



9.2 TOWN OF BOONTON

This section presents the jurisdictional annex for the Town of Boonton. The annex includes a general overview of the Town of Boonton; an assessment of the Town of Boonton's risk, vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.2.1 Hazard Mitigation Planning Team

The following individuals are the Town of Boonton's identified HMP update primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.2-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Peter D. Herbert, OEM Address: 100 Washington Street, Boonton, NJ 07005 Phone Number: 973-722-6392 Email: pherbert@boonton.org	Name / Title: Scott Bednar, Deputy OEM Address: 100 Washington Street, Boonton, NJ 07005 Phone Number: 973-610-6731 Email: sbednar@boonton.org
NFIP Floodplain Administrator	
Name / Title: Mr. David Battaglia, PE (Contracted Engineers: Suburban Consulting) Address: 96 US 206 Suite 101, Flanders, NJ 07836 Phone Number: 973.398.1776 Email: dbattaglia@suburbanconsulting.com	

9.2.2 Jurisdiction Profile

The Town of Boonton is located in northeastern Morris County and has a land area of 2.45 square miles. The Town is located approximately 22 miles west of the George Washington Bridge and seven miles north of Morristown. The Town is bordered to the north by the Township of Boonton, to the east by the Township of Montville, to the south by the Township of Parsippany-Troy Hills, and to the west by the Borough of Mountain Lakes. The Rockaway River and the Boonton Reservoir are the major water bodies in the Town.

According to the U.S. Census, the 2010 population for the Town of Boonton was 8,347. The estimated 2017 population was 8,390, a 0.5 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 8.2 percent of the population is 5 years of age or younger and 12.9 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.2.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.2-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.2-1 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development.



Table 9.2-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family		1			2
Multi-Family				1	1
Other (commercial, mixed-use, etc.)					
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Avalon Bay Development – complex with 350 + Units Division Street					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Canter Property	Residential		662 Myrtle Ave	No hazards identified to date	In Progress
Fanny Road Property	Residential	15 Homes	Fanny and West. Main Street	No hazards identified to date	No Progress

* Only location-specific hazard zones or vulnerabilities identified.

9.2.4 Capability Assessment

The Town of Boonton performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Information on National Flood Insurance Program (NFIP) compliance.
- Classification under various community mitigation programs.
- The community's adaptive capacity for the impacts of climate change.

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, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. Areas with current mitigation integration are summarized below. The Town of Boonton identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of Boonton and where hazard mitigation has been integrated.



Table 9.2-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	Yes	-
Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14 Adopted 9/3/2019. Administered by the Construction Department.					
Zoning Code	Yes	Local	Yes	Yes	-
Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Yes, Chapter 300 Zoning and Land Use with new ordinances adopted in 2016, 2017, and 2019 as amendments. Administered by the Planning Board.					
Subdivisions	Yes	Local	Yes	No	-
Comment: Chapter 300, Part 3 Subdivision and Site Plan Review. Administered by the Planning Board.					
Stormwater Management	Yes	Local	Yes	No	-
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter 249 of the municipal code. Administered by the Planning Board. Chapter 93 Municipal Separate Storm Sewer System Chapter 229 Sewers and Water. Administered by the Township Committee.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	No	-	Yes	-	-
Comment: State mandated at local level; Identified in Master Plan.					
Site Plan Review	Yes	Local	No	No	-
Comment: Chapter 300 Part 3 of the municipal code. Administered by the Planning Board.					
Environmental Protection	Yes	Local	Yes	No	-
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Steep Slope Ordinance. Chapter 125 of the municipal code.					
Flood Damage Prevention	Yes	Local	Yes	No	-
Comment: Chapter 140 of the municipal code. Adopted in 1990 with amendments. Administered by the Construction Department with contract engineering support. The ordinance lacks freeboard.					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	Yes	Local	No	No	-
Comment: Chapter 27 Article III Police Department, Article IV Fire Department.					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
Comment: adopted 12/14/1995; updated 1/8/2009; updated and adopted by the Planning Board on January 10, 2019. During the next update of the master plan, the Township will review the current HMP to see where it can be integrated as appropriate. Master Plan. 1998; 2008 Re-examination. New Master Plan adopted July 31, 2018. Administered by the Planning Board. The plan has elements for land use, circulations, economics, open space/recreation, historic preservation, and community facilities. The open space element includes a goal to "Preserve open space to protect critical environmental resources, such as wetlands, floodplains, ridge lines, steep slopes, and stream and river corridors that promote the conservation of ecological habitat." The community facilities element includes a goal to "Ensure high quality and responsive public works, safety, security and emergency response services." The plan includes a section on storm resiliency, smart growth, and environmental sustainability. The section discusses past impacts from storms and flood events and discusses the 2015 Hazard Mitigation Plan. The open space element notes the importance of natural floodplains and the role open space has on reducing flooding losses. The element also identifies potential properties for acquisition and notes which properties are located in the floodplain. Throughout the plan, potential mitigation projects (mainly stormwater) are noted (including an action plans for the community facilities element) and completed mitigation projects are noted.					
Capital Improvement Plan	Yes	Local	Allowed	Yes	-
Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. The Town has a three year plan administered by the Planning Board.					
Disaster Debris Management Plan	Yes	Local	No		
Comment:					
Floodplain or Watershed Plan	Yes	County	No		-
Comment: Morris County Flood Acquisition Plan, administered locally by OEM working with all departments.					
Stormwater Management Plan	Yes	Local and State	Yes	No	-
Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). Town's MS4 Plan is from 2005 and is administered by contract engineering.					
Stormwater Pollution Prevention Plan	Yes	Local DPW	Yes	Yes/No	Yes/No
Comment: reviewed by contracted engineers					
Urban Water Management Plan	No		No		
Comment:					
Habitat Conservation Plan	No		No		
Comment:					
Economic Development Plan	No	Local	No		
Comment: Town is currently in process of formalizing Economic Development plan with a local committee.					
Shoreline Management Plan	No		No		
Comment:					
Community Wildfire Protection Plan	No		No		
Comment:					
Community Forest Management Plan	No		No		



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Transportation Plan	No	-	No	-	-
Comment:					
Agriculture Plan	No		No		
Comment:					
Climate Action Plan	No		No		
Comment:					
Tourism Plan	No		No		
Comment:					
Business Development Plan	No		No		
Comment:					
Other					
Comment:					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. 2012 Emergency Operations Plan, administered by the Town of Boonton OEM.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No		No		
Comment:					
Post-Disaster Recovery Plan	No	-	No	No	No
Comment:					
Continuity of Operations Plan	No				
Comment:					
Public Health Plan	No		No		
Comment:					
Other					

Table 9.2-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes Construction Department along with Local hired engineer
Does your jurisdiction have the ability to track permits by hazard area?	No



Criterion	Response
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No Jurisdiction nearing complete buildout.

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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

Table 9.2-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning/Zoning Board
Mitigation Planning Committee	Yes (ad hoc)	Mayor and various department representatives provide input to HMP updates.
Environmental Board / Commission	Yes	Planning Board
Open Space Board / Committee	Yes	Planning Board
Economic Development Commission / Committee	No	
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Local Police
Maintenance program to reduce risk	Yes	Capital Plan; DPW; OEM
Mutual aid agreements	Yes	OEM; Administration
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Contracted (Suburban Consulting Engineering, Maser Consulting, Boswell Engineering)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Construction Department; contract engineering
Planners or engineers with an understanding of natural hazards	Yes	Contracted (Suburban Consulting Engineering, Maser Consulting, Boswell Engineering)
Staff with training in benefit/cost analysis	Yes	Consultant
Staff with training in green infrastructure	No	
Staff with education/knowledge/training in low impact development	No	
Surveyor	Yes	Contracted
Stormwater engineer	Yes	Contract engineering
Personnel skilled or trained in GIS applications	Yes	Contract Engineering; Town OEM
Local or state water quality professional	Yes	Town Water Department License holder; contract engineering
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Peter Herbert, Town OEM
Watershed planner	No	
Environmental specialist	Yes	Contract engineer
Grant writers	Yes	Consultant
Resilience Officer	No	



Staff/Personnel Resource	Available?	Department/Agency/Position
Other		

FISCAL CAPABILITY

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

Table 9.2-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes, Three Year Plan
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	FEMA grant programs, Public Assistance
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	No
Other	No

EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of Boonton.

Table 9.2-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes, POI as needed. No office
Do you have personnel skilled or trained in website development?	Various employees in town have skills, the town has a webmaster and social media specialist
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes. Facebook, Twitter and Nixle accounts are used to communication hazard communications.
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes. Local Emergency Planning Committee reviews hazard mitigation issues.
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes. Facebook, Twitter and Nixle accounts are used to communication hazard communications.
Do you have any established warning systems for hazard events? If yes, briefly describe.	Yes, reverse 911, social media, and "Nixle alerts".



COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of Boonton.

Table 9.2-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	TBD	TBD
Public Protection (Fire ISO Protection Class)	Yes	Class 4	June 2020
Storm Ready Certification	No	N/A	N/A
Firewise Community Classification	No	N/A	N/A
Sustainable Jersey	No	N/A	N/A

ADAPTIVE CAPACITY

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the adaptive capacity for each hazard and the jurisdiction’s rating.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? No.
- Is the administrative supportive of integrating climate change in policies or actions? Yes.
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? No.

Table 9.2-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Dam Failure	Medium
Disease Outbreak	High
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geologic	Medium
Harmful Algal Bloom	High
Hazardous Substances	High
Infestation	Medium
Severe Weather	High
Severe Winter Weather	High
Wildfire	Medium

**NATIONAL FLOOD INSURANCE PROGRAM**

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.2-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Planning/Zoning Boards/Contracted Engineer
Who is your floodplain administrator? (name, department/position)	Suburban Consulting Engineers
Are any certified floodplain managers on staff in your jurisdiction?	No.
What is the date ³ that your flood damage prevention ordinance was last amended?	Adopted 1990, amended 1997
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Yes.
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<input type="checkbox"/> If so, what type of assistance/training is needed?	
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction?*	Policies in force: 5 Insurance in force: \$1,092,000 Premium in force: \$1,588
How many total loss claims have been filed in your jurisdiction?*	Total loss claims: 13 Claims still open or closed without payment: 4 Total payments for losses: \$25,876
Do you maintain a list of properties that have been damaged by flooding?	Yes
Do you maintain a list of property owners interested in flood mitigation?	No

*According to FEMA statistics as of 09/30/2018

ADDITIONAL AREAS OF EXISTING INTEGRATION

- **Planning Board:** The Planning Board is an eleven-member Board (includes two alternate members) who are responsible for generating and updating Boonton's Master Plan. The Master Plan is a comprehensive plan intended to guide and control the current and long-range development and land use within the Town. The Board serves as a combined Planning and Zoning Board of Adjustment.
- **Local Emergency Planning Council:** The Office of Emergency Management (OEM) is responsible for coordinating the Town's response to emergency disasters. That response can include:
 - On-scene support to local incident commanders during emergencies



- Creation of an Emergency Operations Center to manage assets and resources deployed in a large-scale disaster.
- Serves as a conduit for acquiring assistance and support at the state and federal levels

Additionally, OEM is responsible for Boonton's preparedness plan and activities. OEM works with local, state, federal and private sector partners in emergency management to plan and prepare for large-scale, multi-jurisdictional responses to all natural or man-made disasters.

- **Historic Preservation Commission:** The Boonton Historic Preservation Commission is a volunteer, deliberative body of the municipal government. In recognition of the contributions Boonton has made to and the influence Boonton has had on the development of the region, the Town of Boonton strives to maintain the visual character of the periods of Boonton's historical significance, when the Boonton Iron Works and the Morris Canal were vital aspects of the region's commerce. The preservation of Boonton's historical character is not only a source of pride for all of us who live or work in Boonton, it directly contributes to the vitality of the local economy. The Boonton Historic Preservation Commission has been charged with the responsibility of maintaining Boonton's historical character as specified in the Ordinances of the Town of Boonton (Article VII). The Commission maintains an inventory of historic sites, makes recommendations on the historic preservation element of the master plan, and recommends historic sites for capital improvements.
- **Construction Department:** The Town of Boonton Construction office is responsible for issuing all construction permits in accordance with the New Jersey Uniform Construction Code. The department also administers and enforces the New Jersey Uniform Construction Code. The department consists of a licensed Construction Official, Building, Plumbing, Electric and Fire Sub-Code Officials.
- **Code Enforcement:** The Code Enforcement / Zoning Office is tasked with ensuring that the various adopted municipal codes are followed and enforced.
- **Public Works:** The Town of Boonton Department of Public Works is responsible for providing many of the services that residents come to rely on daily. Additionally, the Department administers the Recycling Center as well as the Town's wastewater collection and treatment plant.
- **Flood Acquisition Plan:** The Town participates in the County's Flood Mitigation Program (FMP) and has an approved Flood Acquisition Plan (FLAP). The Morris County FMP is the first dedicated, county-level flood acquisition program in the State of New Jersey. The FMP allows Morris County to assist municipalities in moving people out of harm's way, lowering municipal costs due to intense flooding episodes, and create natural flood capture and storage areas that protect the remaining homes and businesses. The FMP is funded by the Morris County Open Space tax and provides grant monies for municipalities to purchase flood-prone residential properties. To date the Town has acquired two properties using this funding source.

9.2.5 Hazard Event History Specific to the Jurisdiction

Morris County has a history of hazard events, as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 4.4 (Hazard Profiles) and includes a chronology of events that affected Morris County and its jurisdictions. The Town of Boonton's history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Morris County. Table 9.2-11 provides details regarding municipal-specific loss and



damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.2-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
January 21-24, 2016	Severe Winter Storm and Snowstorm (DR-4264)	Yes	Wind gusts up to 60 MPH produced blizzard conditions as visibilities dropped to one-quarter mile or less in spots. Snow began during the evening hours on the 22nd, then continued, heavy at times through the 23rd before ending early on the 24th. Snowfall totals included 30.0 inches in Long Valley, 29.0 inches in Madison, 26.0 inches in Budd Lake, 25.3 inches in Green Pond, 22.5 inches in Butler, 21.0 inches in Chatham, and 18.0 inches in Marcella	The Town incurred costs for DPW overtime.
March 6-7, 2018	Severe Winter Storm and Snowstorm (DR-4368)	Yes	12 to 24 inches was observed across large parts of Somerset, Hunterdon, Morris, and Sussex Counties. The snow contained large amounts of liquid, making it heavy and wet. This resulted in downed trees, limbs, and wires, leading to numerous power outages.	The Town incurred costs for DPW overtime. A fire broke out in Boonton High School. The town was impacted by numerous power outages.

9.2.6 Jurisdiction-Specific Vulnerabilities and Hazard ranking

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.2-12 summarizes the Town of Boonton risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.



Table 9.2-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Dam Failure	Partial or complete failure of a dam There are 3 dams in the Town, according to NJDEP.	Population impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		The number of building impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		Economic impacts include dam/building/infrastructure repairs; debris removal/disposal; utility impacts.		Low
Disease Outbreak	Disease Outbreaks which include: Mosquito-Borne Diseases, Tick-Borne Diseases, Campylobacteriosis, Influenza, Mumps, Ebola	Population impacted is dependent on the disease and severity of the outbreak; in some cases immuno-compromised persons are more vulnerable.		Structural impacts due to disease outbreak would be limited.		Economic losses can include County financial impacts to monitor/address outbreaks; lost wages or commercial interruptions; depends on the severity and type of disease outbreak. .		Low
Drought	Prolonged drought event - The County is serviced by water supplies who primarily get water from groundwater sources; some surface water sources.	Entire population exposed. Population on surface water supplies may be impacted first; water restrictions/contamination; increased wildfire risk.		Droughts are not expected to cause direct damage to buildings.		Losses include aesthetic, landscape/nursery/agricultural industry impacts.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period (MRP) Events evaluated NEHRP Soils D&E (soft soils that amplify ground shaking are present in the County	NEHRP D&E:	85	NEHRP D&E:	33	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	\$1,253,922	
						2,500-year Loss:	\$20,891,517	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,086	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	579					



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	0	100-year Loss:	\$0	High
		500-year	6	500-year	4			
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	44	Class B:	16	Class B:	\$6,219,298	
		Carbonate Bedrock:	0	Carbonate Bedrock:	0	Carbonate Bedrock:	\$0	
Harmful Algal Bloom	Any body of water or area adjacent that is susceptible to harmful algal bloom.	Population in contact (e.g., swimming) or drinking water from surface water impacted can result in a range of health effects		General building stock impacts due to harmful algal bloom are not anticipated. Critical facilities (i.e., water treatment plants) could lead to plant closures.		Economic impacts range from recreational closure of impacted waterbodies; cost to sample/monitor/remediate.		Low
Hazardous Substance	Release of a hazardous substance from a fixed site.	Population impacted will depend on the type of material and scale of the incident. May include population within small radii of site.		The degree of damages to a building depends on the scale of the incident.		The degree of damages depends on the scale of the incident.		Low
Infestation	Infestation including: Insects [e.g. Gypsy Moth, Mosquitoes, Spotted Lanternfly, Emerald Ash Borer], White-Tailed Deer, Rodents	Population impacted will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Physical impacts will be limited to indirect impacts from invasive species which affect crops and vegetation.		Economic impact will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Low
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Annualized Loss:	\$21,320	High
						100 -Year Loss:	\$289,316	
						500-year Loss:	\$1,885,891	
Severe Winter Weather	Severe Winter Weather Event	All residents/commuters/visitors are exposed; socially-vulnerable populations may be at increased risk.		All buildings are exposed; the degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads/infrastructure can impact operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	3	Wildfire:	3	Wildfire:	\$56,455,160	Moderate



REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the Town of Boonton.

- Number of repetitive loss (RL) properties: 0
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

CRITICAL FACILITIES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.2-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Old Morris Canal Dam	Dam	X	X	2020-Town of Boonton-013
Boonton Dam	Dam	X	X	2020-Town of Boonton-013

ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Vreeland and Greenbank Road Flooding - debris building up dams up waterway.
- Need to increase public awareness and conduct practice exercises of existing plans for disease outbreak.
- Public warning for severe weather is lacking.
- Public warnings on severe winter weather is lacking, including for street parking. Public awareness and awareness of officials is also lacking.
- The Flood Damage Prevention Ordinance requires updating to include the state mandated one foot of freeboard.
- The Town has two municipally-owned dams in the floodplain.

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Town of Boonton that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps have been generated only for those hazards that can be clearly identified using mapping techniques and technologies and for which the Town of Boonton has significant exposure. A map of the Town of Boonton hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain, as well as identified critical facilities within the municipality.



HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Morris County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community factoring in their capabilities to withstand impacts and rebound after the event. The table below summarizes the hazard rankings of potential natural hazards for the Town of Boonton. The Town of Boonton has reviewed the Morris County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town agreed with the calculated hazard rankings

Table 9.2-14. Town of Boonton Hazard Ranking Input

Dam Failure	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazard
Medium	Medium	Medium	Medium	Medium	Medium

Harmful Algal Bloom	Severe Storm	Severe Winter Storm	Wildfire	Hazardous Substances	Disease Outbreak	Infestation
Low	High	High	Low	High	High	Medium

9.2.7 Mitigation Strategy and Prioritization

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

PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction's progress on their mitigation strategy identified in the 2015 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 can also be found under 'Capability Assessment' presented previously in this annex.



Table 9.2-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
<p>B – 1: Backup Power for Critical and Essential Facilities: Install or upgrade backup power equipment at the following critical and essential facilities in the Town, as necessary funding is appropriated. While this overall initiative is considered a “High” priority, the individual locations have been prioritized to identify the prioritization of sites within this over-arching initiative:</p> <ul style="list-style-type: none"> - Town Hall (most Town offices, police, fire, comfort station) – 100 Washington Street: Existing generator is only sized to power parts of police department. Upgrade existing system so that all operations within the Town Hall complex have backup power. High Priority - Sewer Lift Stations: Install permanent backup power equipment for the Toner Road and Myrtle Avenue lift stations. Toner Road will need to acquire additional property to site this equipment. High Priority. - DPW facility (off Plane Street): Install permanent back up power equipment to support DPW operations which includes the Town fleet fueling facilities. High Priority. - Recreation Center: Town is funding a generator for this facility that can serve as a comfort station. High Priority. - Kiwanis EMS – Washington Street - Boonton Housing Authority (Federal) Senior Housing-125 Chestnut Street: 20-30 cottages lack backup power. - Senior Building: Hall with small kitchen can accommodate ~60 people as a comfort station, lacks backup power. - High School: Lacks backup power, however the Town is not considering retrofitting this facility as a formal shelter. Low Priority. - Traffic lights: Major traffic lights throughout the Town lack backup power. 		<p>In Progress; Town Hall - has been discussed and put into budgets, but no action; Sewer Lift Stations - portable generators are being used still; DPW facility - portable generator being used still; Recreation Center: Complete as of 2017; Boonton Housing Authority - no progress, Federal housing; Senior Building - no progress; High School - no progress; Traffic Lights; portable generators being used.</p>	X	2020-Town of Boonton-001
<p>B – 2: Vreeland Avenue Stormwater Management Upgrades: Renovate and enlarge culvert at Vreeland Avenue and Greenbank Road. This area floods during heavy rain events,</p>		<p>In progress - engineering drawings and costs completed; was entered into 2019 budget</p>	X	2020-Town of Boonton-002



2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
resulting in road closures and traffic diversion. Private property flooding is limited to open land areas. A 1999 plan to perform stormwater management upgrades here could not be funded.				
B – 3: Wootton Street Stormwater Management Upgrades: Upgrade storm drains on Wootton Street to mitigate flooding.		No Progress	X	2020-Town of Boonton-003
B – 4: Jersey City Reservoir Dam Failure Detection and Warning System: Continue to work with United Water (dam owner) as they develop and implement dam failure detection and early warning/alert programs and systems. Support outreach and education efforts for properties in the dam failure inundation zone as procedures and systems are established and/or enhanced.		No Progress	X	2020-Town of Boonton-004
B – 5: Rockaway River Stream Channel Rehabilitation: Continue to work with Towns of Montville and Parsippany in implementing the stream maintenance program funded through the joint NJDEP grant. Continue to seek additional funding to address fallen trees (snags) that do not get addressed by the existing grant funded project.		In Progress; 3/4 complete - work needs to be done when river levels are low enough	X	2020-Town of Boonton-005
B – 6: Rockaway River Streambank Stabilization at Rockaway Street and Harrison Street: Continue to work with Jersey City, United Water, NJDEP and FEMA to address the severe streambank erosion/slope failure issues in these two locations. It is noted that FEMA has twice denied the Town's request for funding for a stabilization project at the Rockaway Street location. The Town shall continue to perform regular monitoring and photo-documentation of the continual degradation of the banks in these areas.		No Progress	X	2020-Town of Boonton-006
B – 7: Implementation of Boonton Town Flood Acquisition Plan (FLAP): Continue to work with private property owner impacted by severe streambank erosion along the Rockaway River to finalize acquisition, demolition and conversion of property to permanent open-space.		Complete - 2 homes acquired and demolished		



2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
B – 8: Vulnerability Assessment of NJ Transit Railroad Trestle along Rockaway River: Petition/encourage NJ Transit to evaluate the vulnerability of their railroad trestle that is believe to be vulnerable streambank erosion and undermining by the adjacent Rockaway River.		No Progress	X	2020-Town of Boonton-007
B – 9: Rockaway Valley Regional Sewerage Authority (RVRSA) Wastewater System Mitigation: Support the RVRSA as they implement their project to build two pump stations to bypass their existing vulnerable conveyance lines within the Rockaway River flood vulnerable area which were broken during Irene.		In Progress - one pump station complete; in process of construction the second	X	2020-Town of Boonton-008
B – 10: JCP&L Electric Distribution Upgrades: Continue to support JCP&L as they work to perform electric system upgrades (line repair) in the area of the Drew substation (Rt. 287, Vreeland and Toner area). Continue to petition JCP&L to tie in the Fox Hill substation into the Boonton Township potable water treatment plant. With the current electric configuration, both water treatment plants serving the town are on the same electric feed.		No Progress	X	2020-Town of Boonton-009
B – 11: Continue to support floodprone residents with private property flood mitigation. Specifically, provide property owners with information on flood insurance and available mitigation grant funding programs (Federal and County).		Ongoing capability		
B – 12: Mobile Internet Access: Establish mobile internet access (WIFI) “cradles” in vehicles that can be deployed as needed to support internet access during emergency situations and internet outages.		No Progress	X	2020-Town of Boonton-010

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of Boonton participated in a risk assessment workshop in November 2019 in which detailed information was provided about assets exposed and vulnerable to the identified hazards of concern. The Town of Boonton participated in a mitigation action workshop in March 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Morris County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments; and 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). Section 6 (Mitigation Strategy) and Appendix F (Mitigation Strategy Supplement) provide a more complete description of the Mitigation Toolbox and its resources.

Table 9.2-16 summarizes the comprehensive-range of specific mitigation initiatives the Town of Boonton would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can 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 (Mitigation Strategy), 14 criteria were used to evaluate each action, including an evaluation of the benefits and costs. For each new mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria. The results of this evaluation, in addition to input from the jurisdiction, were then used to prioritize the mitigation initiatives as 'High', 'Medium', or 'Low.' Table 9.2-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.



Table 9.2-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Town of Boonton-001	Backup Power for Critical and Essential Facilities	Critical facilities require backup power. Some facilities have undersized or only portable generators for use.	Install or upgrade backup power equipment at the following critical and essential facilities in the Town, as necessary funding is appropriated. Facilities: Town Hall; Sewer Lift Stations; DPW facility, Boonton Housing Authority; Federal Housing Senior Building; High School; Traffic Lights	Existing	All Hazards	3	Boonton Town OEM, facility representatives	Town Budget; available HMGP and PDM mitigation grant funding with Town or facility owner funding for local match	Continued operation of critical and essential facilities; reduced emergency services costs; potential life safety	Site/project specific. Average cost of \$25,000	Within 5 years	High	SIP	ES
2020-Town of Boonton-002	Vreeland Avenue Stormwater Management Upgrades	This area floods during heavy rain events, resulting in road closures and traffic diversion. Private property flooding is limited to open land areas. A 1999 plan to perform stormwater management upgrades here	Renovate and enlarge culvert at Vreeland Avenue and Greenbank Road.	Existing	Flood; Severe Storm	3	Department of Public Works; size of project may require County implementation	HMGP, PDM, FMA	Reduced vulnerability of critical infrastructure to closure; reduced need for emerg	\$15,000	Within 5 years	Medium	SIP	PP, SP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		could not be funded.							ency protective services.					
2020-Town of Boonton-003	Wootton Street Stormwater Management Upgrades	Wootton Street is prone to stormwater flooding.	Upgrade storm drains on Wootton Street to mitigate flooding.	Existing	Flood, Severe Storm	3	Department of Public Works	HMGP, PDM, FMA	Reduced vulnerability of critical infrastructure to closure; emergency protective services.	\$30,000	Within 5 years	Medium	SIP	PP, SP
2020-Town of Boonton-004	Jersey City Reservoir Dam Failure Detection and Warning System	Dam requires warning system and outreach to nearby residents.	Continue to work with United Water (dam owner) as they develop and implement dam failure detection and early warning/alert programs and systems. Support outreach and education efforts for properties in the dam failure inundation zone	Existing	Flood, Dam Failure	1, 3	United Water, Town of Boonton	United Water	Life safety	Low for Town	Within 5 years	High	EAP	PI, ES



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			as procedures and systems are established and/or enhanced.											
2020-Town of Boonton-005	Rockaway River Stream Channel Rehabilitation	Rockaway River is prone to flooding caused by fallen trees.	Continue to work with Towns of Montville and Parsippany in implementing the stream maintenance program funded through the joint NJDEP grant. Continue to seek additional funding to address fallen trees (snags) that do not get addressed by the existing grant funded project.	N/A	Flood	3	Town of Boonton DPW, Towns of Montville and Parsippany.	NJ DEP grant	Reduced vulnerability to riverine flooding and associated damage to structures/infrastructure	High	Within 1 year	High	NSP, NSP	PP, NR
2020-Town of Boonton-006	Rockaway River Streambank Stabilization at Rockaway Street and Harrison Street	Severe streambank erosion/slope failure issues in these two locations.	Continue to work with Jersey City, United Water, NJDEP and FEMA to address the severe streambank erosion/slope failure issues in these two locations. It is noted that FEMA has twice denied the Town's request	N/A	Flood, Severe Storm	3	Boonton DPW working with United Water, City of Jersey City, NJDEP, FEMA and USACE	HMGP, NJ DEP	Slope failures impacting public and private property and infrastructure prevented	High	Within 5 years	High	SIP, NSP	NR, PP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			for funding for a stabilization project at the Rockaway Street location. The Town shall continue to perform regular monitoring and photo-documentation of the continual degradation of the banks in these areas.											
2020-Town of Boonton-007	Vulnerability Assessment of NJ Transit Railroad Trestle along Rockaway River	Railroad trestle is believed to be vulnerable streambank erosion and undermining by the adjacent Rockaway River	Petition/encourage NJ Transit to evaluate the vulnerability of their railroad trestle.	Existing	Flood	3	<u>NJ Transit,</u> Town of Boonton	Municipal budget	Reduced vulnerability of waste water lines from flood damage	Low for Town	Within 5 years	Medium	SIP	PP
2020-Town of Boonton-008	Rockaway Valley Regional Sewerage Authority (RVRSA) Wastewater System Mitigation	Conveyance lines within the Rockaway River are in flood vulnerable area and were broken during Irene.	Support the RVRSA as they implement their project to build two pump stations to bypass their existing vulnerable conveyance lines within the Rockaway River flood vulnerable	Existing	Flood, Hazardous Materials	3	<u>Rockaway Regional Sewerage Authority,</u> Town of Boonton	Municipal budget	Reduced vulnerability of waste water lines from flood damage	Low for Town	Within 5 years	Medium	SIP	PP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			area which were broken during Irene.											
2020-Town of Boonton-009	JCP&L Electric Distribution Upgrades	With the current electric configuration, both water treatment plants serving the town are on the same electric feed.	Continue to support JCP&L as they work to perform electric system upgrades (line repair) in the area of the Drew substation (Rt. 287, Vreeland and Toner area). Continue to petition JCP&L to tie in the Fox Hill substation into the Boonton Township potable water treatment plant.	Existing	Severe Storm, Severe Winter Storm	2, 3	JCP&L, Town of Boonton	JCP&L, Municipal budget	Increased resiliency of electric distribution system; protection of critical infrastructure	Low for Town	Within 5 years	Medium	SIP	PP
2020-Town of Boonton-010	Mobile Internet Access	The town needs support internet access during emergency situations and internet outages.	Establish mobile internet access (WIFI) "cradles" in vehicles that can be deployed as needed.	N/A	All hazards	2, 3	Town OEM	Municipal budget	Ability to maintain internet communications during disasters and emergencies	Low	Within 5 years	Medium	LPR	PI
2020-Town of Boonton-011	Boonton Wellfield Water Filtration Plant	The Boonton Wellfield Water Filtration Plant at 130 Old	The Town will work to raise appropriate buildings and	Existing	Flood	3	Engineering, Township	HMGP, FMA, Municipal budget	Reduction in flood risk	\$200,000	Within 5	High	SIP	PP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Denville Road in Boonton Township is located in the 100-year floodplain. The Plant has flooded previously during Irene and Floyd.	install floodwalls.				of Boonton				years			
2020-Town of Boonton-012	Debris Removal and Management Plan	Massive post-flood debris to be managed	Create a specific debris removal plan that includes NJDEP pre-permitting of sites chosen	Existing, Future	Flood	2, 3	Superintendent of Public Works, Engineer	Municipal Budget	Improved emergency planning and response	Staff time	Within 5 years	High	LPR	ES
2020-Town of Boonton-013	Old Morris Canal Dam and Boonton Dam	Old Morris Canal Dam and Boonton Dam are municipally owned dams. Both dams are located in the 100-year floodplain.	Complete survey of dams to ensure dams are protected to 500-year flood level.	Existing	Dam Failure, Flood	3	Engineer	Municipal budget	Dam safety confirmed	Staff time	Within 5 years	High	LPR	PP

Notes:

Acronyms and Abbreviations:

CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency
 FPA Floodplain Administrator
 HMA Hazard Mitigation Assistance
 N/A Not applicable
 NFIP National Flood Insurance Program
 OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

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

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.



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 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. 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 preserve or restore the functions of natural systems. 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. 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 9.2-17. Summary of Evaluation and Action Priorities

Initiative Number	Mitigation Initiative Name	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
2020-Town of Boonton-001	Backup Power for Critical and Essential Facilities	1	1	1	1	1	0	0	1	1	1	1	0	1	1	11	High
2020-Town of Boonton-002	Vreeland Avenue Stormwater Management Upgrades	0	1	0	1	0	1	0	0	0	1	1	0	1	1	7	Medium
2020-Town of Boonton-003	Wootton Street Stormwater Management Upgrades	0	1	0	1	0	1	0	0	0	1	1	0	1	1	7	Medium



Initiative Number	Mitigation Initiative Name	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
2020-Town of Boonton-004	Jersey City Reservoir Dam Failure Detection and Warning System	1	1	1	1	1	0	0	1	1	1	0	0	1	1	10	High
2020-Town of Boonton-005	Rockaway River Stream Channel Rehabilitation	1	1	1	1	1	0	0	0	0	1	1	1	1	1	10	High
2020-Town of Boonton-006	Rockaway River Streambank Stabilization at Rockaway Street and Harrison Street	1	1	1	0	1	0	0	0	0	1	1	0	1	1	8	Medium
2020-Town of Boonton-007	Vulnerability Assessment of NJ Transit Railroad Trestle along Rockaway River	1	1	1	1	0	0	1	0	0	1	1	1	1	0	9	Medium
2020-Town of Boonton-008	Rockaway Valley Regional Sewerage Authority (RVRSA) Wastewater System Mitigation	1	1	1	1	1	0	0	0	0	1	1	1	1	1	10	Medium
2020-Town of Boonton-009	JCP&L Electric Distribution Upgrades	1	1	1	1	1	0	0	0	0	1	1	1	1	1	10	High
2020-Town of Boonton-010	Mobile Internet Access	1	1	1	1	0	0	1	0	0	1	1	1	1	0	9	Medium
2020-Town of Boonton-011	Boonton Wellfield Water Filtration Plant	0	1	1	1	1	1	0	1	1	1	0	1	1	1	11	High
2020-Town of Boonton-012	Debris Removal and Management Plan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High



Initiative Number	Mitigation Initiative Name	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
2020-Town of Boonton-013	Old Morris Canal Dam and Boonton Dam	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Notes: Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions.



Table 9.2-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure			2020-Town of Boonton-004, 2020-Town of Boonton-010		2020-Town of Boonton-001, 2020-Town of Boonton-004			
Disease Outbreak			2020-Town of Boonton-010		2020-Town of Boonton-001			
Drought			2020-Town of Boonton-010		2020-Town of Boonton-001			
Earthquake			2020-Town of Boonton-010		2020-Town of Boonton-001			
Extreme Temperature			2020-Town of Boonton-010		2020-Town of Boonton-001			
Flood		2020-Town of Boonton-002, 2020-Town of Boonton-003, 2020-Town of Boonton-005, 2020-Town of Boonton-006, 2020-Town of Boonton-007, 2020-Town of Boonton-008, 2020-Town of Boonton-011	2020-Town of Boonton-004, 2020-Town of Boonton-010	2020-Town of Boonton-005, 2020-Town of Boonton-006	2020-Town of Boonton-001, 2020-Town of Boonton-004, 2020-Town of Boonton-012	2020-Town of Boonton-002, 2020-Town of Boonton-003		
Geologic			2020-Town of Boonton-010		2020-Town of Boonton-001			
Harmful Algal Bloom			2020-Town of Boonton-010		2020-Town of Boonton-001			
Hazardous Substances		2020-Town of Boonton-008	2020-Town of Boonton-010		2020-Town of Boonton-001			
Infestation			2020-Town of Boonton-010		2020-Town of Boonton-001			
Severe Weather		2020-Town of Boonton-002, 2020-Town of Boonton-003, 2020-Town of Boonton-006, 2020-Town of Boonton-009	2020-Town of Boonton-010	2020-Town of Boonton-006	2020-Town of Boonton-001	2020-Town of Boonton-002, 2020-Town of Boonton-003		



Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe Winter Weather		2020-Town of Boonton-009	2020-Town of Boonton-010		2020-Town of Boonton-001			
Wildfire			2020-Town of Boonton-010		2020-Town of Boonton-001			

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

9.2.8 Staff and Local Stakeholder Involvement in Annex Development

The Town of Boonton followed the planning process described in Section 2 (Planning Process). This annex was developed over the course of several months with input from many jurisdiction representatives. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization. The following table summarizes who participated and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.2-19. Contributors to the Annex

Entity	Title	Method of Participation
Peter D. Herbert	OEM	Primary POC
Scott Bednar	OEM Deputy Coordinator	Alternate POC, provided impact data, contributed to the mitigation strategy



Figure 9.2-1. Town of Boonton Hazard Area Extent and Location Map

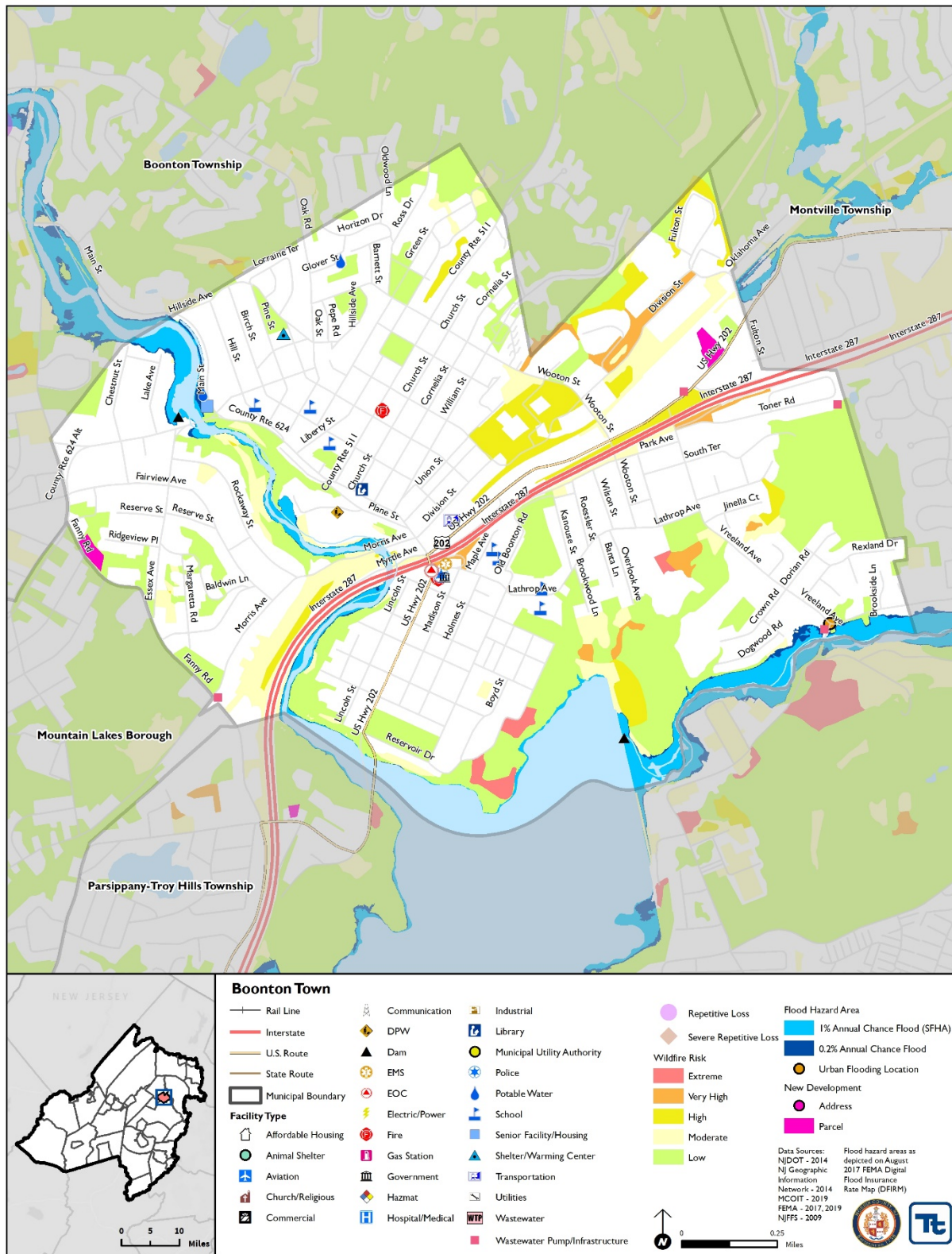
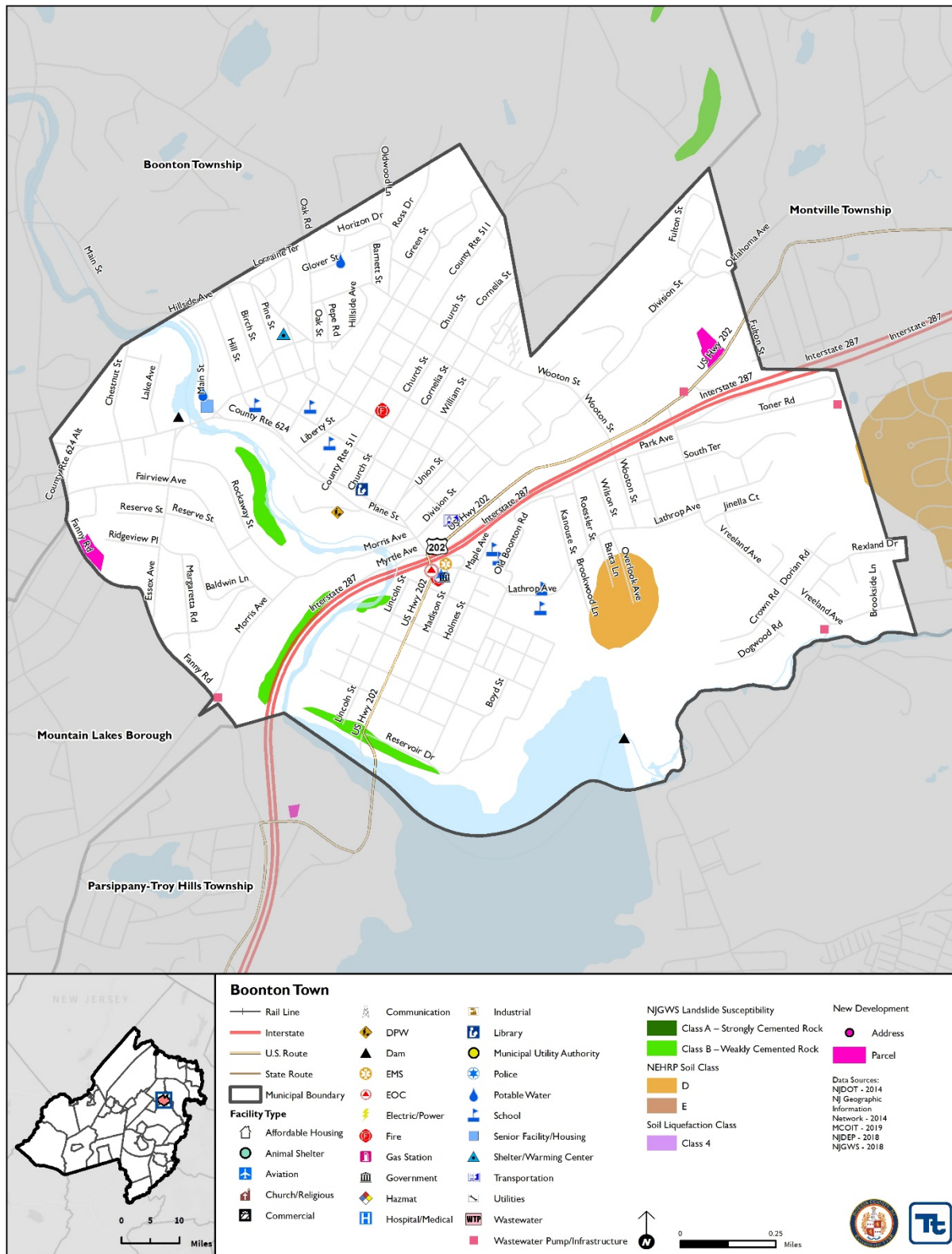




Figure 9.2-2. Town of Boonton Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Backup Power for Critical and Essential Facilities		
Project Number:	2020-Town of Boonton-001		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	Numerous critical facilities lack backup power sources.		
Action or Project Intended for Implementation			
Description of the Solution:	<p>Install or upgrade backup power equipment at the following critical and essential facilities in the Town, as necessary funding is appropriated. While this overall initiative is considered a "High" priority, the individual locations have been prioritized to identify the prioritization of sites within this over-arching initiative:</p> <ul style="list-style-type: none"> •Town Hall (most Town offices, police, fire, comfort station) – 100 Washington Street: Existing generator is only sized to power parts of police department. Upgrade existing system so that all operations within the Town Hall complex have backup power. High Priority •Sewer Lift Stations: Install permanent backup power equipment for the Toner Road and Myrtle Avenue lift stations. Toner Road will need to acquire additional property to site this equipment. High Priority. •DPW facility (off Plane Street): Install permanent back up power equipment to support DPW operations which includes the Town fleet fueling facilities. High Priority. •Recreation Center: Town is funding a generator for this facility that can serve as a comfort station. High Priority. •Kiwanis EMS – Washington Street •Boonton Housing Authority (Federal) Senior Housing-125 Chestnut Street: 20-30 cottages lack backup power. •Senior Building: Hall with small kitchen can accommodate ~60 people as a comfort station, lacks backup power. •High School: Lacks backup power, however the Town is not considering retrofitting this facility as a formal shelter. Low Priority. •Traffic lights: Major traffic lights throughout the Town lack backup power. 		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	Power loss avoided	Estimated Benefits (losses avoided):	Continued operation of critical and essential facilities; reduced emergency services costs; potential life safety
Useful Life:	20 years	Goals Met:	3
Estimated Cost:	Site/project specific. Average cost of \$25,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	Town Budget; available mitigation grant funding with Town or facility owner funding for local match
Responsible Organization:	Boonton Town OEM, working with facility representatives	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Management, Capital Improvement
Three Alternatives Considered (including No Action)			



Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Portable generators	\$15,000	Requires action of hooking up
	Solar Panels	\$15,000 per location	Weather dependent
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Backup Power for Critical and Essential Facilities	
Project Number:	2020-Town of Boonton-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects critical facilities from power failure
Cost-Effectiveness	1	
Technical	1	
Political	1	Project has public support
Legal	0	Some locations are private
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	0	Within 5 years
Agency Champion	1	Boonton Town OEM, working with facility representatives
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Vreeland Avenue Stormwater Management Upgrades		
Project Number:	2020-Town of Boonton-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	This area floods during heavy rain events, resulting in road closures and traffic diversion. Private property flooding is limited to open land areas.		
Action or Project Intended for Implementation			
Description of the Solution:	Renovate and enlarge culvert at Vreeland Avenue and River Road. This area floods during heavy rain events, resulting in road closures and traffic diversion. Private property flooding is limited to open land areas. A 1999 plan to perform stormwater management upgrades here could not be funded.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by size of culvert selected	Estimated Benefits (losses avoided):	Reduced vulnerability of critical infrastructure to closure; reduced need for emergency protective services.
Useful Life:	75 years	Goals Met:	3
Estimated Cost:	\$15,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	HMGP, PDM, FMA
Responsible Organization:	Department of Public Works; size of project may require County implementation	Local Planning Mechanisms to be Used in Implementation if any:	Stormwater, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Rain garden	\$1,000	Not large enough reduction in stormwater
	Close roadway	N/A	Not feasible. Roadway must remain open.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Vreeland Avenue Stormwater Management Upgrades	
Project Number:	2020-Town of Boonton-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects automobiles in the Vreeland Avenue area
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Department of Public Works; size of project may require County implementation
Other Community Objectives	1	
Total	7	
Priority (High/Med/Low)	Medium	



Action Worksheet			
Project Name:	Wootton Street Stormwater Management Upgrades		
Project Number:	2020-Town of Boonton-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Wootton Street is prone to stormwater flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct engineering study to determine the appropriate upgrades to the stormwater system. Upgrade storm drains and pipes on Wootton Street to mitigate flooding.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by level of design	Estimated Benefits (losses avoided):	Reduced vulnerability of critical infrastructure to closure; emergency protective services.
Useful Life:	50 years	Goals Met:	3
Estimated Cost:	\$30,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, PDM, FMA
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Stormwater, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Rain garden	\$1,000	Not large enough reduction in stormwater
	Close roadway	N/A	Not feasible. Roadway must remain open.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Wootton Street Stormwater Management Upgrades	
Project Number:	2020-Town of Boonton-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects automobiles in the Vreeland Avenue area
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Department of Public Works; size of project may require County implementation
Other Community Objectives	1	
Total	7	
Priority (High/Med/Low)	Medium	



Action Worksheet			
Project Name:	Rockaway River Streambank Stabilization at Rockaway Street and Harrison Street		
Project Number:	2020-Town of Boonton-006		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Severe streambank erosion/slope failure issues are chronic at Rockaway Street and Harrison Street. This increases the risk of the roadways being lost. It is noted that FEMA has twice denied the Town's request for funding for a stabilization project at the Rockaway Street location.		
Action or Project Intended for Implementation			
Description of the Solution:	Continue to work with Jersey City, United Water, NJDEP and FEMA to address the severe streambank erosion/slope failure issues in these two locations. The Town shall continue to perform regular monitoring and photo-documentation of the continual degradation of the banks in these areas. Apply for grant funding support to design and construct permanent solutions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by project design	Estimated Benefits (losses avoided):	Slope failures impacting public and private property and infrastructure prevented
Useful Life:	TBD by project design	Goals Met:	3
Estimated Cost:	TBD by project design, likely to be high	Mitigation Action Type:	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMGP, NJ DEP
Responsible Organization:	Boonton DPW working with United Water, City of Jersey City, NJDEP, FEMA and USACE	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove roadways	\$200,000	Not feasible
	Buyout homes in neighboring areas to reduce traffic	\$250,000 per home	Costly, unlikely to have large impact in traffic
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Rockaway River Streambank Stabilization at Rockaway Street and Harrison Street	
Project Number:	2020-Town of Boonton-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects lives of motorists
Property Protection	1	Protects public and private property and infrastructure
Cost-Effectiveness	1	
Technical	0	Project requires design to determine solution
Political	1	
Legal	0	Project requires permitting
Fiscal	0	Project requires funding support
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Boonton DPW working with United Water, City of Jersey City, NJDEP, FEMA and USACE
Other Community Objectives	1	
Total	8	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Boonton Wellfield Water Filtration Plant		
Project Number:	2020-Town of Boonton-011		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Boonton Wellfield Water Filtration Plant at 130 Old Denville Road in Boonton Township is located in the 100-year floodplain. The Plant has flooded previously during Irene and Floyd.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will work to raise appropriate buildings and install floodwalls.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood exposure to filtration plant
Useful Life:	50 years	Goals Met:	3
Estimated Cost:	\$200,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, FMA, Municipal budget
Responsible Organization:	Engineering, Township of Boonton	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new filtration plant uphill	\$2 Million	Too expensive
	Sandbags	\$1,000	Requires deployment
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet



Project Name:	Boonton Wellfield Water Filtration Plant	
Project Number:	2020-Town of Boonton-011	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects filtration plant
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	2 years
Agency Champion	1	Engineering, Township of Boonton
Other Community Objectives	1	Protection of critical facilities
Total	11	
Priority (High/Med/Low)	High	