently aware of.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Install levees and permanent flood barriers in areas prone to flooding – costly, may not be needed often enough to justify costs
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase inflatable tiger dam barrier system to deploy to locations in the County as needed to replace time-consuming and labor-intensive sand bags.
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Drainage Agency
Local Planning Mechanism	Engineering, Emergency Response
Potential Funding Sources	FEMA HMA, County Capital Program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number:

RC-029

Mitigation Action Name:

Purchase inflatable tiger dam barrier system to deploy to locations in the County as needed to replace time-consuming and labor-intensive sand bags.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-30

Mitigation Action Name:

Purchase and install backup power generators at three transfer stations and other Solid Waste Management Authority locations

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	There is no backup power at the Solid Waste Management Authority's three transfer stations and other facilities. Maintaining waste management operations without loss of service is critical to the health, safety and well-being of the communities within our Service Unit area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Install solar panels – costly and weather dependent
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install five (5) Kohler Generac Generators (150 KW, 480V, 3Phase powered by natural gas). Back-up power is needed at each of the Authority's three (3) transfer stations, at the Authority's Materials Recovery Facility (MRF), and at the Authority's Household Hazardous Waste Facility (HHW) in order to maintain materials management operations and fuel dispensing at such times that there may be severe storms or emergencies with loss of power. Maintaining waste management operations without loss of service is critical to the health, safety and well-being of the communities within our Service Unit area.
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Solid Waste Management Authority
Local Planning Mechanism	Engineering
Potential Funding Sources	FEMA HMA; County
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Specific size and type of generators identified

Action Number:

RC-30

Mitigation Action Name:

Purchase and install backup power generators at three transfer stations and other Solid Waste Management Authority locations

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-31

Mitigation Action Name:

Develop a plan to cover the five towns and 19 villages in the County to integrate roles and responsibilities between all jurisdictions and the Rockland County Solid Waste Management Authority

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	There is no plan that coordinates the roles and responsibilities of the County, Towns, Villages and the Solid Waste Management Authority
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Develop several regional plans within the County – not as efficient
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a plan to cover the five towns and 19 villages in the County to integrate roles and responsibilities between all jurisdictions and the Rockland County Solid Waste Management Authority
Mitigation Action Type	LPR
Goals Met	1, 2, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Solid Waste Management Authority, partner with County and municipalities
Local Planning Mechanism	Planning
Potential Funding Sources	County
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number:

RC-31

Mitigation Action Name:

Develop a plan to cover the five towns and 19 villages in the County to integrate roles and responsibilities between all jurisdictions and the Rockland County Solid Waste Management Authority

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding needed to implement
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-32

Mitigation Action Name:

Develop Road/Stream Crossing Management Plans for climate-resilient and fish-friendly road/stream crossings in Hudson River Valley through 2018

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Flooding occurring at road-stream crossings and culverts need replacement.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Develop climate resilient plans without incorporating fish-friendly themes – less environmentally friendly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop Road/Stream Crossing Management Plans for climate-resilient and fish-friendly road/stream crossings in Hudson River Valley through 2018
Mitigation Action Type	LPR
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Soil and Water Conservation District
Local Planning Mechanism	Planning, Engineering
Potential Funding Sources	State
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Study funded and in progress

Action Number:

RC-032

Mitigation Action Name:

Develop Road/Stream Crossing Management Plans for climate-resilient and fish-friendly road/stream crossings in Hudson River Valley through 2018

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Funding identified
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-33

Mitigation Action Name:

The Stormwater Consortium will work with the County to obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Data standardization is needed of outfall locations and attributes based on differing users and use of the data.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	No digitized and geospatial central inventory of outfall locations and attributes in the County
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Request assistance from local colleges and universities in obtaining and developing data and mapping – may not be feasible, capable, or willing
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Stormwater Consortium will work with the County to obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Data standardization is needed of outfall locations and attributes based on differing users and use of the data.
Mitigation Action Type	LPR
Goals Met	2, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High (\$410,000)
Priority*	High
Plan for Implementation	
Responsible Organization	Stormwater Consortium of Rockland County in partnership with Cornell Cooperative Extension and County Soil and Water Conservation District
Local Planning Mechanism	Planning, GIS
Potential Funding Sources	State DEC Water Quality Improvement Program
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Funding secured

Action Number:

RC-33

Mitigation Action Name:

The Stormwater Consortium will work with the County to obtain data and mapping from MS4 program from Villages and Town integrate into the County GIS map portal. Data standardization is needed of outfall locations and attributes based on differing users and use of the data.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Funding identified
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number:

RC-34

Mitigation Action Name:

Develop a Watershed Assessment and Management Plan

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	The Ramapo River, considered a sole source aquifer, provides drinking water to over 81,000 residents of Rockland County and northern New Jersey. Water protection and water quality improvement is needed.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Develop watershed plans for different segments of the River – lack of continuity, no regional solutions
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Ramapo River, considered a sole source aquifer, provides drinking water to over 81,000 residents of Rockland County and northern New Jersey. The Rockland County Task Force on Water Resources Management, has contracted with Rutgers University to complete a Watershed Assessment and Management Plan for this tri-county resource (Orange, Rockland, Bergen). The plan will include both the Ramapo and Mahwah Rivers watershed area. The final plan will include recommendations on source water protection and improve water qualities of these waterways.
Mitigation Action Type	LPR
Goals Met	4, 6, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Soil and Water Conservation District
Local Planning Mechanism	Planning
Potential Funding Sources	State DEC Water Quality Improvement Program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number: RC-34
Mitigation Action Name: Develop a Watershed Assessment and Management Plan

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Funding identified
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (H/M/L)	High	

Action Number: RC-35
Mitigation Action Name: Continue to purchase open space to increase flood storage

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The County is at high risk to flooding. Preserving open space is still a priority for the County. However, County funding is not available to purchase open space.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem continues Allow development that allows for flood storage – not preferred solution
Action/Project Intended for Implementation	
Description of Selected Action/Project	Continue to identify funding sources and acquire space in the County to increase flood storage. Open space purchases have been obtained in the past through donations (e.g., properties in the floodplain that cannot be developed) and tax-delinquent properties where the County takes the lien.
Mitigation Action Type	NSP
Goals Met	1, 2, 4, 6, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Soil and Water Conservation District
Local Planning Mechanism	Planning, Mitigation
Potential Funding Sources	County
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Continuous program in which the County is always looking for opportunities to acquire open space

Action Number: RC-35

Mitigation Action Name: Continue to purchase open space to increase flood storage

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement action
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (H/M/L)	High	

Action Number:

RC-36

Mitigation Action Name:

Replace aging on-site emergency generators, fuel tanks and transfer switches at sewage pumping stations. At this time 21 of the 27 locations have been identified.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	There are aging generators at the sewage pump stations.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – existing generators will fail in time of emergency Replace generators with solar panels – costly and weather dependent
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace aging on-site emergency generators, fuel tanks and transfer switches at sewage pumping stations. At this time 21 of the 27 locations have been identified.
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High (\$9.65 Million)
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Sewer District
Local Planning Mechanism	Emergency Management
Potential Funding Sources	Hurricane Sandy Mitigation Loan Program, Capital Program
Timeline for Completion	Short – in progress
Reporting on Progress	
Date of Status Report/ Report of Progress	Funding identified and project in progress

Action Number: RC-36

Mitigation Action Name: Replace aging on-site emergency generators, fuel tanks and transfer switches at sewage pumping stations. At this time 21 of the 27 locations have been identified.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement action
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	

Action Number:

RC-37

Mitigation Action Name:

Identify feasible and cost-effective mitigation measures to protect the following County-owned pump stations to the 500-year event

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe storm
Specific problem being mitigated:	County-owned pump stations are located in the 500-year floodplain
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – flooding will cause future impacts to these critical facilities Relocate pump stations outside of 500-year floodplain – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify feasible and cost-effective mitigation measures to protect the following County-owned pump stations to the 500-year event including purchase of portable flood barriers to protect in the short-term. <ul style="list-style-type: none"> • Pump Station • Fourth Street Pump Station • Mahwah Pump Station • Montebello Pump Station • Pomona Pump Station (on a hill, determine elevation) • Lincoln Street Pump Station
Mitigation Action Type	SIP
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Rockland County Sewer District
Local Planning Mechanism	Emergency Management, Engineering
Potential Funding Sources	FEMA, Capital program
Timeline for Completion	Short (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress to date

Action Number:

RC-37

Mitigation Action Name:

Identify feasible and cost-effective mitigation measures to protect the following County-owned pump stations to the 500-year event

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Funding is needed to implement action
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (H/M/L)	High	