9.25 TOWNSHIP OF MORRIS

This section presents the jurisdictional annex for the Township of Morris. The annex includes a general overview of the Township of Morris; an assessment of the Township of Morris'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.

9.25.1 Hazard Mitigation Planning Team

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

Table 9.25-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: James Slate, Township Engineer Address: 50 Woodland Avenue, Convent Station, NJ 07961 Phone Number: 973-326-7440 Email: jslate@morristwp.com	Name / Title: Timothy Quinn, Township Administrator Address: 50 Woodland Avenue, Convent Station, NJ 07961 Phone Number: 973-326-7360 Email: tquinn@morristwp.com
NFIP Floodplain Administrator	
Name / Title: James Slate, Township Engineer Address: 50 Woodland Avenue, Convent Station, NJ 07961 Phone Number: 973-326-7440 Email: jslate@morristwp.com	

9.25.2 Jurisdiction Profile

The Township of Morris is located in the central region of Morris County; it is bordered by Morris Plains, Parsippany-Troy Hills and Hanover to the north, Florham Park and Madison to the east, Harding to the south and the Township of Mendham and Randolph to the west. Major roadways in the Township include US 202, State Highway 24, and Interstate 287. Major waterways that flow through the Township include the Whippany River and smaller streams and tributaries. According to the U.S. Census, the 2010 population for the Township was 22,306, and the total area is 15.76 square miles, 15.62 square miles of land and 0.14 square miles of water. The Township has four unincorporated communities, Collinsville, Convent Station, Fairchild and Washington Valley.

The Township is also partially located in the New Jersey Highlands Region, one of the 88 municipalities protected by and subject to the provisions of the Highlands Water Protection and Planning Act. A portion of the Township is located in the Highland Planning Area but based upon the Highland rules if a portion of the municipality is located in the Planning Area the entire Township is considered to be located within the Highlands Planning Area (10,120 acres).

According to the U.S. Census, the 2010 population for the Township of Morris was 22,306. The estimated 2017 population was 22,498, a less than one percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 4.6% of the population is 5 years of age or younger and 20.8% 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.

9.25.3 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 9.25-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.25-1 and 9.25-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development.

Table 9.25-2. Recent and Expected Future Development

Type of Development	2015	2016	2017	2018	2019**
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	41	3	59	141	92
Multi-Family	1	-	1	-	1
Other (commercial, mixed-use, etc.)	-	3	3	1	2
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					
Colgate Redevelopment	Commercial/Residential	127,854 Square Feet/209 Residential Units	Block 10301 Lot 3	None	Under Construction
Honeywell Redevelopment	Commercial/Residential	900,000 Square Feet/235 Residential Units	Block 9101 Lot 4	None	Under Construction
Cube Smart	Commercial Storage Facility	77,000 Square Feet	Block 9002 Lot 13	None	Completed
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Abbey Redevelopment	Retail/Restaurant	57,000 Square Feet	Block 8409 Lot 1	None	Approval Required
Delbarton Ice Rink and Fieldhouse	Recreation/School Facilities	70,000 Square Feet	Block 4501 Lot 2.01	None	Approval Required

** Only location-specific hazard zones or vulnerabilities identified.*

***Through October 3, 2019*

9.25.4 Capability Assessment

The Township of Morris 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 in this section. The Township of Morris 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 Township of Morris and where hazard mitigation has been integrated.

Table 9.25-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	Is this State Mandated?	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	State & Local	Yes	Yes	
Comment: *Construction Code Official, State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)*					
Zoning Code	Yes	Local	Yes	Yes	
Comment: *Zoning Officer, Chapter 95*					
Subdivisions	Yes	Local	Yes	Yes	
Comment: *Planning Board, Chapter 57, Part 3*					
Stormwater Management	Yes	Local	Yes	Yes	
Comment: *Township Engineer, Chapter 57, Part 5*					
Post-Disaster Recovery	No	All	Yes	Yes	
Comment:					
Real Estate Disclosure	Yes	State	Yes	Yes	
Comment: *Division of Consumer Affairs, N.J.A.C. 13:45A-29.1*					
Growth Management	No	Local	Yes	Yes	
Comment:					
Site Plan Review	Yes	Local	Yes	Yes	
Comment: *Township Engineer, Chapter 57, Part 4. 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.*					
Environmental Protection	Yes	Local & State	Yes	Yes	
Comment:					

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	Is this State Mandated?	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 #.
Flood Damage Prevention	Yes	Federal, State, Local	Yes	Yes	
Comment: *Township Engineer, NJDEP/FEMA, Chapter 273 (Flood Damage Prevention)*					
Wellhead Protection	Yes	Local & State	Yes	Yes	
Comment:					
Emergency Management	Yes	All	Yes	Yes	
Comment:					
Climate Change	Yes	All	No		No
Comment: Planning Board has started discussing the issue					
Disaster Recovery Ordinance	No	Local	No		No
Comment:					
Disaster Reconstruction Ordinance	No	Local	No		No
Comment:					
Municipal Separate Storm Sewer System (MS$)	Yes	Local & State	Yes	Yes	
Comment:					
Steep Slopes Ordinance	Yes	Local & State	Yes	Yes	
Comment: NJDEP Required as part of our WMP					
Tree Removal and Replacement Ordinance	Yes	Local	No	Yes	
Comment:					
Stormwater Management Ordinance	Yes	Local, County & State	Yes	Yes	
Comment: NJDEP Requirement					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	
Comment: *Planning Board, Master Plan; Re-examination 2017*					
Capital Improvement Plan	Yes	Local	Yes	Yes	
Comment: *Township Committee, Township Committee funds projects such as culvert replacements and erosion control for hazard mitigation 10 year engineering planning, also integrated into budget*					
Disaster Debris Management Plan	Yes	Local & State	Yes	Yes	
Comment: *Integrated as part of EOP*					
Floodplain or Watershed Plan	Yes	Local	Yes	Yes	
Comment: *Township Engineer, New development is reviewed to ensure new structures are not built in the various flood plains; Flood Acquisition Plan (with Morris County); Watershed managed to ensure proper development and stormwater management*					
Stormwater Management Plan	Yes	Local & County	Yes	Yes	
Comment: *Township Engineer, New development provides stormwater management to offset increases in runoff and maintain ground water recharge*					

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	Is this State Mandated?	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 #.
Stormwater Pollution Prevention Plan	Yes	Local	Yes		
Comment:					
Urban Water Management Plan	No	N/A			
Comment: *Covered by Stormwater Management Plan*					
Habitat Conservation Plan	Yes	Local & State	Yes	Yes	
Comment:					
Economic Development Plan	Yes	Local	No		No
Comment: *Township Committee, Economic Development Committee steers development into appropriate areas*					
Open Space Plan	Yes	Local & County	No	Yes	
Comment: *Open Space purchased to reduce development*					
Stream Corridor Management Plan	Yes	County	No	Yes	
Comment: *County Mosquito Commission maintains stream corridors to help eliminate snags and reduce flooding*					
Flood Acquisition Plan	Yes	Local & County	No	Yes	
Comment: *Repetitive loss properties purchased to reduce losses and eliminate hazard*					
Transportation Plan	Yes	Local, County & State	Yes	Yes	
Comment: *Circulation Element*					
Agriculture Plan	N/A				
Comment:					
Climate Action Plan	No				
Comment:					
Tourism Plan	N/A				
Comment:					
Business Development Plan	Yes	Local	No	No	
Comment:					
Other					
Comment:					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	Yes	
Comment: *OEM, Plan used to guide OEM operations to ensure efficient operations during events* *Emergency Response Plan - Planning ensures proper equipment available in the event of an emergency*					
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Local	Yes	Yes	
Comment: *Informal Planning Process*					
Post-Disaster Recovery Plan	Yes	Local	Yes	Yes	

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	Is this State Mandated?	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:					
Continuity of Operations Plan	Yes	Local & County	Yes	Yes	
Comment:					
Public Health Plan	Yes	All	Yes	Yes	
Comment:					
Other					
Comment:					

Table 9.25-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes
Does your jurisdiction have the ability to track permits by hazard area?	Yes
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 Significantly

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Morris.

Table 9.25-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	Yes	OEM/Township Administrator
Environmental Board / Commission	Yes	Environmental Commission
Open Space Board / Committee	Yes	Open Space Committee
Economic Development Commission / Committee	Yes	Township Committee
Warning Systems / Services (reverse 911, outdoor warning signals)		
Maintenance program to reduce risk	Yes	DPW
Mutual aid agreements	Yes	FD/PD
Technical/Staffing Capability		

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Professional Contractors and Township Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering and Building Department
Planners or engineers with an understanding of natural hazards	Yes	Township Engineer
Staff with training in benefit/cost analysis	Yes	Engineering Department
Staff with training in green infrastructure	Yes	Engineering
Staff with education/knowledge/training in low impact development	Yes	Engineering / Planning
Surveyor	Yes	Consultant
Stormwater engineer	Yes	Township and Assistant Engineer
Personnel skilled or trained in GIS applications	Yes	Engineering
Local or state water quality professional	Yes	Engineering Department
Scientist familiar with natural hazards in local area	Yes	Engineering Department
Emergency manager	Yes	PD/FD/OEM
Watershed planner	Yes	Engineering Department
Environmental specialist	Yes	Engineering Department
Grant writers	Yes	Engineering Department and Consultants
Resilience Officer	No	
Other		

Fiscal Capability

The table below summarizes financial resources available to the Township of Morris.

Table 9.25-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes - Sewer
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	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Clean Water Act 319 Grants (Nonpoint Source Pollution)	Yes
Other Open Space Acquisition Funding Programs	Yes – Morris County Flood Mitigation Program (acquisitions)

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Morris.

Table 9.25-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes County OEM, NJOEM,
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes Facebook, Twitter, Municipal Website, Instagram
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes Reverse 911, Nixle, Social Media, Website
Do you have any established warning systems for hazard events? • If yes, briefly describe.	No

Community Classifications

The table below summarizes the classifications for community programs available to the Township of Morris.

Table 9.25-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	3	2015
Public Protection (Fire ISO Protection Class)	Yes	04/4X	2014
Storm Ready Certification	No	NP	N/A
Firewise Community Classification	No	NP	N/A
Sustainable Jersey	No	NP	N/A

N/A = Not Applicable
NP = Not Participating

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.

Table 9.25-9. Adaptive Capacity

Criterion	Response
Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality?	No

Criterion	Response
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?	Yes

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

National Flood Insurance Program

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

Table 9.25-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (name, department/position)	James Slate, Township Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	5/27/81
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	December 1994
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

Criterion	Response
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
□ 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?* • What is the insurance in force? • What is the premium in force?	NFIP policies: 13; WYO Policies: 81
How many total loss claims have been filed in your jurisdiction?* • How many claims are still open or were closed without payment? • What were the total payments for losses?	$831,546 in total payments (NFIP and WYO)
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation?	No

WYO = Write your own

**According to FEMA statistics as of July 2019*

ADDITIONAL AREAS OF EXISTING INTEGRATION

Planning

Morris Township incorporates Hazard Mitigation into our planning process. The Planning Board Master Plan takes hazards into consideration and works toward addressing existing and future issues. In the 2007 Master Plan Reexamination, the Township cites the creation of three ordinances from the Wastewater Management Plan; one of which requires an environmental impact statement for new development. When the Master Plan is updated we will continue to work on mitigating potential hazards.

The 2004 Open Space and Recreation Plan Update details the goals and objectives for preserving and protecting open space and environmental sensitive lands in the Township. In 1992, an Open Space Trust Fund of 1 cent per $100 of assessed value was established to fund open space acquisition projects; by 2004, the Township had used the funds to acquire 214 acres of open space.

The Township of Morris 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 which 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. In addition to MATCH funding available for projects with state or federal monies, Morris County has CORE funding in which the County takes the lead grant role, providing up to 75% of the cost of acquisition. To access this CORE funding, a municipality must have a FLAP. The FLAP is a dynamic, essential tool for understanding the unique flood hazards to residential homes within each community. Working closely with the municipality, Morris County creates this detailed, comprehensive analysis of the historic and current flood risks free of charge. A wide array of data is utilized from sources such as: FEMA, National Flood Insurance Program, USACE Flood Studies, USGS stream gage data, topography and soil analysis. All land acquired with MATCH and CORE funding within the FMP is permanently deed-restricted, preserved open space, available for public use as an active or passive recreation area. The acquired land is municipal-owned and managed in perpetuity.

Regulatory and Enforcement

The Planning Board, Board of Adjustment, Building and Engineering Departments ensure the applicable ordinances are followed to help prevent development in areas that have the potential to create a hazard. Ordinances have been developed over the years to prevent development in flood prone areas, to limit disturbance of steep slopes, to provide tree protection, stream setbacks, stormwater recharge, and stormwater management.

Operational and Administration

The Office of Emergency Management, Fire, Police and Engineering Departments and Department of Public Works all work together to address issues to help mitigate potential hazards. If one Department sees a problem that can be addressed we will put together a plan to eliminate or reduce the potential hazard. In addition to aiding Departments within the town, the Fire and Police Departments have mutual aid agreements that allow surrounding communities to provide and receive additional support during an emergency event.

Fiscal

The Township Committee supplies capital and operating funds to address hazard mitigation projects which are supported by the public and have a high cost to benefit ratio. All of our current hazard mitigation projects are funded by local funds. The Township also has an Open Space Trust Fund that is used to fund open space acquisition projects.

Education and Outreach

The various Departments work to educate the public about hazard mitigation. The Morris Township web site is used on a regular basis to distribute information and emails are used to distribute information about preparedness for storm events and to make the public aware of resources available during storm events. The Township is constantly expanding the email list to ensure the information gets out to as many residents as possible. The Township also uses the Nixle emergency notification system to provide residents with up-to-date information.

9.25.5 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 Township of Morris'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 9.25-11 provides details regarding municipal-specific loss and damages the Township of Morris experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.25-11. 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	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	The Township worked overtime to remove snow and open roadways. FEMA funds were requested for reimbursement.

Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
			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. At one point during the storm, up to 270,000 customers were without power.	Approximately $127,000 was received from FEMA
March 6-7, 2018	Severe Winter Storm and Snowstorm	Yes	12 to 24 inches of snow was observed across large parts of Morris County. 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 across portions of New Jersey, especially where the heaviest snow was reported. Many customers were still without power from the previous storm when this storm struck. Governor Murphy estimated about 350,000 customers state-wide lost power as a result of this second storm. Governor Phil Murphy declared a state of emergency which went into effect at 8 PM Tuesday March 6th.	The Township worked overtime to remove snow and open roadways. The Township also had significant debris removal from trees down and sidewalk damage from tree root balls lifting sidewalk. FEMA funds were requested for reimbursement. Approximately $675,000 was received from FEMA

9.25.6 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 9.25-1 summarizes the Township of Morris 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 9.25-12. 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 10 dams in the Township, 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:	9,838	NEHRP D&E:	4,299	100-year Loss:	$0	High
		Liquefaction Class 4:	783	Liquefaction Class 4:	317	500-year Loss:	$1,193,909	
						2,500-year Loss:	$19,344,566	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	4,554	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:	1,237					
Flood		100-year	102	100-year	52		$24,250,122	High

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
	100- and 500-Year Mean Return Period Event	500-year	133	500-year	71	100-year Loss:		
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	94	Class B:	36	Class B:	$26,562,465	
		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:	$82,842	High
						100 -Year Loss:	$1,441,351	
						500-year Loss:	$8,259,568	
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:	18	Wildfire:	14	Wildfire:	$9,264,855	Moderate

Repetitive Flood Losses

The following summarizes the repetitive and severe repetitive flood losses in the Township of Morris.

- Number of repetitive loss (RL) properties: 4
- Number of severe repetitive loss (SRL) properties: 1
- Number of RL/SRL properties that have been mitigated: 0

Source: FEMA BureauNet, 2019

Note: RL and SRL as of 04/26/2019; The number of SRL properties excludes RL properties and includes 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 and presents HAZUS-MH estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.25-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation (if none, need a new project to address)
		1% Event	0.2% Event	
Butterworth Sewage Treatment Plant	Wastewater	X	X	Township is currently designing a flood protection project for the plant; refer to 2020-Morris Township-005
Morris Township Fire Department Station 5 (HQ)	Fire	X	X	This structure is located above the flood elevation. No further mitigation.
Township of Morris Police Department	Police	X	X	This structure is located above the flood elevation. No further mitigation.

Additional Identified Vulnerabilities

The jurisdiction has identified the following vulnerabilities within their community:

According to the 2010 preliminary FEMA Flood Insurance Study (FIS) for Morris County, factors which affect flooding in Morris Township include increased runoff from development, steep land slopes, and low permeability of the soils. Flooding in the Township occurs along Whippany River, Watnong Brook, Great Brook, and Loantaka Brook. Problem flooding areas identified in the Township include the area near Whippany River at the Washington Valley Road crossing. This has caused road closures. Whitehead Road that crosses Whippany River closes due to flooding. During large storm events the Whippany River floods the Butterworth Sewer Treatment Plant. During heavy storms, Watnong Brook overflows its banks at Tracy Court and Bromleigh Way repeatedly due to backwater effects from the Whippany River. The area along Loantaka Brook and its tributaries at Johnston Drive, Arborway, Woodland Avenue (including the Police Station), Fanok Road, Dwyer Lane, Hillview Terrace, and Symor Drive have all flooded during severe rainstorms. Flooding occurs in the neighborhood of Western Avenue in the area of Molly Stark and Searing Avenue, an existing culvert collects debris, backs up and floods the area. Lastly, several homes on Whitney Avenue adjacent to Great Brook, east of I-287, have reported flood problems (FEMA FIS 2010).

Additional problems include downed threes throughout the Township.

Hazard Area Extent and Location

Hazard area extent and location maps were generated for the Township of Morris 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 Township of Morris has significant exposure; refer to Figures 9.25-1 and 9.25-2.

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 the 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 Township of Morris. The Township of Morris 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.

Table 9.25-14. Township of Morris Hazard Ranking Input

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

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

9.25.7 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 9.25-15. 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 #
Construction of a detention basin to mitigate upstream on Loantaka Brook.	Township Engineers	Ongoing (Study is ongoing). Study to be completed in a year	Yes	2020-Morris Township-001
Replacement of the Fill-A-Belli Deli Culvert and detention basin construction.	Township Engineers	Culvert replacement completed, detention basin construction to be completed in 3 years.	Yes	2020-Morris Township-002
Construction of a Salt Dome to mitigate snow hazard on roads.	Township Engineers	Planning stages, 5-year completion	Yes	2020-Morris Township-003
Acquisition/elevation of 2 repetitive loss properties on Western Avenue.	Township Engineers	Not complete but still a priority	Yes	2020-Morris Township-004
Acquisition/elevation of nine repetitive loss properties on Richlyn Avenue.	Township Engineers	Not complete but still a priority	Yes	2020-Morris Township-004
Develop all-hazards public education and outreach program for hazard mitigation and preparedness.	County OEM	Some links provided on website, and flyers. Ongoing initiative. This is considered a capability so we will discontinue from the mitigation strategy.		
Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to project structures from future damage, with repetitive loss and severe repetitive loss properties as a priority where applicable (Township has five RL properties) Phase 1: Identify appropriate candidates and determine most cost-effective mitigation option (in progress) Phase 2: Work with the property owners to implement selected action based on available funding and local match availability	Township Engineers	Discontinue. See above actions and 2020-Morris Township-004		
Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	County OEM	Discontinue. This is considered a capability so we will discontinue from the mitigation strategy.		
Support participation in the NFIP Community Rating System (CRS) program by attending CRS workshop(s) if offered within the County. Join the CRS program if	NFIP FPA	Discontinue. The Township is not interested in joining CRS.		

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 #
adequate resources to support long term participation can be dedicated.				

Proposed Hazard Mitigation Initiatives for the Plan Update

The Township of Morris 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 Township of Morris 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 9.25-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of Morris 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 4 FEMA mitigation action categories and the 6 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 9.25-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.

Table 9.25-16. Proposed Hazard Mitigation Initiatives

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-Morris Township-001 (previous 2015 action)	Modification of an existing detention basin to mitigate downstream on Loantaka Brook.	**Problem:** A majority of the watershed was developed prior to stormwater management requirements. A detention basin was constructed approximately 25 years ago and there may be the ability to modify the outlet structure to make the basin more effective at controlling downstream flooding. **Solution:** Modification of an existing detention basin to mitigate upstream on Loantaka Brook.	Both	Flood, Severe Weather	1	Township Engineers	Township	High	High	Short	Medium	NSP	NR
2020-Morris Township-002 (previous 2015 action)	Construct a detention basin upstream to help reduce flooding frequency downstream in the area of Fill-A-Belli Deli	**Problem:** The existing stream corridor that runs parallel with Western Avenue floods in the area of the culvert/Fill-A-Belli Deli. The channel also has severe erosion problem which would be improved with reduced flows and velocities downstream. **Solution:** Construct a detention basin upstream of the Fill-A-Belli Deli	Both	Flood, Severe Weather	1	Township Engineers	Township Possible 319 Grant	High	High	Short	Medium	NSP	NR
2020-Morris Township-003 (previous 2015 action)	Construction of a Salt Dome to mitigate snow hazard on roads.	**Problem:** The existing salt dome at the DPW is undersized and in poor condition. A new larger structure is required to provide adequate capacity for large storm events. **Solution:** Construction of a Salt Dome to increase capacity and assist with mitigating snow hazard on roads.	Both	Severe Winter Storm	1	Township Engineers	Township	High	High	Short	High	SIP	PP
2020-Morris Township-004	Mitigate flood-prone properties	**Problem:** Flood events have resulted in damages to property in the Township. There are NFIP Repetitive Loss properties in the Township. **Solution:** Conduct outreach to flood-prone property owners,	Existing	Flood	1, 2	NFIP Floodplain Administrator	FEMA HMA, Property Owner	High	High	Short	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
		including RL/SRL property owners and provide information on mitigation alternatives. After property owners indicate they would like to mitigate their property, assist them with identifying the preferred mitigation measures, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/ elevation.												
2020-Morris Township-005	Mitigate critical facilities and lifelines	**Problem:** The Butterworth Sewage Treatment Plant, Lake Valley Road, is a critical facility and is located in the 0.2-percent, or 500-year floodplain.	**Solution:** The Township is currently designing a flood proofing project for the Butterworth Sewer Treatment plant.	Existing	Flood, Severe Weather	1	Township Engineer, NFIP Floodplain Administrator	Township FEMA HMA	High	High	Long	Medium	SIP	PP
2020-Morris Township-006	Featherleigh Road and Normandy Parkway drainage	**Problem:** Roadway flooding occurs at Featherleigh Road and Normandy Parkway	**Solution:** Replace storm sewer pipe with increased size to support increased capacity	Existing	Flood, Severe Weather	1	Township Engineer, NFIP Floodplain Administrator	Township FEMA	High	High	Long	Low	SIP	PP
2020-Morris Township-007	Bradwahl Dam	**Problem:** There is no stabilized emergency spillway that exists on Bradwahl Dam it is necessary in accordance with NJDEP Dam Safety standards. No real benefit from existing basin, might be more cost-effective to eliminate the dam.	**Solution:** The Township conducted a hydrologic and hydraulic study and is looking to either construct a stabilized emergency spillway or remove the dam after a cost-benefit analysis is conducted.	Existing	Dam Failure, Flood, Severe Weather	1	Township Engineer, NFIP Floodplain Administrator	Township NJDEP FEMA	High	$800,000	Long	Low	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
2020-Morris Township-008	Structural Improvements at Highland Woods and Picatinny Tanks	**Problem:** At Highland Woods and Picatinny Tanks tank inspection, 2 out of 15 tanks in the system had broken rafters. In the event of a major snow storm, the roofs may collapse.	**Solution:** Roof rafters at both the tanks need to be repaired or replaced to protect the asset.	Existing	Severe Winter Storm	2	SMCMUA	FEMA HMA	High	High	Short	High	SIP	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*
SMCMUA	*Southeast Morris County Municipal Utility Authority*

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 9.25-17. Summary of Prioritization of Actions

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-Morris Township-001	Modification of an existing detention basin to mitigate downstream on Loantaka Brook.	1	1	1	1	0	0	0	1	0	1	1	1	1	1	10	Medium
2020-Morris Township-002	Construct a detention basin upstream to help reduce flooding frequency downstream in the area of Fill-A-Belli Deli	1	1	1	1	0	0	0	1	0	1	1	1	1	1	10	Medium
2020-Morris Township-003	Construction of a Salt Dome to mitigate snow hazard on roads.	1	1	1	1	0	1	0	0	1	1	0	1	1	1	10	High
2020-Morris Township-004	Mitigate floodprone properties	1	1	1	1	1	1	0	1	1	0	1	0	1	1	11	High
2020-Morris Township-005	Mitigate critical facilities	1	1	1	1	1	1	0	1	1	0	1	0	1	1	11	Medium
2020-Morris Township-006	Featherleigh Road and Normandy Parkway drainage	1	1	1	1	0	1	0	0	0	1	1	0	1	1	9	Low
2020-Morris Township-007	Bradwahl Dam	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	Low
2020-Morris	Structural Improvements at Highland Woods and Picatinny Tanks	1	1	1	1	0	1	1	1	0	1	1	1	1	1	12	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
Township-008																	

Notes: Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

Table 9.25-18. 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		-007				-007		
Disease Outbreak								
Drought								
Earthquake								
Extreme Temperature								
Flood		-001, -002, -004, -005, -006				-001, -002, -004, -005, -006		
Geologic								
Harmful Algal Bloom								
Hazardous Substances								
Infestation								
Severe Weather		-001, -002, -004, -005, -006				-001, -002, -004, -005, -006		
Severe Winter Weather		-003, -008				-001, -002, -003, -008		-003
Wildfire								

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

9.25.8 Staff and Local Stakeholder Involvement in Annex Development

The Township of Morris 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 9.25-19. Contributors to the Annex

Entity	Title	Method of Participation
James Slate	Engineer	Attended meetings; provided information to update the annex; Primary point of contact and NFIP Floodplain Administrator
David Hansen	Assistant Engineer	Attended meetings; provided information to update the annex
Dan Nunn	OEM Coordinator	Attended meetings; provided information to update the annex
Robert Shearer	Captain of the Police Department	Attended meetings; provided information to update the annex
Michael Fischer	Accounts Payable	Attended meetings; provided information to update the annex
Jesse Kaar	Fire Chief	Attended meetings; provided information to update the annex
Paul Phillips	Township Planner	Attended meetings; provided information to update the annex
Albert Mastrotattista	Construction Official	Attended meetings; provided information to update the annex
Cathleen Amelio	Township Clerk	Attended meetings; provided information to update the annex

Entity	Title	Method of Participation
Timothy Quinn	Administrator	Attended meetings; provided information to update the annex; Secondary point of contact
John Flanagan	Assistant Superintendent	Attended meetings; provided information to update the annex
Mark Sellin	Township Emergency Management	Attended the mitigation strategy workshop to update the mitigation strategy.

Figure 9.25-1. Township of Morris Hazard Area Extent and Location Map

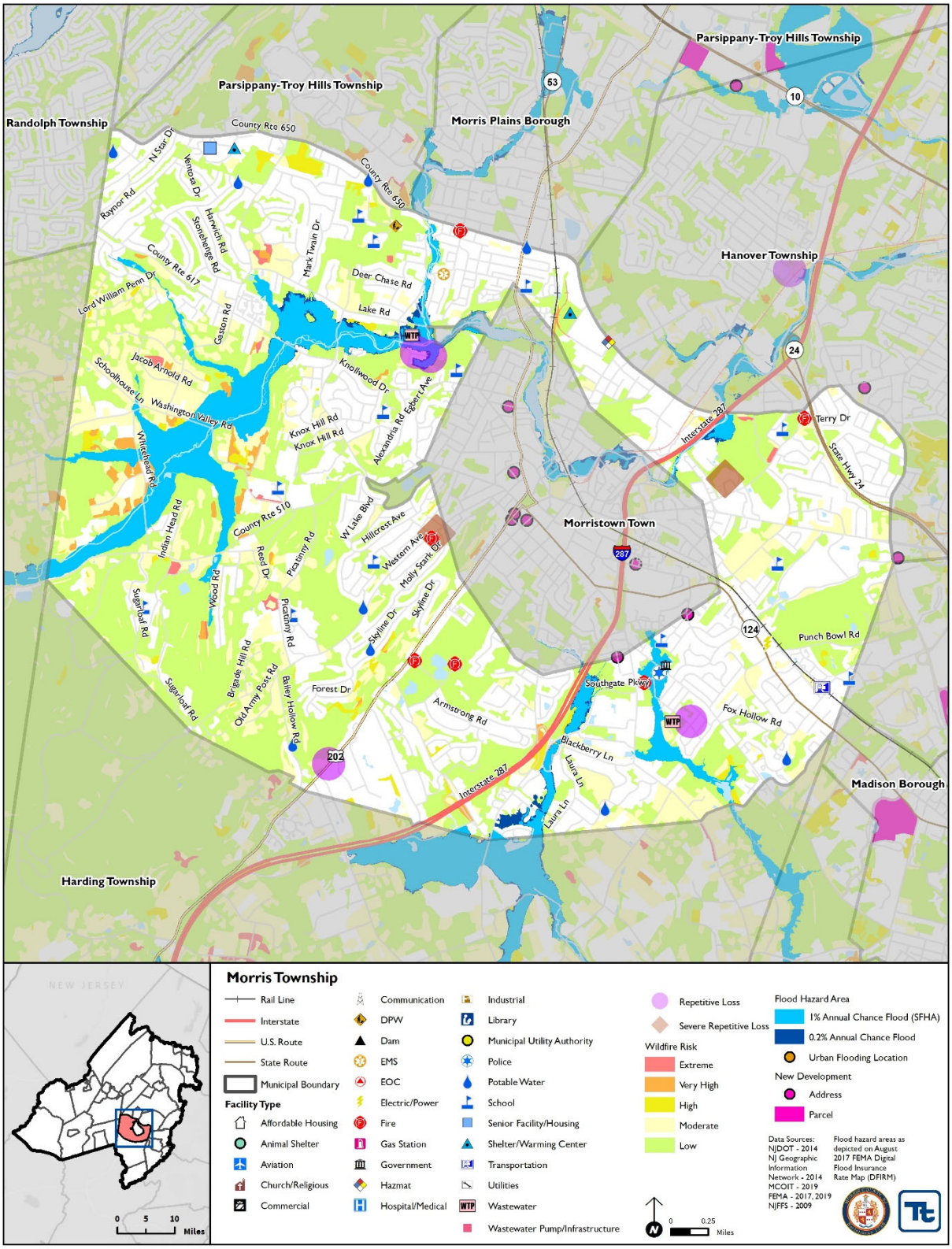
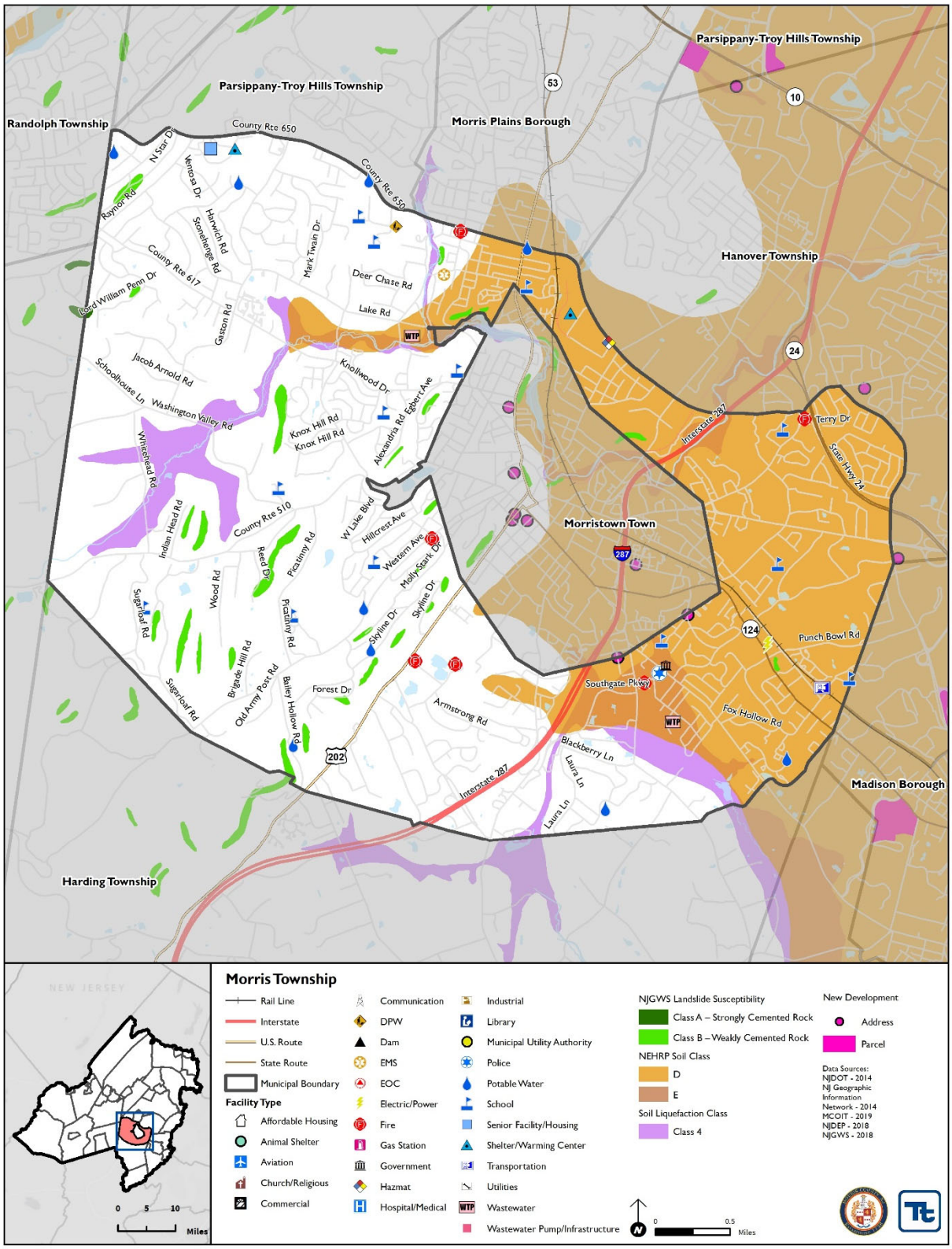


Figure 9.25-2. Township of Morris Hazard Area Extent and Location Map



Action Worksheet			
Project Name:	Mitigate floodprone properties		
Project Number:	2020-Morris Township-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Flood events cause repetitive flooding at residential properties, some of which have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to eligible RL/SRL property owners. Collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/ elevating residential homes in the high-risk flood prone areas, manage projects through to completion.		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	1% annual chance flood event + freeboard *(in accordance with flood ordinance)*	**Estimated Benefits (losses avoided):**	Eliminates flood damage to homes and residents
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	**Goals Met:**	3
Estimated Cost:	$3 Million	**Mitigation Action Type:**	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	12 months
Estimated Time Required for Project Implementation:	Three years	**Potential Funding Sources:**	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Engineer	**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
	Elevate homes	$500,000	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	$500,000	Elevated roadways would not protect the homes from flood damages

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Mitigate floodprone properties	
Project Number:	2020-Township of Morris-004	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Families moved out of high-risk flood areas.
Property Protection	1	Reduces or eliminates property damage
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The Township has the legal authority to submit application and manage grant
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Project would remove/protect families from the flood prone areas of the Township.
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Mitigate floodprone critical facilities		
Project Number:	2020-Morris Township-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Butterworth Sewage Treatment Plant, Lake Valley Road, is located in the 0.2-percent, or 500-year floodplain.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township is designing a floodproofing project to protect this critical facility.		
Is this project related to a Critical Facility or Lifeline?	Yes ☒	No ☐	
Level of Protection:	To be determined	**Estimated Benefits (losses avoided):**	Reduce or eliminates flood damage
Useful Life:	Will be determined based on floodproofing measures identified during design.	**Goals Met:**	1, 3
Estimated Cost:	High	**Mitigation Action Type:**	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	2 years
Estimated Time Required for Project Implementation:	3 years	**Potential Funding Sources:**	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Engineer	**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
	Elevate	$500,000	Reduces property damage
	Elevate roads	$500,000	Elevated roadways would not protect critical facility structures

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Mitigate floodprone critical facilities	
Project Number:	2020-Township of Morris-005	
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	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Featherleigh Road and Normandy Parkway drainage		
Project Number:	2020-Morris Townships-006		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Featherleigh Road and Normandy Parkway experiences roadway ponding as a result of heavy rain events; stormwater infrastructure is old and may be inadequate in terms of size/capacity		
Action or Project Intended for Implementation			
Description of the Solution:	Replace storm sewer pipe with increased size to support increased capacity		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	To be determined what is feasible and cost-effective	**Estimated Benefits (losses avoided):**	Property protection; alleviate roadway flooding
Useful Life:	30 years	**Goals Met:**	1
Estimated Cost:	High	**Mitigation Action Type:**	SIP
Plan for Implementation			
Prioritization:	Low	**Desired Timeframe for Implementation:**	Long
Estimated Time Required for Project Implementation:	Short, when funding is secured	**Potential Funding Sources:**	FEMA HMA; Borough match
Responsible Organization:	Borough Engineer	**Local Planning Mechanisms to be Used in Implementation if any:**	Capital

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Elevate roadway	High	Not feasible
	Acquire properties along roadways and divert traffic	High	Not feasible

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Mitigate flooded roadways	
Project Number:	2020-Morris Townships-006	
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	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	Low	

Name of Jurisdiction: Southeast Morris County Municipal Utilities Authority

Name and Title Completing Worksheet: Zehra Karim, Senior Engineer, SMCMUA

Action Worksheet			
Project Name:	Structural Improvements at Highland Woods and Picatinny Tanks		
Project Number:	2020-Morris Township-008		
Risk / Vulnerability			
Hazard(s) of Concern:	Roof collapse, loss of water supply		
Description of the Problem:	After the tank inspection, 2 out of 15 tanks in the system had broken rafters. In the event of a major snow storm, the roofs may collapse.		
Action or Project Intended for Implementation			
Description of the Solution:	Roof rafters at both the tanks need to be repaired or replaced.		
Is this project related to a Critical Facility or Lifeline?	Yes X No ☐		
Level of Protection:		**Estimated Benefits (losses avoided):**	
Useful Life:	50 years	**Goals Met:**	
Estimated Cost:	$0.75M	**Mitigation Action Type:**	SIP
Plan for Implementation			
Prioritization:	HIGH	**Desired Timeframe for Implementation:**	6 months
Estimated Time Required for Project Implementation:	4 year	**Potential Funding Sources:**	HMGP
Responsible Organization:	SMCMUA	**Local Planning Mechanisms to be Used in Implementation if any:**	

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Rafter repair/replace	$0.75M-$1.0M	Eliminate risk of water supply loss

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Structural Improvements at Highland Woods and Picatinny Tanks	
Project Number:	2020-Morris Township-008	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Project implementation will eliminate risk of impact on quality of life and property loss during next major flood event.
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	SMCMUA is the sole authority having jurisdiction of the well sites
Fiscal	1	Project would require new funding/grant source
Environmental	1	Project. implementation may eliminate env. impacts during major flood
Social	0	No adverse social impacts
Administrative	1	Jurisdiction has personnel or administrative capabilities
Multi-Hazard	1	
Timeline	1	Project can be finished within next 12 months
Agency Champion	1	Project is supported by Board members from 4 Creating Municipalities (Morristown, Morris Township, Morris Plains & Hanover Twp.)
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	