9.19 BOROUGH OF MADISON

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

9.19.1 Hazard Mitigation Planning Team

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

Table 9.19-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: John Rafter, OEM Address: 62 Kings Road, Madison, NJ 07940 Phone Number: 973-593-3000 Email: rafterj@rosenet.org	Name / Title: Robert Vogel, Engineer Address: 50 Kings Road, Madison, NJ 07940 Phone Number: 973-593-3061 Email: vogelr@rosenet.org
NFIP Floodplain Administrator	
Name / Title: Robert Vogel, Engineer Address: 50 Kings Road, Madison, NJ 07940 Phone Number: 973-593-3061 Email: vogelr@rosenet.org	

9.19.2 Jurisdiction Profile

The Borough of Madison is a small suburban community in southeast Morris County. The Borough is bordered by five municipalities, including the Boroughs of Florham Park and Chatham to the north and east; the Townships of Chatham, Harding, and Morris to the south and west; and Morristown to the northwest. The Borough has a total area of 4.22 square miles (4.21 square miles of land and 0.01 square miles of water). Black Brook and Spring Garden Brook run through the Borough; both are tributaries of the Passaic River.

According to the U.S. Census, the 2010 population for the Borough of Madison was 15,845. The estimated 2017 population was 16,080, a 1.5 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 5.3 percent of the population is 5 years of age or younger and 14 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.

9.19.3 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 9.19-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.19-1 and 9.19-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development.

Table 9.19-2. 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	19	23	30	21	14
Multi-Family1	1	2	1	1	0
Other (commercial, mixed-use, etc.)	1	1	0	1	0
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					
GREEN VILLAGE REDEVELOPMENT	RES/COMM	100 UNITS 3 BLDGS	B3001 L8 KINGS ROAD	NEHRP: D	Complete
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
GIRALDA FARMS SITE PLAN BUILDOUT	COMM	450,000 SF OFFICE	B3202 L1 MADISON AVE	NEHRP: D	SITE PLAN
14 Lincoln Place	COMM	Mixed use offices, shops, residences	14 Lincoln Place	None	SITE PLAN

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

9.19.4 Capability Assessment

The Borough of Madison 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.

Planning, Legal and Regulatory Capability

The table below summarizes the legal and regulatory tools that are available to the Borough of Madison.

Table 9.19-3. Planning, Legal and Regulatory Capability

Legal and Regulatory Capability					
	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated/Allowed	Has this been integrated? 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 and State	Yes	No	No
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. Enforced by Building Department, State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)					
Zoning Code	Yes	Local	Yes, if have planning board	No	No
Comment: State permissive on local level. 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. Enforced by Land Use Department, Land Use Ordinance 195.					
Subdivisions	Yes	Local	Yes, if have planning board	No	No
Comment: P.L.1975, c.291 (C.40:55D-47): 40:55D-37. Grant of power; referral of proposed ordinance; county planning board approval. Dictated by the Municipal Land Use Law. NJ Statute 40:27-6.2 The board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section. Enforced by Land Use Department, Land Use Ordinance 195.					
Stormwater Management	Yes	State and Local	Yes	No	No
Comment: See Title 7 of the NJ Administrative Code, N.J.A.C. 7:8. Enforced by Planning Board, Land Use Code 195.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	No	State	Yes	No	No
Comment: 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	Yes	Local and State	Yes, if have planning board	No	No
Comment: State Mandated on a municipal level. See Zoning Ordinance. Plan Endorsement Process via the State Development & Redevelopment Plan provides for the delineation of Growth Areas and Environs; Use of the endorsed plans in the implementation of state environmental regulations makes the Plan Endorsement process a growth management strategy. Enforced by Land Use Department, Land Use Ordinance 195.					
Shoreline Development	No	-	-	-	-
Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.					
Site Plan Review	Yes	Yes	Yes	No	No
Comment: Dictated by the Municipal Land Use Law which sets forth minimum requirements for plans, etc., timeframes for development review. NJ Statute 40:27-6.2: The board of freeholders of any county having a county planning board shall					

Legal and Regulatory Capability					
	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated/Allowed	Has this been integrated? If yes- how? If yes- how? Describe in comments	Has this been integrated? If no - can it be a mitigation action? If yes, add Mitigation Action #.
provide for the review of all subdivisions of land within the county by county planning board and for the approval of those subdivisions affecting county road or drainage facilities. 40:27-6.10: Each municipal clerk shall file with the county planning board a copy of the planning and zoning ordinances of the municipality and shall notify the county planning board of the introduction of any revision or amendment of such an ordinance which affects lands adjoining county roads or other county lands, or lands lying within 200 feet of a municipal boundary, or proposed facilities or public lands shown on the county master plan or official county map.					
Environmental Protection	No	-	-	-	-
Comment: The rules that are utilized by the NJ Department of Environmental Protection and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code.					
Flood Damage Prevention	Yes	Local	No	No	No
Comment: The NJ State Law Flood Area Control Act (N.J.S.A. 58:16A-52) and the National Flood Control Act of 1968 (NFIP) are state and federal acts to support minimization of flood losses. They do not require local adoption but as enforced by the NJDEP, the floodplain ordinances of each municipality must be reviewed for compliance with these regulations. In addition, participation in the NFIP requires a floodplain ordinance. Enforced by Land Use Department, Land Use Ordinance 195.					
Wellhead Protection	Yes	Local	No	No	No
Comment: Delineation of well head protection areas (WHPAs) is part of the NJ-approved 1991 well head protection plan (WHPP) for public community water supply wells. These are priority areas for efforts to prevent and clean up ground water contamination. Municipalities are empowered to regulate land use, physical facilities and other activities within WHPAs areas, the potential for groundwater contamination can be reduced under the provisions of the New Jersey Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., which authorizes each municipality to plan and regulate land use to secure a safe and adequate drinking water supply for its residents. Also refer to Safe Drinking Water Regulations (NJAC 7:10-11.7(b)1)). Land Use 195.					
Emergency Management	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. See Emergency Operations Plans below.					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other: Steep Slopes Ordinance	Yes	Local	No	No	No
Comment: Enforced by Land Use Department, Land Use Ordinance 195 Steep Slope					
Planning Documents					
Master Plan	Yes	Local	Yes	Yes	2020-Madison-001
Comment: Per NJSA: Yes, if planning board (40:55D-28) and must be re-examined every ten years (40:55D-89.1). Enforced by Planning Board, March 15, 2011.					
Capital Improvement Plan	Yes	Local	Allowed	No	No
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. Enforced by Planning Board, developed annually.					
Disaster Debris Management Plan	No	-	-	-	-
Comment:					

Legal and Regulatory Capability					
	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated/Allowed	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Floodplain or Watershed Plan	Yes	Local	No	No	No
Comment: U.S. Army Corps of Engineers Regulatory Program Regulations (33 CFR 320-332). Land Use Ordinance 195.					
Stormwater Management Plan	Yes	Local, State	Yes	No	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). Enforced by Planning Board, Land Use Ordinance 195. May 2005. https://www.rosenet.org/1035/Stormwater-Management					
Stormwater Pollution Prevention Plan	Yes	Local, State	Yes	No	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). https://www.rosenet.org/1035/Stormwater-Management April 1, 2005.					
Urban Water Management Plan	No	-	-	-	-
Comment:					
Habitat Conservation Plan	No	-	-	-	-
Comment: May develop a conservation plan element in master plan per NJSA 40:5D-28b (8).					
Economic Development Plan	Yes	Local	No	No	No
Comment: Per NJSA 40:55D-28b. (9) There can be a generic Economic Development Element of the County Comprehensive Plan. Municipality can establish Economic Development Commission that can facilitate incentive programs (façade programs, low-interest loans, etc.). Downtown Development Commission.					
Shoreline Management Plan	No	-	-	-	-
Comment:					
Community Wildfire Protection Plan	No	-	-	-	-
Comment:					
Community Forest Management Plan	Yes	Local, State	No	No	No
Comment: Optional accreditation for county and municipalities for reduction of liability, New Jersey Urban and Community Forestry Program (NJUCF).					
Transportation Plan	Yes	Local	No	No	No
Comment: May develop a circulation plan element in master plan per NJSA 40:55D-28b. (4). Land Use Ordinance 195. Transportation Element of the Master Plan.					
Agriculture Plan	No	-	-	-	-
Comment: May develop a farmland preservation plan element per NJSA 40:5D-28b (13).					
Climate Action Plan	No	-	-	-	-
Comment: May develop a green building and environmental sustainability plan element per NJSA 40:5D-28b (16).					
Tourism Plan	No	-	-	-	-
Comment:					
Business Development Plan	No	-	-	-	-
Comment:					
Other: Shade Tree commission	Yes	Local	Allowed	No	No

Legal and Regulatory Capability					
	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated/Allowed	Has this been integrated? If yes- how? If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: 40:37-5. Powers; regulations; trees on highways; parks: Except as hereinafter provided, the shade tree commission may exercise exclusive control over the regulation, planting and care of shade and ornamental trees and shrubbery now situate or which may hereafter be planted in any public highway, park or parkway of the county, including: a. The planting, trimming, spraying, care and protection thereof; b. The regulation and control of the use of the ground surrounding the same so far as may be necessary for their proper growth, care and protection; c. The moving or requiring the removal of any tree or part thereof, dangerous to public safety; d. The care and control of the parks and parkways; e. The encouragement of arboriculture. Amended by L.1958, c. 41, p. 132, s. 2, eff. May 20, 1958.					
Other - Historic Preservation	Yes	Local	Allowed	No	No
Comment: 40:32-6. Acquisition and preservation of historical buildings and data - Any county may acquire, by gift or purchase, any real estate or any interests therein, together with any and all buildings thereon within the limits of the county for historical purposes, or for the purpose of preserving therein or thereon historical data and objects of historical interest.					
Response/Recovery Planning					
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. Part of Community Emergency Management Plan, which was updated July 2018.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	No	-	-	-	-
Comment:					
Continuity of Operations Plan	No	-	-	-	-
Comment:					
Public Health Plan	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					

Table 9.19-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes Planning Board
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.	Yes Mitigation sites identified

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Madison.

Table 9.19-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Land Use Department
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Environmental Commission, Sustainable Madison
Open Space Board / Committee	Yes	Open Space Committee
Economic Development Commission / Committee	Yes	Insert appropriate information
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	RAVE (county-wide reverse 911)
Maintenance program to reduce risk	Yes	Clean catch basins and clear lines, slip lining sewers
Mutual aid agreements	Yes	Police, Fire, Engineer, Building, Electric Utility
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineer and Consultant
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineer and Consultant
Planners or engineers with an understanding of natural hazards	Yes	Engineer and Consultant
Staff with training in benefit/cost analysis	Yes	Engineer and Consultant
Staff with training in green infrastructure	Yes	Engineer
Staff with education/knowledge/training in low impact development	Yes	Engineer
Surveyor	Yes	Consultant
Stormwater engineer	Yes	Engineer
Personnel skilled or trained in GIS applications	Yes	Engineer and Consultant
Local or state water quality professional	Yes	Whippany Watershed, Great Swamp
Scientist familiar with natural hazards in local area	Yes	Sustainable Madison
Emergency manager	Yes	Police Department Support Service
Grant writers	Yes	Staff
Resilience Officer	Yes	Engineer
Watershed planner	Yes	Whippany Watershed, Great Swamp
Environmental specialist	Yes	Engineer
Professionals trained in conducting damage assessments	Yes	Engineer and Building Official

Fiscal Capability

The table below summarizes financial resources available to the Borough of Madison.

Table 9.19-6. 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

Financial Resource	Accessible or Eligible to Use?
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
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 Borough of Madison.

Table 9.19-7. 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 https://rosenet.org/442/Local-Emergency-Council recommend link to county HMP
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes Facebook, Twitter, Instagram
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes Sustainable Madison, Madison Environmental Commission
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes Electric utility bill mailings
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes RAVE

Community Classifications

The table below summarizes the classifications for community programs available to the Borough of Madison.

Table 9.19-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	3	2015
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	Silver	

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 Borough has access to resources to determine the possible impacts of climate change upon the municipality, the administration supports integration of climate change in policies or actions, and climate change currently is integrated into current policies, plans, or actions. The table below summarizes the adaptive capacity for climate change and the jurisdiction's rating. Results are from Annex meeting. The Borough of Madison provided capability rankings.

Table 9.19-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Dam Failure	Low
Disease Outbreak	High
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	High
Geological Hazards (*landslides and subsidence/sinkholes*)	Medium
Harmful Algal Bloom	Low
Hazardous Materials	High
Infestations	Medium
Severe Weather	High
Severe Winter Weather	High
Wildfire	Low

Notes:
High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;
Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

National Flood Insurance Program

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

Table 9.19-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineer
Who is your floodplain administrator? (name, department/position)	Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	2005
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?	n/a

Criterion	Response
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
□ If so, what type of assistance/training is needed?	n/a
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?	31 $8,367,000 $14,130
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?	17 0 Open, 6 Closed without payment $77,479
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?	Yes

Policies and Claims from https://bsa.nfipstat.fema.gov/reports/1011.htm and https://bsa.nfipstat.fema.gov/reports/1040.htm as of 09/30/2018.

Additional Areas of Existing Integration

In the performance period since adoption of the 2015 HMP, the Borough of Madison made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the HMP and strategy:

- The Borough established the Borough of Madison Municipal Building as a warming and cooling station.
- The Borough established the Madison Volunteer Ambulance Corps as a shelter that holds 40 people with a small kitchen, showers, and cots borrowed from the County.
- The Borough established the Madison Civic Center that serves as a senior center and health dept as a shelter holding up to 125 people with a small kitchen but no showers.

9.19.5 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 Borough of Madison'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 9.19-11 provides details regarding municipal-specific loss and damages the Borough experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.19-11. 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	An impulse from the west coast traversed the midsection of the country, then developed into a low-pressure system as it tracked across the Gulf States before intensifying along the Carolina coast into a major nor'easter, producing record snowfall in parts of New Jersey on January 23rd. It then moved out to sea after passing by the mid-Atlantic coast early on January 24th. Wind gusts up to 60 MPH produced blizzard conditions as visibilities dropped to one-quarter mile or less in spots. Snowfall totals included 21.0 inches in Chatham.	No damages were reported by the Borough.
March 6-7, 2018	Severe Winter Storm and Snowstorm (DR-4368)	Yes	Precipitation gradually overspread the region during the overnight hours of March 6th to the 7th. 12 to 24 inches were 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.	No damages were reported by the Borough.

9.19.6 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 9.19-12 summarizes the Borough of Madison's 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 9.19-12. 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 0 dams in the Borough, 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:	16,066	NEHRP D&E:	6,301	100-year Loss:	$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	$3,809,327	
						2,500-year Loss:	$54,712,169	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	2,255	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:	997					
Flood	100- and 500-Year Mean Return Period Event	100-year	2	100-year	1	100-year Loss:	$40,842	High
		500-year	128	500-year	50			
Geological	High Landslide Susceptibility Areas and	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	$0	

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
	Areas developed over carbonate rock	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:	$54,722	High
						100 -Year Loss:	$650,791	
						500-year Loss:	$3,522,953	
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:	0	Wildfire:	1	Wildfire:	$56,280	Moderate

Repetitive Flood Losses

The following summarizes the repetitive and severe repetitive flood losses in the Borough of Madison.

- 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

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). The NJ RL Masterlist incorrectly identifies a property with a mailing address of Old Bridge in the community name of Madison.

Critical Facilities

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

Table 9.19-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Well C - 34 North St	Water Utility	-	x	2020-Madison-002
North Street Sewer Lift Station - 34 North St	Sewer Utility	-	x	Complete

Additional Identified Vulnerabilities

In the Borough of Madison, flooding along Spring Garden Brook and Black Brook have historically occurred as a result of heavy rainfall, usually associated with localized thunderstorms and hurricanes during the summer and fall. Water levels along Spring Garden Brook and Black Brook within the Borough are not affected by the water levels of the Passaic River. Few flooding problems in the Borough originate outside of the Borough. Drainage problems within Madison can be attributed to inadequate culverts and storm sewers. Storm sewer inlets along steeply sloping streets are inefficient in the Borough and stormwater runoff has a tendency to flow over the outlets. Because of this, flooding may occur in the flatter areas of the Borough due to the additional runoff. Areas subject to this kind of flooding are located near Kings Road and near the tributary to Black Brook in the Anthony Drive-North Street area (FEMA FIS 2010).

The jurisdiction has identified the following vulnerabilities within their community:

- Belleau Woods culvert is prone to flooding.
- Spring Garden Brook is prone to flooding.

Hazard Area Extent and Location

Hazard area extent and location maps were generated for the Borough of Madison 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 Borough of Madison has significant exposure. A map of the Borough of Madison hazard area extent and location is provided that 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; and 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. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Madison. The Borough of Madison 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. The Borough of Madison increased the flood ranking from medium to high and the geological hazard ranking from low to medium.

Table 9.19-14. Borough of Madison Hazard Ranking Input

Dam Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazard
Low	High	Medium	Medium	Medium	High	Medium

Harmful Algal Bloom	Hazardous Substances	Infestation	Severe Weather	Severe Winter Weather	Wildfire
Low	High	Medium	High	High	Low

9.19.7 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 9.19-15. 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 #
MAD - 1 Backup power (generator) for Madison High School (shelter).	OEM	No progress	X	2020-Madison-003
MAD - 2 Reconstruction of Elmer Street Culvert.	DPW	In progress. Continue - parallel trunk line installed,	X	2020-Madison-005

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 #
		but new culvert has not been installed due to easement issues.		
MAD - 3 Improvement of Sewage Pump Station on North Street. Storm water back-up overwhelms this pump station.	DPW	Complete	-	-
MAD - 4 Stream Channel Stabilization at Johns Street.	DPW	Complete	-	-
MAD - 5 Install Trash Rack at Library Swale, set up bar grates	DPW	In progress. Installed temporary measures, will install permanent solution.	X	2020-Madison-006
MAD - 6 Develop all-hazards public education and outreach program for hazard mitigation and preparedness	Local OEM	Complete. Website has links, include info with electric bills emergency information, Facebook.	-	-
MAD - 7 Culvert Replacement, Stream bed and bank re-stabilization - Belleau Woods Culvert	Engineer	In progress. Plans completed. Need funding and permits.	X	2020-Madison-004
MAD - 8 Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include:	OEM	Complete	-	-

The Borough of Madison did not identify additional mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy.

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Borough of Madison was invited to 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 Borough of Madison 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 9.19-16 summarizes the comprehensive range of specific mitigation initiatives the Borough of Madison 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 9.19-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.

Table 9.19-16. 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-Madison-001	Master Plan Evaluation	Borough is updating the Master Plan. Previous plan did not reference county HMP.	Integrate and reference the county HMP in Master Plan Reevaluation.	Existing	All	1, 3, 4	Planning	Operating budget	Low	Low	Short	Low	EAP	PI
2020-Madison-002	Well C	Well C is a lifeline in the floodplain that could disrupt delivery of drinking water.	Determine extent of flooding expected to the facility and plan mitigation. Can be integrated into the existing Wastewater Management Plan for Morris County. https://planning.morriscountynj.gov/wp-content/uploads/2014/11/county_wide_summary.pdf	Existing	Flood	1, 4	Engineering	Operating budget	High	Medium	Medium	High	SIP	PP, PR
2020-Madison-003	Madison High School Primary Shelter	Madison High School that is used as a primary shelter does not have backup power.	Purchase and install a backup generator for Madison High School.	New	Flood, Severe Weather, Severe Winter Weather	1, 4	Engineering	HMGP, PDM	High	Medium	Medium	High	SIP	PR. PP, ES
2020-Madison-004	Belleau Woods Culvert	Belleau Woods Culvert requires replacement, stream bed and bank re-stabilization.	Plans completed. Need funding and permits.	Existing	Flood, Severe Weather, Severe Winter Weather	1, 4	Engineering	Capital budget, HMGP, PDM	High	Medium	Long	High	SIP	PR, 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-Madison-005	Elmer Street Culvert	Parallel trunk line installed to ease flooding, but new culvert has not been installed due to easement issues.	Resolve easement issues and	Existing	Flood, Severe Weather, Severe Winter Weather	1, 4	Engineering	Capital budget, HMGP, PDM	High	Medium	Long	High	SIP	PR, PP
2020-Madison-006	Library Swale	Library Swale becomes clogged with trash. Temp. measures installed; need permanent solution.	Install permanent Trash Rack at Library Swale, set up bar grates	New	Flood, Severe Weather, Severe Winter Weather	1, 4	Engineering	Capital budget, HMGP, PDM	High	Medium	Long	High	SIP	PR, PP
2020-Madison-007	Spring Garden Brook	Spring Garden Brook stream bed and bank require re-stabilization.	Plans completed. Need Funding and permits.	Existing	Flood, Severe Weather, Severe Winter Weather	1	Engineering	Capital budget, HMGP, PDM	High	Medium	Long	High	SIP	PR, PP
2020-Madison-008	Madison Housing Authority Backup	The Madison Housing Authority facilities at 24 Central Ave and 44 Cook Avenue do not have backup power that puts seniors at risk.	Design, purchase, and install generators at two facilities.	New	Utility failure, Flood, Severe Weather, Severe Winter Weather	1, 4	Engineering	Capital budget, HMGP, PDM	High	Medium	Long	High	SIP	PR, PP
2020-Madison-009	Local Emergency Planning Council Website	Website does not provide link to Morris County HMP.	Include link to https://oem.morriscountynj.gov/mitigation/2020-mitigation-plan-update/ from website.	Existing	All	1, 2, 3, 4	Public Information Officer	Operating budget	Medium	Low	Short	Medium	EAP	PI

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 9.19-17. Summary of Evaluation and Action Priority

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-Madison-001	Master Plan Evaluation	0	0	0	1	0	1	0	0	0	0	1	1	0	0	4	Low

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-Madison-002	Well C	1	1	1	1	1	1	1	0	1	0	1	0	0	0	9	High
2020-Madison-003	Madison High School Primary Shelter	1	1	1	1	1	1	1	0	1	0	1	0	0	0	9	High
2020-Madison-004	Belleau Woods Culvert	1	1	1	1	1	1	0	0	0	1	0	1	1	0	9	High
2020-Madison-005	Elmer Street Culvert	1	1	1	1	1	1	1	1	1	0	1	0	0	1	11	High
2020-Madison-006	Library Swale	1	1	1	1	1	1	1	1	1	0	1	0	1	1	12	High
2020-Madison-007	Spring Garden Brook	1	1	1	1	1	1	0	0	0	1	0	1	1	0	9	High
2020-Madison-008	Madison Housing Authority Backup	1	1	1	1	1	1	1	1	1	0	1	0	1	1	12	High
2020-Madison-009	Local Emergency Planning Council Website	1	0	0	1	1	1	1	0	1	0	1	0	0	0	7	Medium

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

Table 9.19-18. 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	-	-	001, 009	-	-	-	-	-
Disease Outbreak	-	-	001, 009	-	-	-	-	-
Drought	-	-	001, 009	-	-	-	-	-
Earthquake	-	-	001, 009	-	-	-	-	-
Extreme Temperature	-	-	001, 009	-	003	-	-	-
Flood	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009
Geological	-	-	001, 009	-	-	-	-	-
Harmful Algal Bloom	-	-	001, 009	-	-	-	-	-
Hazardous Substance	-	-	001, 009	-	003	-	-	-
Infestation	-	-	001, 009	-	003	-	-	-
Severe Weather	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009
Severe Winter Weather	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009	001, 002, 004, 005, 006, 007, 008, 009
Wildfire	-	-	001, 009	-	003	-	-	-

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.
RED = high ranked hazard
ORANGE = medium ranked hazard
YELLOW = low ranked hazard

9.19.8 Staff and Local Stakeholder Involvement in Annex Development

The Borough of Madison 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 9.19-19. Contributors to the Annex

Entity	Title	Method of Participation
John Rafter	OEM Coordinator, Madison PD	1st Annex Meeting, Annex review and input
Robert Vogel	Engineer, Borough of Madison	1st Annex Meeting, Annex review and input
Robert Duffy	Executive Assistant, Madison DPW	1st Annex Meeting
Lou DeRosa	Fire Chief, Borough of Madison	1st Annex Meeting
Ken O'Brien	DPW, Borough of Madison	1st Annex Meeting
Joseph Longo	Police, Borough of Madison	1st Annex Meeting

Figure 9.19-1. Borough of Madison Hazard Area Extent and Location Map 1

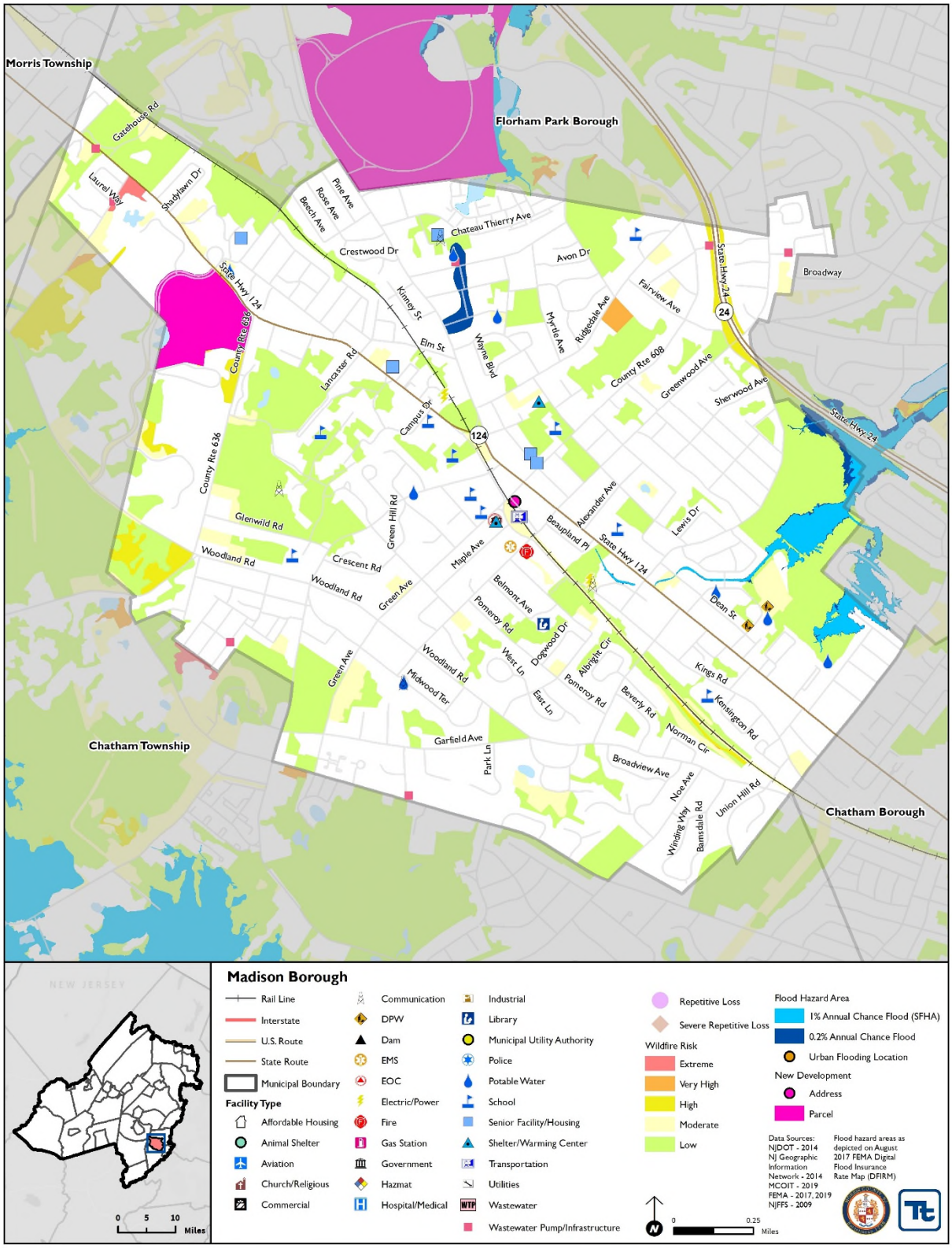
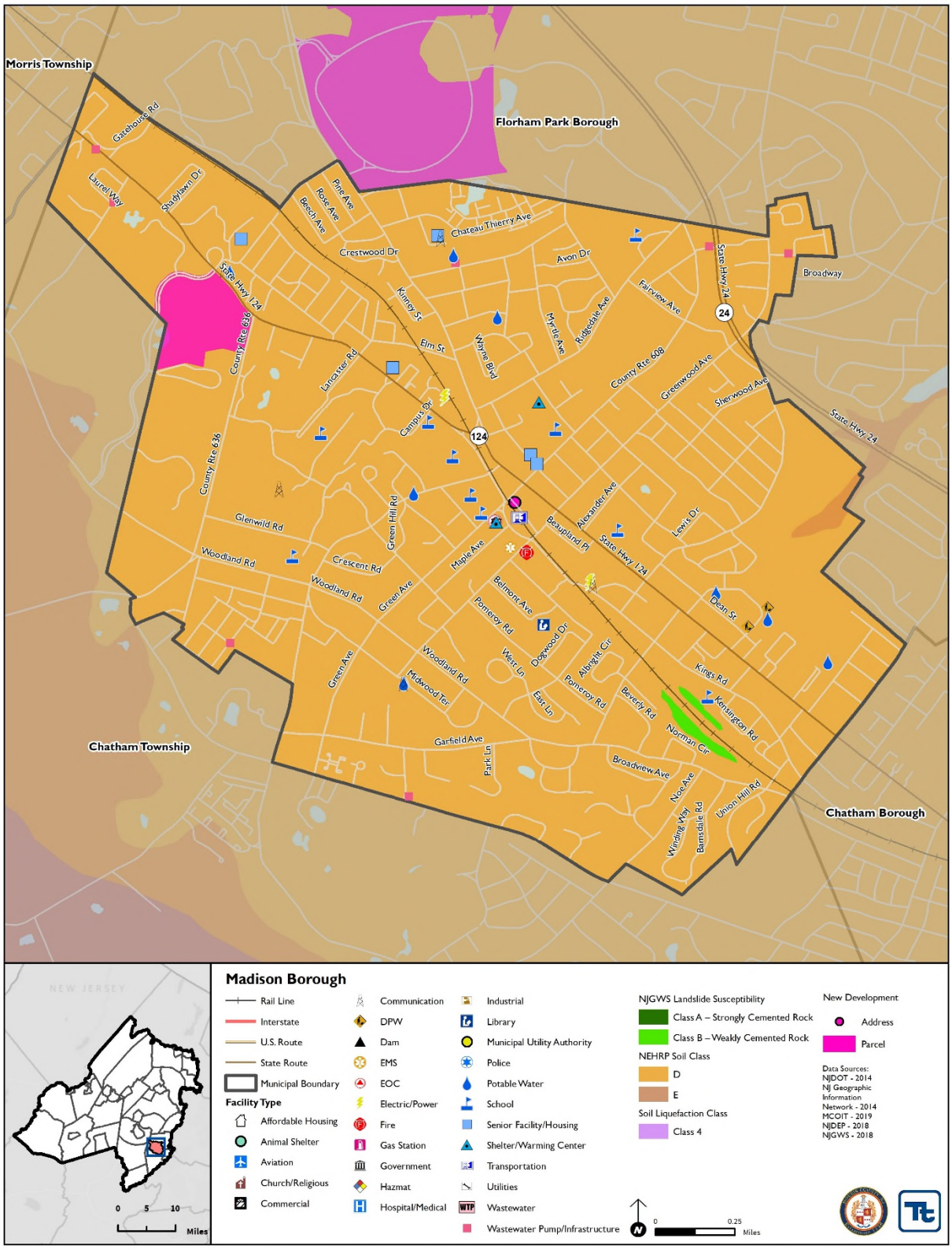


Figure 9.19-2. Borough of Madison Hazard Area Extent and Location Map 2



Name of Jurisdiction: Borough of Madison

Name and Title Completing Worksheet: Robert Vogel, Borough Engineer

Action Worksheet			
Project Name:	Belleau Woods Culvert		
Project Number:	2020-Madison-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm, Severe Winter Weather		
Description of the Problem:	Belleau Woods culvert needs replacement and stream bank needs stabilization.		
Action or Project Intended for Implementation			
Description of the Solution:	Complete plans, specifications, and permits for culvert replacement and streambank stabilization.		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	100-year flood event	**Estimated Benefits (losses avoided):**	Reduce flood damage
Useful Life:	50 years	**Goals Met:**	1, 4
Estimated Cost:	$500k	**Mitigation Action Type:**	SIP
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	1 year
Estimated Time Required for Project Implementation:	3 years	**Potential Funding Sources:**	HMGP, PDM
Responsible Organization:	Engineering	**Local Planning Mechanisms to be Used in Implementation if any:**	n/a

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Repair culvert	$500k	Solves flooding
	Remove culvert and reroute traffic	High	Not cost effective

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

Name of Jurisdiction: Borough of Madison

Name and Title Completing Worksheet: Robert Vogel, Borough Engineer

Action Worksheet		
Project Name:	Belleau Woods Culvert	
Project Number:	2020-Madison-004	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Bridge involved
Property Protection	1	Adjoining residences
Cost-Effectiveness	1	Best available option
Technical	1	Plans drafted
Political	1	Community Support
Legal	1	Contract only
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	Administration is aware the project might require capital
Multi-Hazard	0	
Timeline	1	Can move with funds
Agency Champion	1	Local/regional WWSA
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	

Name of Jurisdiction: Borough of Madison

Name and Title Completing Worksheet: Robert Vogel, Borough Engineer

Action Worksheet			
Project Name:	Spring Garden Brook Culvert		
Project Number:	2020-Madison-007		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Erosion, Severe Storm		
Description of the Problem:	Spring Garden Brook Pedestrian Bridge replacement and stream bank stabilization.		
Action or Project Intended for Implementation			
Description of the Solution:	Complete plans, develop specifications, and prepare permits for bridge replacement and stream bank stabilization.		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	100-year flood event	**Estimated Benefits (losses avoided):**	Reduce flood damage
Useful Life:	50 years	**Goals Met:**	1, 4
Estimated Cost:	$500k	**Mitigation Action Type:**	SIP
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	1 year
Estimated Time Required for Project Implementation:	3 years	**Potential Funding Sources:**	HMGP, PDM
Responsible Organization:	Engineering	**Local Planning Mechanisms to be Used in Implementation if any:**	n/a

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Repair culvert	$500k	Solves flooding
	Remove culvert and reroute traffic	High	Not cost effective

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

Name of Jurisdiction: Borough of Madison

Name and Title Completing Worksheet: Robert Vogel, Borough Engineer

Action Worksheet		
Project Name:	Spring Garden Brook Culvert	
Project Number:	2020-Madison-007	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Bridge involved
Property Protection	1	Adjoining residences
Cost-Effectiveness	1	Best available option
Technical	1	Plans drafted
Political	1	Community Support
Legal	1	Contract only
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	Administration is aware the project might require capital
Multi-Hazard	0	
Timeline	1	Can move with funds
Agency Champion	1	Local/regional PRBA
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	