



9.28 TOWNSHIP OF MOUNT OLIVE

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

9.28.1 Hazard Mitigation Planning Team

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

Table 9.28-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Andrew Tatarenko, Administration/OEM Address: 204 Flanders-Drakestown Rd., Budd Lake, NJ Phone Number: 973-691-0900 ext. 7201 Email: atatarenko@mtolivetwp.org	Not identified
NFIP Floodplain Administrator	
Name / Title: Robert Clerico, Engineer Address: 204 Flanders-Drakestown Rd., Budd Lake, NJ Phone Number: 908-735-9500 ext. 1710 Email: rclerico@vancleefengineering.com	

9.28.2 Jurisdiction Profile

The Township of Mount Olive is located in the northwest portion of Morris County. It is served by two major east-west arteries (Interstate 80 and U.S. Route 46). It has a total area of 31.08 square miles, of which 29.41 square miles is land and 1.68 square miles is water. Route 206 is a major north-south route that travels through the Township and intersects with Interstate 80 in the vicinity of the borders with Roxbury Township and Netcong Borough. In the south, Route 206 crosses the border with Chester Township and connects with Interstate 287 further south in Somerset County. The Township has two unincorporated communities: Budd Lake and Flanders. According to the U.S. Census, the 2010 population for the Township of Mount Olive was 28,117.

The Township borders two counties and eight municipalities. The Musconetcong River, which flows along the Township's northern border, is the geographic boundary between Morris County and Warren County and Morris County and Sussex County. Wills Brook and Mine Brook are located within Mount Olive and feed the Musconetcong River. Wills Brook originates near the eastern corporate limits of Mount Olive and flows northwest and then north before its confluence with the Musconetcong River. Budd Lake is the most prominent surface water body within the Township and the South Branch Raritan River begins at the southern tip of the Lake. The South Branch Raritan River is another major waterway in the Township and has a drainage area of 276 square miles. From origin point at Budd Lake, it flows southwest and loops to the east and joins the North Branch Raritan River near Raritan to form the mainstream of the Raritan River. Other streams and brooks located within Mount Olive that are tributaries to the South Branch Raritan include Black Brook, Sun Valley Brook, Turkey Brook, Flanders Brook, Drakes Brook, Kruegers Brook, and Kiwanis Park Brook.

According to the U.S. Census, the 2010 population for the Township of Mount Olive was 28,117. The estimated 2017 population was 29,010, a 3.2% increase from the 2010 Census. Data from the 2017 U.S. Census American



Community Survey indicate that 5.3% of the population is 5 years of age or younger and 11.5% 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.

9.28.3 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 9.28-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.28-1 and 9.28-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development.

Table 9.28-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	69	78	64	60	100
Multi-Family	0	0	57	57	0
Other (commercial, mixed-use, etc.)	0	0	0	0	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					
Morris Chase (Toll Brothers)	Res	479	Flanders Road	None	100%
Morris Hunt (Toll Brothers)	Res	86	Flanders Netcong Road	None	100%
Woodfield at Mount Olive	Res	575	Windinghall Drive	None	95%
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Regency at Flanders	Res	284	Pleasant Hill Road	Karst Hazard	50%
Mount Olive Center Assoc	Res	278	Route 46	None	30%
ITC East Gen Development	Res	712 units	Continental Dr.; Love Lane	None	planned

* Only location-specific hazard zones or vulnerabilities identified.

9.28.4 Capability Assessment

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

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Information on National Flood Insurance Program (NFIP) compliance.
- Classification under various community mitigation programs.



- The community's adaptive capacity for the impacts of climate change.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. Areas with current mitigation integration are summarized below. The Township of Mount Olive 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 Mount Olive and where hazard mitigation has been integrated.

Table 9.28-3. 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, Building Department	Yes	-	-
Comment: State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)					
Zoning Code	Yes	Local	Yes	Yes	-
Comment: Chapter 550 (Land Use) – the purpose of this code is to establish a pattern for the use of land and buildings based on the land use element of the Master Plan and to effectuate the Master Plan enacted in order to encourage municipal action to guide the appropriate development of land in a manner which will promote the public health, safety, morals and general welfare of the people. This chapter is intended to regulate the use of land within zoning districts; to secure safety from fire, flood, panic and other natural and man-made disasters; to provide adequate light, air and open space; to limit and restrict buildings and structures to specified districts and to regulate buildings and structures according to their type and the nature and extent of their use; to regulate the nature and extent of the use of land for trade, industry, residence, open space or other purposes; to regulate the bulk, height, number of stories and size of buildings and other structures; to avoid conflict with the development and general welfare of neighboring municipalities, the county and the state; to establish appropriate population densities and concentrations contributing to the well-being of persons, neighborhoods, communities and regions and to the preservation of the environment; to preserve aquifers; to provide sufficient space for agricultural, residential, recreational, commercial and industrial uses and open space; to encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities and routes which result in congestion or blight; to promote a desirable visual environment; to promote the conservation of open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land; and to encourage coordination of various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.					
Subdivisions	Yes	Local, Department of Planning and Zoning	Yes	Yes	-
Comment: Chapter 400, Article V §400-73; for any proposed subdivisions in the Township, a developer must complete a subdivision application. The developer must present a plat that includes topography, slopes, waterbodies and direction of flow.					
Stormwater Management	Yes	Local	Yes	No	-
Comment: <ul style="list-style-type: none">Chapter 343 (Stormwater Management) – includes articles for the stormwater management plan, illicit connections to storm sewers, and disposal of wastes in storm sewers. The code prohibits illicit connections to the municipal separate sewer systems operated by the Township. The article also prohibits the spilling, dumping or disposal of materials other than stormwater to the MS4 system operated by the Township.					



	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 #.
• Chapter 318 (Sewers and Water)					
Post-Disaster Recovery	No	-	No	-	-
Comment:					
Real Estate Disclosure	Yes	State, Division of Consumer Affairs	Yes	-	-
Comment: N.J.A.C. 13:45A-29.1					
Growth Management	No	-	-	-	-
Comment:					
Site Plan Review	Yes	Local, Department of Planning and Zoning	Yes	Yes	-
Comment: Chapter 550. Part of the Site Plan Review includes the completion of a site plan application. The application asks for details regarding the proposed project and asks for a site plan drawing that includes the any existing or proposed streams and/or flood hazard areas.					
Environmental Protection	No	-	No	-	-
Comment:					
Flood Damage Prevention	Yes	Local	Yes	Yes	-
Comment: Chapter 550, Section 47 (Flood Damage Prevention) – the purpose of this section is to promote the public health, safety and general welfare to minimize public and private losses due to flood conditions in specific areas. The Township requires a development permit before construction or development begins in any SFHA. Residential and non-residential new construction and substantial improvements of structures in the SFHA must be elevated at or above the base flood elevation.					
Wellhead Protection	Yes	Local	No	-	-
Comment: On September 20, 2010 through Township Ordinance No. 22-2010, the Township implemented regulations for wellhead protection. This is found in Chapter 550, Section 77 (Wellhead Protection) of the Township which includes the incorporation of wellhead protection area zoning into the master plan.					
Emergency Management	No	-	No	-	-
Comment:					
Climate Change	No	-	No	-	-
Comment:					
Disaster Recovery Ordinance	No	-	No	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	No	-	-
Comment:					
Other	Yes	Local	No	-	-
Comment: • Chapter 158 (Dam Management) – adopted on 10/8/1991 – the purpose of this code is to regulate the flow of waters over the Budd Lake Dam and to create the position of Dam Manager who is responsible for controlling the weirs of the Budd Lake Dam in accordance with the code.					
Planning Documents					



	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 #.
Comprehensive / Master Plan	Yes	Local, Township Administrator	Yes	-	-
<i>Comment: There have been subsequent updates and reexamination reports pursuant to statutory requirements. Township has a separate Master Plan for the Highlands Preservation Area. Updated in 2003 and 2013. The 2013 reexamination report was adopted by the Planning Board on June 20, 2013.</i>					
Capital Improvement Plan	Yes	Local, Township Board	No	No	-
<i>Comment: Capital improvements are included in the Township's budget that is approved each year. Capital improvement line items include equipment, building upgrades, and well upgrades.</i>					
Disaster Debris Management Plan	Yes	Local	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	No	-	-
<i>Comment:</i>					
Stormwater Management Plan	Yes	Local	Yes	-	-
<i>Comment: Stormwater Management Plan for the Township of Mount Olive; adopted on April 8, 2003</i>					
Stormwater Pollution Prevention Plan	Yes	Local	Yes	-	-
<i>Comment: Stormwater Pollution Prevention Plan, revised June 15, 2010; see description under 'Additional Areas of Existing Integration'</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	In Progress	Local	No	-	-
<i>Comment: In progress through Highlands Grant</i>					
Economic Development Plan	No	-	No	-	-
<i>Comment:</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					
Transportation Plan	No	-	No	-	-
<i>Comment:</i>					
Agriculture Plan	No	-	No	-	-
<i>Comment:</i>					
Climate Action Plan	No	-	No	-	-
<i>Comment:</i>					
Tourism Plan	No	-	No	-	-
<i>Comment:</i>					



	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 #.
Business Development Plan	No	-	No	-	-
Comment:					
Other	No	-	No	-	-
Comment:					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local, OEM	Yes	-	-
Comment: Consists of OEM Annex, HMP and COOP/COG (updated 2014)					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
Comment:					
Post-Disaster Recovery Plan	Yes	Local, OEM	No	-	-
Comment: Consists of OEM Annex, HMP and COOP/COG (updated 2014)					
Continuity of Operations Plan	Yes	EOP	No	-	-
Comment:					
Public Health Plan	Yes	Local, Health Department	No	-	-
Comment:					
Other	No	-	No	-	-
Comment:					

Table 9.28-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes. Planning Department
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 – Cannot make the determinations unless its public land

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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



Table 9.28-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available ?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Township of Mount Olive Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	The Environmental Commission provides educational outreach to residents, assists the Planning Board on site plan review for environmental issues, makes recommendations/advises for environmental ordinances or policies, and works with many other committees on issues in the community regarding the community.
Open Space Board / Committee	Yes	Open Space Advisory Board
Economic Development Commission / Committee	Yes	Economic Development Committee
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	County Rave System
Maintenance program to reduce risk	Yes	Tree trimming, snow removal, catch basin clearing and maintenance, street sweeping
Mutual aid agreements	Yes	Surrounding Communities, Morris County, UASI
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering Division, Planning & Zoning
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering Division, Planning & Zoning
Planners or engineers with an understanding of natural hazards	Yes	Municipal Planner
Staff with training in benefit/cost analysis	Yes	Engineering Division, Planning & Zoning
Staff with training in green infrastructure	No	
Staff with education/knowledge/training in low impact development	Yes	Planning Department
Surveyor	Yes	Consultant
Stormwater engineer	Yes	Consultant
Personnel skilled or trained in GIS applications	No	
Local or state water quality professional	Yes	Consultant
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	OEM
Watershed planner	Yes	Consultant to Township
Environmental specialist	Yes	Environmental Consultant
Grant writers	Yes	Engineering Division, Planning & Zoning
Resilience Officer	No	
Other (Professionals trained in conducting damage assessments)	Yes	In-house staff performs estimates

FISCAL CAPABILITY

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



Table 9.28-6. 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	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
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)	No
Other	No

EDUCATION AND OUTREACH CAPABILITY

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

Table 9.28-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – Police Department
Do you have personnel skilled or trained in website development?	Yes – In-house
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes – Municipal website provides upcoming meetings, announcements, and emergency alerts. The Township also has a weekly newsletter that provides residents with information about the Township
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes – Facebook, Twitter. The Township also uses their website, radio, print, and face-to-face meetings for community education and outreach.
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 – Newsletter, tax bill, etc.
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 Township of Mount Olive.

Table 9.28-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	4	4/2/15
Storm Ready Certification	No	NP	N/A



Program	Participating?	Classification	Date Classified
Firewise Community Classification	No	NP	N/A
Sustainable Jersey	Yes	Bronze	10/30/2019

ADAPTIVE CAPACITY

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

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

Table 9.28-9. Adaptive Capacity

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

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 9.28-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering Consultant
Who is your floodplain administrator? (name, department/position)	Town Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No



Criterion	Response
What is the date that your flood damage prevention ordinance was last amended?	2003
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum
When was the most recent Community Assistance Visit or Community Assistance Contact?	March 14, 2001
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.	No – Maps are from 1986; the new ones need to be adopted so they can use them
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes
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?*	76 Policies in force. \$23,739,000 Insurance In-Force. \$92,915 Premium In-Force.
How many total loss claims have been filed in your jurisdiction?*	65 Claims. 0 claims still open, 18 claims closed without payment. \$669,876 claim amount
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 – Homeowners have not shown an interest in mitigation

*According to FEMA statistics as of July 2019

ADDITIONAL AREAS OF EXISTING INTEGRATION

- The **Planning and Zoning Department** is responsible for administering and enforcing the Township's Zoning, Subdivision, and Site Plan Review Ordinances. The office reviews all building permit applications to ensure compliance with the zoning ordinance. This office is also responsible for planning activities related to the long-term development of the community. This is largely accomplished through amending and updating of the Township Master Plan.
- **Stormwater Management** – The Township complies with the requirements of the Residential Site Improvement Standards for all covered municipal and private projects through the reviews and approvals granted by the Planning and Zoning Boards and the Board of Adjustment. The Township has established a maintenance program for all stormwater elements for new major development projects. While the Township does not need to implement a road erosion maintenance program, they still repair road erosion in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey. As part of routine maintenance, the DPW cleans the Township's catch basins each year in order to maintain their function and efficiency.
- The Township is located within the **Highlands Preservation Area**. Any development application submitted to the Township must include a municipal exemption determination application form to determine whether proposed activities, improvements, or development projects affecting lands within the Township Highlands Area are exempt from the Highlands Water Protection and Planning Act. The Township's mandatory Petition for Plan Conformance for the Preservation Area was approved by the



Highlands Council on January 20, 2011. The Planning Board adopted the Highlands Master Plan Element on October 18, 2012.

- The Township implements the requirements of the Highlands Plan Conformance applicable to the Preservation Area in the Township. This includes:
 - Master Plan Reexamination Report
 - Highlands Area Checklist Ordinance
 - Highlands Environmental Resource Inventory
 - Highlands Master Plan Element
 - Highlands Checklist Ordinance
 - Highlands Preservation Area Ordinance
 - Highlands Exemption & Waiver Ordinance

9.28.5 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 Mount Olive'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 9.28-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.28-11. 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 22-24, 2016	Severe Winter Storm and Snowstorm (DR-4264)	Yes	Snow began during the evening hours on the 22nd, then continued, heavy at times through the 23rd before ending early on the 24th. Snowfall totals included 30.0 inches in Long Valley, 29.0 inches in Madison, 26.0 inches in Budd Lake, 25.3 inches in Green Pond, 22.5 inches in Butler, 21.0 inches in Chatham, and 18.0 inches in Marcella.	\$94,418 worth of damages and losses resulting from Overtime of 48 hours for snow removal.
March 6-7, 2018	Severe Winter Storm and Snow Storm (DR-4368)	Yes	Snowfall amounts in excess of 6 inches occurred across portions of the county.	\$131,337 worth of damages and losses resulting from Overtime of 48 hours for snow removal.
March 21, 2018	Winter Storm	No	Precipitation began as a wet, heavy snow during the evening hours on March 20th. After a lull during the overnight hours, a drier snow began falling, heavy at times, during the afternoon and evening hours on March 21st. Snowfall totals were lower in the eastern portions of the county where mixing took place. Some snowfall reports include: 12.0 inches in Netcong, Green Pond, and Mine Hill Township, 11.2 inches in Jefferson Township, 11.0 inches in Marcella, 10.5 inches in both Rockaway and Mine Hill Township, 10.0 inches in Succasunna, 9.5 inches in Butler, 9.3 inches in Denville, 9.2 inches in both Budd Lake and Washington Township, 8.8 inches in both Mount	While impacts were reported in Morris County, the Township did not experience significant damages or losses.



Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
			Arlington and Randolph Township, 8.4 inches in Morristown, 8.2 inches at Charlottesville Reservoir, 8.0 inches in Dover, 7.5 inches in Parsippany, 7.0 inches at Boonton Reservoir, 7.0 inches in Millington, 6.5 inches in Pine Brook, 4.0 inches in Beach Glen, and 3.7 inches in Pleasantville.	

9.28.6 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 9.28-12 summarizes the Township of Mount Olive 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 9.28-12. 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 6 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:	5,052	NEHRP D&E:	1,402	100-year Loss:	\$0	High
		Liquefaction Class 4:	171	Liquefaction Class 4:	54	500-year Loss:	\$4,187,531	
						2,500-year Loss:	\$67,071,844	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,330	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:	1,857					



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Flood	100- and 500-Year Mean Return Period Event	100-year	372	100-year	128	100-year Loss:	\$79,672,753	High
		500-year	506	500-year	173			
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	212	Class B:	60	Class B:	\$37,536,480	
		Carbonate Bedrock:	6,446	Carbonate Bedrock:	1,962	Carbonate Bedrock:	\$1,848,104,162	
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:	\$58,638	High
						100 -Year Loss:	\$2,524,101	
						500-year Loss:	\$15,382,022	
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:	131	Wildfire:	75	Wildfire:	\$65,779,166	Moderate



REPETITIVE FLOOD LOSSES

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

- Number of repetitive loss (RL) properties: 4
- 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).

CRITICAL FACILITIES

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

Table 9.28-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Clover Hill STP	Wastewater	X	X	2020-MT OLIVE-004
Upper Waterloo Lake Dam	Dam	X	X	The Township does not own this dam and cannot implement mitigation actions. The New Jersey Division of Parks and Forestry own this dam.

*Identified lifeline

ADDITIONAL IDENTIFIED VULNERABILITIES

According to the 2010 preliminary FEMA Flood Insurance Study (FIS) for Morris County, history of flooding in the Township of Mount Olive indicates that flooding can be experienced at any time of the year. The most extensive flooding occurs in late summer and fall and is usually associated with tropical storms moving north along the Atlantic coast (FEMA FIS 2010).

Additionally, the Township indicated the following to be vulnerable areas in their municipality:

- Hermaine Road flooding issues during rain events, issues with South Branch of the Raritan (refer to 2020-MT OLIVE-005).
- Mannerhouse Road flooding issues during rain events, issues with stream off of Budd Lake (refer to 2020-MT OLIVE-001).

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Township of Mount Olive 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 Mount Olive has significant exposure. Refer to Figures 9.28-1 and 9.28-2.

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 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 Mount Olive. The Township of Mount Olive has reviewed the Morris County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Township agreed with the calculated rankings for each hazard of concern.

Table 9.28-14. Township of Mount Olive Hazard Ranking Input

Dam Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	Medium	Medium	Medium

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

9.28.7 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 9.28-15. 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 #
TMO - 1	Replacement of backup generator and Uninterrupted Power Supply (Sandy LOI)	Engineering	Complete – Budd Lake Fire, Senior Center	-	-
TMO - 2	Backup generator for the municipal building (Sandy LOI)	Engineering	Complete	-	-
TMO - 3	Storm water runoff control upgrade on Route 46 and Woodsedge Avenue.	DPW	No Progress – the Township does not have jurisdiction over this project; NJDOT	-	-



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 #
			would need to be complete		
TMO - 4	Inquire of residents on Manor House Road to determine if they are willing to participate in an elevation or acquisition project.	DPW	No Progress. Refer to action 2020-Mount Olive-001 for the updated project.	Yes	2020-MT OLIVE-001
TMO - 5	Upgrade underground piping of storm water control system for Down Stream Drive and Pheasant Court.	DPW	No Progress. Refer to action 2020-Mount Olive-002 for the updated project.	Yes	2020-MT OLIVE-002
TMO - 6	Develop/Enhance all-hazards public education and outreach program for hazard mitigation and preparedness.	OEM	Ongoing Capability	-	-
TMO - 7	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable (there are 2 RLs in the Township) 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.	Engineering	Ongoing Capability	-	-

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Township of Mount Olive 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 Mount Olive 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 9.28-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of Mount Olive would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.



As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, including an evaluation of the benefits and costs. For each new mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria. The results of this evaluation, in addition to input from the jurisdiction, were then used to prioritize the mitigation initiatives as 'High', 'Medium', or 'Low.' Table 9.28-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.



Table 9.28-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Initiative Number	Mitigation Initiative Name	Description of the Problem and 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-MT OLIVE-001 (previous action)	Feasibility Study of Manor House Road	Problem: Homes in the area of Manor House Road have experienced flooding and flood-related damages. A better understanding of the cause of flooding is needed to determine the best mitigation solutions for this section of the Township. Solution: Conduct a feasibility study to determine the sources of flooding and identify mitigation solutions to protect homes and infrastructure. Once projects are identified, the Township will implement the best solution for this section of the Township.	Existing	Flood, Severe Weather	3	<u>Engineer, DPW, Administration</u>	FEMA PDM or HMGP, Township Budget	Provides solutions to reduce flooding	\$25,000+	Within 2 years	Medium	LPR	PR
2020-MT OLIVE-002 (previous action)	Down Stream Drive and Pheasant Court Upgrades	Problem: Inadequate stormwater control system in the area of Down Stream Drive and Pheasant Court. Solution: Upgrade underground piping of stormwater control system for Down Stream Drive and Pheasant Court.	Existing	Flood, Severe Weather, Severe Winter Weather	3	DPW	Township Budget	Increase stormwater control system	\$80,000	5 years	Medium	SIP	PP
2020-MT OLIVE-003	Updated Township's Flood Damage Prevention Ordinance	Problem: The Township's current flood damage prevention ordinance does not currently meet the NJDEP flood hazard area design requirement of at minimum of one foot above the base flood elevation. Solution: Update the Township's flood damage prevention ordinance to include the NJDEP requirement of having the bottom of the first floor be elevated at least one foot above the base flood elevation for any development in the SFHA.	New and Existing	Flood	3, 4	<u>Township Administration</u>	Township Budget	Increase flood protection of structures in floodplain	<\$1,000	1 year	High	LPR	PR
2020-MT OLIVE-004	Sewer Treatment Plant Flood Protection	Problem: Clover Hill Sewer Treatment Plant is located in the 1% and 0.2% floodplain and vulnerable to flooding and damage. Solution: Conduct a feasibility study to provide mitigation solutions and select the best alternative for mitigation of flood impacts.	Existing	Flood, Severe Weather	3, 4	<u>Township Engineer, Floodplain Administrator</u>	FEMA PDM or HMGP, Township Budget	Provides solutions to protect facility	\$50,000+	2 years	High	LPR	PR



Initiative Number	Mitigation Initiative Name	Description of the Problem and 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-MT OLIVE-005	Mitigate Floodprone Properties	Problem: Frequent flooding events have resulted in damage to properties/structures in the Hermaine Drive area. Solution: Conduct outreach to 5 flood-prone property owners and provide mitigation alternatives. Develop a FEMA grant application to obtain funding to elevate homes and grade properties.	Existing	Flood, Severe Weather	3, 4	<u>Floodplain Administrator</u> and Homeowners	FEMA FMA and HMGP, Township Budget or Homeowner (local match)	Informs residents of different mitigation measures, increases protection from flooding	\$1 million+	5 years	High	EAP, SIP	PI, PP

Notes:

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

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

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

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

Mitigation Category:

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

CRS Category:

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



- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

Table 9.28-17. 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	Total	High / Medium / Low
2020-MT OLIVE-001	Feasibility Study of Manor House Road	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
2020-MT OLIVE-002	Down Stream Drive and Pheasant Court Upgrades	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
2020-MT OLIVE-003	Updated Township's Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High
2020-MT OLIVE-004	Sewer Treatment Plant Flood Protection	1	1	1	1	0	1	1	1	0	1	1	1	1	1	12	High
2020-MT OLIVE-005	Mitigate Floodprone Properties	1	1	1	1	0	1	0	1	1	0	1	0	1	1	10	High

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



Table 9.28-18. 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								
Disease Outbreak								
Drought								
Earthquake								
Extreme Temperature								
Flood	-001, -003	-002	-005			-002, -005		
Geological Hazards								
Harmful Algal Bloom								
Hazardous Substances								
Infestation								
Severe Weather	-001, -004		-005			-005		
Severe Winter Weather		-002				-002		
Wildfire								

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

9.28.8 Staff and Local Stakeholder Involvement in Annex Development

The Township of Mount Olive 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 9.28-19. Contributors to the Annex

Entity	Title	Method of Participation
Andrew Tatarenko	Administration/OEM	Attended meetings, provided input during the planning process, identified mitigation strategies for the Township
Frank Baguiao	Construction Official	Provided information to incorporate into Township annex



Figure 9.28-1. Township of Mount Olive Hazard Area Extent and Location Map 1

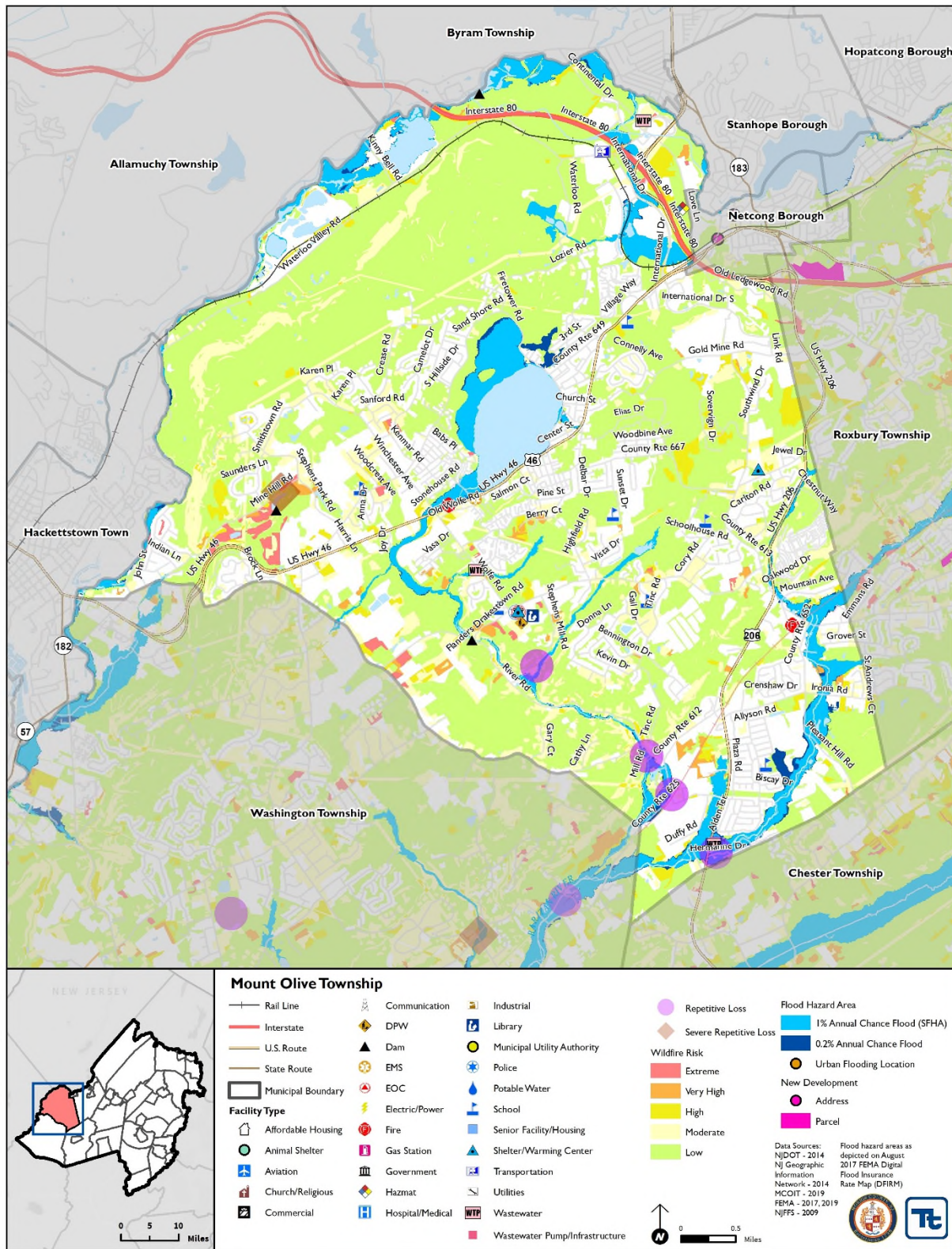
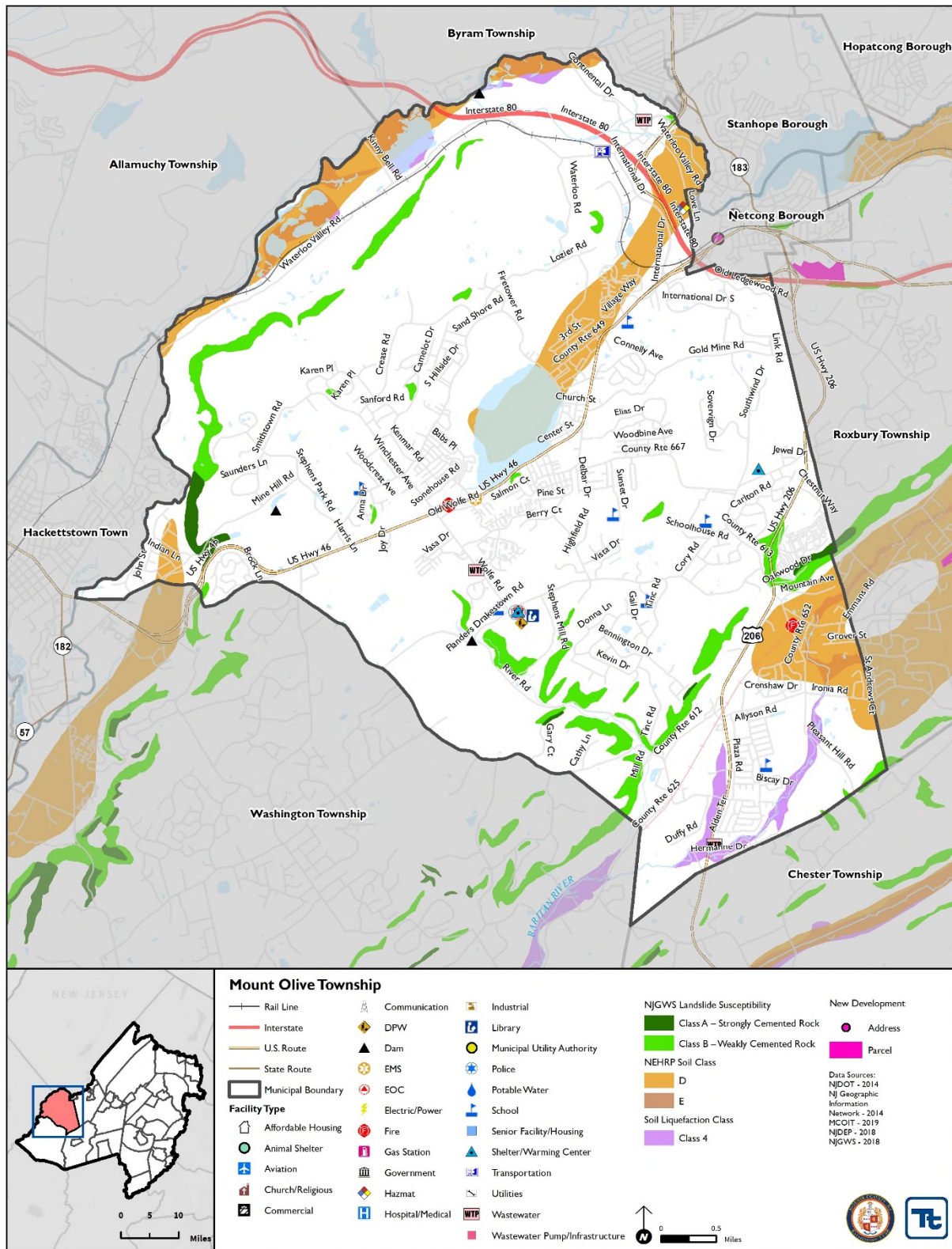




Figure 9.28-2. Township of Mount Olive Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	Sewer Treatment Plant Flood Protection		
Project Number:	2020-MT OLIVE-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Clover Hill Sewer Treatment Plant is located in the 1% and 0.2% floodplain and vulnerable to flooding and damage.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct a feasibility study to provide mitigation solutions and select the best alternative for mitigation of flood impacts.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	1% annual flood area	Estimated Benefits (losses avoided):	Provides solutions to protect facility
Useful Life:	5 years	Goals Met:	3, 4
Estimated Cost:	\$50,000+	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1-2 years
Estimated Time Required for Project Implementation:	As soon as funding is received	Potential Funding Sources:	FEMA PDM or HMGP, Township Budget
Responsible Organization:	NFIP FPA and Township 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
	Relocate facility	\$1 million+	Not feasible
	Install berm to protect plan	\$50,000+	Costly and questionable effectiveness.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Sewer Treatment Plant Flood Protection	
Project Number:	2020-MT OLIVE-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Sewer plant will be protected.
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	1	
Environmental	1	If no action is taken sewer waste can enter the environment.
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Mitigate Flood Prone Properties		
Project Number:	2020-MT OLIVE-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damage to properties/structures in the Hermaine Drive area.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 5 flood-prone property owners and provide mitigation alternatives. Develop a FEMA grant application to obtain funding to elevate homes and grade properties.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual flood event	Estimated Benefits (losses avoided):	Eliminate flood damage
Useful Life:	30 years	Goals Met:	3, 4
Estimated Cost:	\$1,000,000+	Mitigation Action Type:	EAP, SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	2 years
Estimated Time Required for Project Implementation:	As soon as funding is received	Potential Funding Sources:	FEMA FMA or HMGP, local match
Responsible Organization:	NFIP Floodplain administrator and homeowners	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation plan
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Acquire homes	\$1 million+	Loss tax base; homeowners do not want to move
	Install floodwall for protections	\$50,000+	Could be costly; might impact access to this section of the township during a flood or emergency
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 Flood Prone Properties	
Project Number:	2020-MT OLIVE-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Families protected from flooding
Property Protection	1	Properties protected
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	1	
Social	1	Families quality of life will improve
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	