



9.18 TOWNSHIP OF LONG HILL

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

9.18.1 Hazard Mitigation Planning Team

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

Table 9.18-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Shayne Daly, Emergency Management Coordinator Address: 915 Valley Road, Gillette, NJ 07933 Phone Number: 908-647-6131 Email: oemcoordinator@longhillnj.gov	Name / Title: Nancy Malool, Township Administrator Address: 915 Valley Road, Gillette, NJ 07933 Phone Number: 908-647-8000 x224 Email: administrator@longhillnj.gov
NFIP Floodplain Administrator	
Name / Title: Paul Ferriero, Township Engineer Address: 915 Valley Road, Gillette, NJ 07933 Phone Number: 908-647-8000 x224 Email: townshipengineer@longhillnj.gov	

9.18.2 Jurisdiction Profile

Long Hill Township is situated in the southernmost section of Morris County and occupies an area of approximately 12 square miles. It is roughly rectangular in shape - spanning 28,000 feet across its widest east-west axis and 15,000 feet along a north-south axis. County Routes 657 and 512 are the main roads in the Township and run east to west.

Long Hill Township has a Township Committee form of government. Five members of the Township Committee are elected at large for staggered three-year terms. The municipality's boundaries are framed by five adjoining municipalities: Harding and Chatham Townships (also in Morris County) to the north and east; Berkeley Heights Township in Union County to the southeast; and, to the west and south, Warren and Bernards Townships in Somerset County. Much of the northern part of the Township is occupied by the Great Swamp National Wildlife Refuge while the Passaic River and its flood plain meander along Long Hill's western and southern boundaries. These two natural resource areas account for almost half of the Township's area.

According to the U.S. Census, the 2010 population for the Township of Long Hill was 8,702. The estimated 2017 population was 8,763, a 0.7 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 4.5 percent of the population is 5 years of age or younger and 16.1 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.



9.18.3 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 9.18-2. Recent and Expected Future Development summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.18-1 and 9.18-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development.

Table 9.18-2. 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	2	5	3	4	1
Multi-Family	0	0	0	0	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					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
A possible redevelopment/revitalization of the business district is possible	TBD	TBD	Valley Road in Stirling		In early discussion phase

* Only location-specific hazard zones or vulnerabilities identified.

9.18.4 Capability Assessment

The Township of Long Hill 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 that mitigation is currently integrated are summarized below. The Township of Long Hill 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 Long Hill and where hazard mitigation has been integrated.

Table 9.18-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	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. Chapter XXIX Uniform Construction Code and Construction Requirements.					
Zoning Code	Yes	Local	Yes	No	-
Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. The Land Use Ordinance was adopted on August 13, 1997 and amended through May 31, 2019. The Ordinance was adopted to promote and protect the public health, safety and general welfare, and in furtherance of the following overall and more specific goals: •To conserve and enhance the essential rural and residential character of Long Hill Township in order to best provide for the health, safety and general welfare of all Township residents. •To maintain the Township's identity as a fundamentally low density residential community and insure that future development is compatible with, and sensitive to, existing residential areas and established neighborhoods. •To insure that new commercial development within the Township is in scale with and oriented to the shopping, service, and other needs of Township residents both in terms of design and use. •To insure that road improvements along County and Township roadways are limited to those that address existing traffic safety problems and are undertaken in ways that strongly support the overall goals of this Master Plan and preserve and enhance the tree-lined roads that help create the desired rural character of the Township. •To develop a trail system throughout the Township that will provide circulatory links to the Township's residential, business, recreational, and open spaces areas and enhance local appreciation of, and recreation in, the Township's many natural resources. •To preserve, protect and enhance the natural resources of the Township and to make environmental issues a central part of the planning process in Long Hill. •To establish a sound long-range planning program that merges major Township buildings, storm and sanitary sewers, natural trails and open spaces, recreational areas, community services, residential areas and roadways into an infrastructure that is resident and pedestrian friendly, and which supports the goal of preserving the Township's rural character.					
Subdivisions	Yes	Local	Yes	-	-
Comment: Chapter XXXI Land Subdivisions. Administered by Planning Board.					
Stormwater Management	Yes	Local	Yes	No	-
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter XII Stormwater Regulations. The ordinance prohibits the spilling; dumping or disposal of materials other than stormwater to the municipal separate storm sewer system (MS4) operated by the Township of Long Hill, so as to protect public health, safety and welfare, and prescribes penalties for the failure to comply. Section 146 of the Land Use Ordinance, Stormwater Management.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	No	-	Yes	-	-
Comment: State mandated at local level;					
Shoreline Development	No	-	Yes	-	-



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: 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. 7:27E-1 et seq.					
Site Plan Review	Yes	Local	Yes/No	No	-
Comment: Land Use Ordinance Section 160 Site Plan and Subdivision Review.					
Environmental Protection	Yes	Local	Yes	No	-
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter XXIII Shade Trees. Section 140 of the Land Use Ordinance, Environmental Protection Regulations.					
Flood Damage Prevention	Yes	Local	Yes	No	2020-Township of Long Hill-007
Comment: Section 143 of the Land Use Ordinance, Flood Damage Prevention. Promotes the public health, safety, and general welfare, and works to minimize public and private losses due to flood conditions in specific areas. Administered by the Planning Board.					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	Yes	Local	No	No	-
Comment: Chapter III Police Regulations. Chapter XVIII Township Notification System. The ordinance establishes rules and regulations for utilization of the Township's Notification System and designates those officials who are authorized to initiate the system.					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	Yes	Local	No	No	-
Comment: Chapter XXV Water Emergency. The ordinance establishes methods to establish a water emergency and water use restrictions.					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	No
Comment: The Master Plan is currently undergoing an update (expected by 2021). The 1996 Master Plan includes Stormwater Management, Housing, Conservation, Open Space, and Community Facilities as Elements. The plan identifies actions to locate utilities below grade; replace and upgrade gas lines, and mitigate flood damage through stormwater control and management and other appropriate flood remediation practices to enable the Downtown to be a viable commercial area. The plan includes a map of flood hazard areas.					
Capital Improvement Plan	Yes	Local	Allowed	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.					
Disaster Debris Management Plan	No	-	No	-	2020-Township of Long Hill-009
Comment: To be developed					
Floodplain or Watershed Plan	Yes	Local/County	No	No	No
Comment: Flood Plain Management / Flood Acquisition Plan (with Morris County)					
Stormwater Management Plan	Yes	Local and State	Yes	Yes	YNo
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). The Township's Stormwater Management Plan is administered by Construction/Planning.					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Stormwater Pollution Prevention Plan	Yes	Local-State	Yes	-	-
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	Yes	Federal	No	No	No
<i>Comment: USFW CCP (Comprehensive Conservation Plan) for Great Swamp</i>					
Economic Development Plan	Yes	Local	No	No	-
<i>Comment: Contained within the Master Plan.</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	Yes	Federal-State-Local	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	Yes	Shade Tree Commission and Ordinance	No	Yes	No
<i>Comment: Many trees have been removed due to Emerald Ash Borer. Shade tree survey has been completed with further recommendations for problem tree removals and future plantings.</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>					
Business Development Plan	No	-	No	-	-
<i>Comment:</i>					
Other	No	-	No	-	-
<i>Comment:</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
<i>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 4 years. Long Hill Basic Plan.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	Yes	Local	No	-	-
<i>Comment: Within EOP</i>					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Continuity of Operations Plan	Yes	Local	Yes	No	No
<i>Comment:</i> Within EOP					
Public Health Plan	Yes	Local	Yes	No	No
<i>Comment:</i> Within EOP					
Other	No	-	-	-	-

Table 9.18-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes, storm water permits, development permits tied to the Flood Damage Prevention Ordinance. Engineering is responsible.
Does your jurisdiction have the ability to track permits by hazard area?	No system is currently in place but it could be done manually.
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, as part of wastewater management plan.

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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

Table 9.18-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	Yes	County HMP Mitigation Planning Committee
Environmental Board / Commission	Yes	Township Environmental Commission
Open Space Board / Committee	Yes	Town Hall Open Space Committee
Economic Development Commission / Committee	No	
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Rave Mobile Alerting, mass broadcasting system. Reverse 911. Community opt in. email, text, all devices. Good percentage of town on board.
Maintenance program to reduce risk	Yes	RISK Management/JII
Mutual aid agreements	Yes	All Emergency Departments





Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Township Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Township Engineering
Planners or engineers with an understanding of natural hazards	Yes	Township Engineering/OEM Coordinator
Staff with training in benefit/cost analysis	Yes	Township Engineering
Staff with training in green infrastructure	Yes	Township Engineering
Staff with education/knowledge/training in low impact development	Yes	Township Engineering
Surveyor	Yes	Township Engineering
Stormwater engineer	Yes	Work with County
Personnel skilled or trained in GIS applications	Yes	Township Engineering
Local or state water quality professional	Yes	Work with County
Scientist familiar with natural hazards in local area	Yes	Township Engineering
Emergency manager	Yes	Coordinator – Emergency Management
Grant writers	Yes	Township Engineering
Resilience Officer	No	
Watershed planner	Yes	Great Swamp Watershed and Passaic Rivershed
Environmental specialist	Yes	Environmental Commission
Other	No	-

FISCAL CAPABILITY

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

Table 9.18-6. Fiscal Capabilities

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



Financial Resource	Accessible or Eligible to Use?
Other	No

EDUCATION AND OUTREACH CAPABILITY

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

Table 9.18-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes, through law enforcement
Do you have personnel skilled or trained in website development?	Yes, volunteers
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes, Flood information and county links
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, Facebook, Twitter, etc.
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes, Environmental Commission, Shade Tree Commission, Planning Board, etc.
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes, the warning system
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes, Rave Mobile Alerting, mass broadcasting system. Reverse 911. Community opt in. email, text, all devices. Good percentage of town on board.

COMMUNITY CLASSIFICATIONS

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

Table 9.18-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	Yes	Class 7	2017
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	None	2/25/2009

ADAPTIVE CAPACITY

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



Table 9.18-9. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Dam Failure	N/A
Disease Outbreak	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geologic	Low
Harmful Algal Bloom	N/A
Hazardous Substances	Low
Infestation	Medium
Severe Weather	Medium
Severe Winter Weather	Medium
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 9.18-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (name, department/position)	Township Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes, Engineer
What is the date that your flood damage prevention ordinance was last amended?	Currently being updated
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	2016
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	None
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	Yes, FIRM remapping is still underway
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<input type="checkbox"/> If so, what type of assistance/training is needed?	-
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	Yes, yes
How many flood insurance policies are in force in your jurisdiction?*	Flood insurance policies: 173



Criterion	Response
<ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	Insurance in force: \$46,216,400 Premium in force: \$259,745
How many total loss claims have been filed in your jurisdiction?* <ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	Total loss claims: 170 Claims open or closed without payment: 43 Total payments for losses: \$2,824,928
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

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

ADDITIONAL AREAS OF EXISTING INTEGRATION

- Township Engineer:** The Engineering Department provides technical support on capital improvement projects ranging from concept development through engineering design and construction inspection. Inspection services are provided on approved development projects after the performance bond is posted and permits are issued. Periodically, the Engineering Department develops updates to the Master Plan, and Zoning Ordinance to implement recommendations of the Planning Board and Township Committee. Other services include road improvement design, tax map and zone map revisions, studies to evaluate sewer rates, capacity studies of storm sewers, flood studies and investigations, traffic studies, and evaluations of County and State projects within the Township.
- Public Works Department:** The Public Works Department is responsible for maintenance of roads and streets, Long Hill buildings and grounds, and storm water management.
- Office of Emergency Management:** The Office of Emergency Management is responsible for planning, activating, coordinating and the conduct of emergency management operations within the municipality. The department relies on community volunteers to assist in times of emergency. The Office is responsible for the Community Emergency Response Team (CERT), Medical Reserve Corps (MRC)
- Board of Health:** The Board of Health is responsible for the administration and enforcement of all health ordinances of the Township and for adopting rules, regulations, and ordinances designed to promote and protect the health, safety, and general welfare of the residents.
- Communications Advisory Committee:** The Communications Advisory Committee (CAC) is responsible for advising the Township on matters pertaining to technology and media communications. Recent and ongoing CAC projects include the launch and management of Long Hill Television (LHTV) and community bulletin board, recording and broadcast of township meetings and community events, audio improvements in Town Hall, and new township website.
- Environmental Commission:** The Environmental Commission is responsible for working with municipal officials to educate the public and generate solutions to environmental issues. The Environmental Commission is also responsible for commenting to the Planning and Zoning Boards about environmental issues that should be considered in deciding applications before those two Boards.
- Historic Preservation Advisory Committee:** The Historic Preservation Advisory Committee has the responsibility for developing ordinances for historic preservation, advising other government planning bodies about historic elements involved in proposed projects, and updating the Township's historic sites survey with an eye toward designating specific districts and sites as suitable for historic registration.
- Planning Board:** The Planning Board reviews and acts on applications for all major subdivisions, site plans, and bulk variances and conditional uses. Each year, the Planning Board evaluates the variances granted by the Zoning Board of Adjustment to determine if there are emerging patterns which might call for a change to the Master Plan or the Zoning Ordinance. When appropriate, the Board makes recommendations to the Township Committee to amend the zoning ordinance.



- **Zoning Board of Adjustment:** The Zoning Board of Adjustment is a quasi-judicial board whose purpose is to provide relief from zoning requirements that cannot be satisfied. Requests for relief are not granted based upon precedent, but upon the ability of an applicant to prove his/her case. The Board of Adjustment is established pursuant to the N.J. Municipal Land Use Law which governs its conduct and insures that its actions are uniform and meet standards similar to those applied in a court of law.
- **Open Space Advisory Council:** The primary mission of the Open Space Advisory Committee is to advise the Township Committee, Planning Board and the Board of Adjustment on the acquisition, maintenance and preservation of open space in the Township of Long Hill. The Open Space Advisory Committee is responsible for developing, evaluating, identifying, recommending, implementing and commenting on the open space plan for the Township Master Plan. As part of their responsibility the Committee evaluates the importance of township lands for recreational use, stream corridor protection, and preservation of aesthetic and historic value. They also identify specific sites for acquisition, and recommend available grants for the Town's Open Space plan. The Open Space program is funded from the special tax (\$.02 per \$100.00) approved by the voters in 1997.
- **Shade Tree Commission:** The Shade Tree Commission is responsible to advise the Township Committee on all matters pertaining to the planting and care of trees and shrubs on all public roads and parks; to recommend programs to prevent the spread of diseases or pests from trees on private property; and to encourage arbor culture. The Shade Tree Commission has compiled a list of the big trees in Long Hill Township.
- **Flood Information page:** The Township of Long Hill's municipal website includes a flood information page that has information on the flood hazard, local flood hazards, flood protection, and FIRM maps.
- **Flood Acquisition Plan:** The Township has participated in the County's Flood Mitigation Program (FMP) and has an approved Flood Acquisition Plan (FLAP). The Morris County FMP is the first dedicated, county-level flood acquisition program in the State of New Jersey. The FMP allows Morris County to assist municipalities in moving people out of harm's way, lowering municipal costs due to intense flooding episodes, and create natural flood capture and storage areas which protect the remaining homes and businesses. The FMP is funded by the Morris County Open Space tax and provides grant monies for municipalities to purchase flood-prone residential properties.

9.18.5 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 Long Hill'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 9.18-11 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 9.18-11. 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, and then developed into a low pressure system as it	Although the county was impacted, the Township of Long Hill did not report damages.



Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
			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. 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. At one point during the storm, up to 270,000 customers were without power.	
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 was observed across large parts of Morris County. The snow contained large amounts of liquid, making it heavy and wet. This resulted in downed trees, limbs, and wires, leading to numerous power outages across portions of New Jersey, especially where the heaviest snow was reported. Many customers were still without power from the previous storm when this storm struck. Governor Murphy estimated about 350,000 customer's state-wide lost power as a result of this second storm. Governor Phil Murphy declared a state of emergency which went into effect at 8 PM Tuesday March 6th.	Although the county was impacted, the Township of Long Hill did not report damages.



9.18.6 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 9.18-12 summarizes the Township of Long Hill's risk assessment results and data used to determine the hazard ranking.

In an attempt to summarize the confidence level regarding the input utilized to populate the hazard ranking, a gradient of certainty was developed. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and increased understanding of the data utilized 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 9.18-12. 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 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 D&E:	911	NEHRP D&E:	480	100-year Loss:	\$0	High
	NEHRP Soils D&E (soft soils that amplify ground shaking are present in the County)	Liquefaction Class 4:	184	Liquefaction Class 4:	97	500-year Loss:	\$3,207,053	
						2,500-year Loss:	\$45,406,197	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,409	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:	254					
Flood		100-year	477	100-year	311		\$245,650,873	High



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
	100- and 500-Year Mean Return Period Event	500-year	1,086	500-year	583	100-year Loss:		
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	154	Class B:	54	Class B:	\$25,652,702	
		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:	\$46,064	High
						100 -Year Loss:	\$768,933	
						500-year Loss:	\$3,534,721	
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:	11	Wildfire:	5	Wildfire:	\$2,004,832	Moderate

**REPETITIVE FLOOD LOSSES**

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

- Number of repetitive loss (RL) properties: 19
- Number of severe repetitive loss (SRL) properties: 6
- Number of RL/SRL properties that have been mitigated: 3

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 9.18-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Stirling Volunteer Fire Company*	Fire	X	X	2020-Township of Long Hill-003
Township of Long Hill Police Department*	Police/EOC	X	X	A French drain system was installed with Township funds. 2020-Township of Long Hill-004
Township of Long Hill Municipal Building*	Municipal Hall/Alt EOC		X	
Long Hill Community Center	Community Center	X	X	2020-Township of Long Hill-005
WKMB 1070	Communication	X	X	Not considered in need of protection
Long Hill Township Of STP*	Wastewater	X	X	Not interested in mitigation
Long Hill Library*	Municipal Hall		X	
The Long Hill First Aid Squad, Inc.*	EMS		X	
Long Hill DPW*	DPW	X	X	2020-Township of Long Hill-006

*Identified lifeline

ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- The Township has 19 repetitive loss properties and six severe repetitive loss properties.
- Passaic River is the major flood concern for the Township. Flooding results in damages to homes. No major damages have occurred in the last few years but small floods and damages often go unreported. The storm water system is functional until the river backs up the system. A study of the river was done but did not take place upstream of Parsippany.
- Snags/log jams may contribute to minor flooding. The county mosquito commission used to address this but is now understaffed.



HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Township of Long Hill 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 Long Hill has significant exposure. Refer to Figures 9.18-1 and 9.18-2.

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 bounce back after the event. The table below summarizes the hazard rankings of potential natural hazards for the Township of Long Hill. The Township of Long Hill 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 changed the hazard ranking for wildfire from low to medium.

Table 9.18-14. Township of Long Hill Hazard Ranking Input

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

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

9.18.7 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 9.18-15. 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 #
LH-1: Engineering study to determine mitigation action including additional storm-water run-off for the following streets: Pleasant Plains Rd, New Vernon Road, Carlton Road County Roads, Main Street, Mercer Street, Valley Road, Poplar Road, Cedar Street, Magnolia Avenue, and Laurel Avenue.	Township Engineer	No Progress and discontinue project. Municipal representatives do not knowledge of this project advancing.		
LH-2: Elevation/additional pumps added to Police Department/EOC at 264 Mercer Street, Sterling.	Township Engineer	A French drain system was installed with Town funds	X	2020-Township of Long Hill-003
LH-3: Elevation of three flood prone properties located on Railroad Street and Magnolia Avenue	Township Engineer	According to the Township Engineer, the property owners are not interested in elevations and the project is discontinued.		
LH-4: Acquisition/elevation of two repetitive loss properties located on Cedar Avenue and Laurel Avenue.	Township Engineer	Completed 2015/2016– project funded by NJDEP Blue Acres. Morris County, Long Hill Open Space funds and homeowner contribution		
LH-5: Acquisition/elevation of four Repetitive Loss properties located on Mercer Street#	Township Engineer	Completed 2015/2016– project funded by NJDEP Blue Acres. Morris County, Long Hill Open Space funds and homeowner contribution		
LH-6: Acquisition/elevation of one repetitive loss property located on Madison Street.	Township Engineer	Completed 2015/2016– project funded by NJDEP Blue Acres. Morris County, Long Hill Open Space funds and homeowner contribution		
LH-7: Develop all-hazards public education and outreach program for hazard mitigation and preparedness	Township Engineer	In Progress. Public Outreach/Education is active and ongoing with the Emergency Management Coordinator the responsible party. Frequent use of our notification program for email and text messaging, Township Facebook and website and media outlets. Educational program includes a booth at the annual Township Street fair and providing small group presentations for local groups and residents with special needs supported by Citizen Corps volunteers (MRC and CERT). Implemented new mass notification program ALERT Long Hill program (2018) Quarterly newsletter “Long Hill Ledger” (2016- 2020) mailed to all households in the Township Website improvements/upgrades (ongoing).		
LH-8: Acquisition/Elevation of home on Valley Rd, Stirling NJ 07980.	Township Engineer	Homeowner withdrew Blue Acres application; house was subsequently torn down; lot is vacant		
LH-9: Acquisition/Elevation of Property on Bungalow Terr. Millington, NJ 07946	Township Engineer	Homeowner withdrew Blue Acres application; house was subsequently torn down; lot is vacant		



In addition to the above progress, the Township of Long Hill identified the following mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy:

- Long Hill surveyed forested areas and worked with the county to remove problem trees and those prone to emerald ash borer.
- Several homes were acquired through the use of NJDEP Blue Acre and Morris County Open Space funds.

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Township of Long Hill 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 Long Hill 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 9.18-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of Long Hill 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 9.18-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.



Table 9.18-16. 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-Township of Long Hill-001	Mitigate flood-prone properties, including RL/SRL properties	Frequent flooding events have resulted in damages in the following areas: Railroad Street, Magnolia Avenue, Cedar Avenue, Laurel Avenue, Mercer Street, Madison Street, Valley Road, and Bungalow Terrace.	Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. Support grant applications for interested property owners.	Existing	Flood, Severe Storm		Township Engineer, NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$3 Million	3 years	High	SIP	PP
2020-Township of Long Hill-002	Stirling Volunteer Fire Company	Stirling Volunteer Fire Company is located in the 100-year floodplain. The Township is uncertain of the level of protection of the Fire Company. The facility is a lifeline facility.	Conduct feasibility assessment to determine level of exposure and necessary mitigation actions. Implement identified actions.	Existing	Flood		Township Engineer	HMGP, PDM, FMA, Municipal budget	Reduction in flood risk to critical facility	High	Within 5 years	High	SIP	PP
2020-Township of Long Hill-003	Police Station	The Police Station is located in the 100-year floodplain. The facility is a lifeline facility.	Conduct feasibility assessment to determine level of exposure and necessary mitigation actions. Implement identified actions.	Existing	Flood		Township Engineer	HMGP, PDM, FMA, Municipal budget	Reduction in flood risk to critical facility	High	Within 5 years	High	SIP	PP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Township of Long Hill-004	Long Hill Community Center	The Long Hill Community Center is in the 100-year floodplain and is a lifeline facility. The facility is capable of being used as a backup shelter and pet friendly shelter for non-flood related hazard events.	The Township will floodproof the facility.	Existing	Flood		Township Engineer	HMGP, PDM, FMA, Municipal budget	Reduction in flood risk to critical facility	High	Within 5 years	High	SIP	PP
2020-Township of Long Hill-005	Long Hill DPW	The Long Hill DPW is in the 100-year floodplain and is a lifeline facility.	Floodproof electrical components and develop action plan to move equipment during flood events.	Existing	Flood		Township Engineer	HMGP, PDM, FMA, Municipal budget	Reduction in flood risk to critical facility	High	Within 5 years	High	SIP	PP
2020-Township of Long Hill-006	Update flood damage prevention ordinance	The flood damage prevention ordinance lacks language to capture the state mandated freeboard requirement.	Update the flood damage prevention ordinance to include freeboard.	New	Flood		FPA	Municipal budget	Meet state requirements	Staff time	Within 6 months	High	LPR	PR
2020-Township of Long Hill-007	Disaster Debris Management Plan	The Township lacks a formalized Debris Management Plan	Develop Disaster Debris Management Plan	N/A	All hazards		OEM	Municipal budget	Plan established	Staff time	Within 2 years	High	LPR	ES

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

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:



N/A Not applicable
 NFIP National Flood Insurance Program
 OEM Office of Emergency Management

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 9.18-17. Summary of Evaluation and Action Priorities

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Township of Long Hill-001	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-Township of Long Hill-002	Stirling Volunteer Fire Company	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High



Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Township of Long Hill-003	Police Station	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2020-Township of Long Hill-004	Long Hill Community Center	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2020-Township of Long Hill-005	Long Hill DPW	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2020-Township of Long Hill-006	Update flood damage prevention ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-Township of Long Hill-007	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

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



Table 9.18-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Disease Outbreak					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Drought					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Earthquake					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Extreme Temperature					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Flood	2020-Township of Long Hill-006	2020-Township of Long Hill-001, 2020-Township of Long Hill-002, 2020-Township of Long Hill-002, 2020-Township of Long Hill-004, 2020-Township of Long Hill-005	2020-Township of Long Hill-006		2020-Township of Long Hill-007			2020-Township of Long Hill-007
Geologic					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Harmful Algal Bloom					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Hazardous Substances					2020-Township of Long Hill-007			2020-Township of Long Hill-007
Infestation					2020-Township of Long Hill-007			2020-Township of Long Hill-007



Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe Weather		2020-Township of Long Hill-001			2020-Township of Long Hill-007			2020-Township of Long Hill-008
Severe Winter Weather					2020-Township of Long Hill-007			2020-Township of Long Hill-008
Wildfire					2020-Township of Long Hill-007			2020-Township of Long Hill-008

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

9.18.8 Staff and Local Stakeholder Involvement in Annex Development

The Township of Long Hill 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 9.18-19. Contributors to the Annex

Entity	Title	Method of Participation
Shayne Daly	Emergency Management Coordinator	Primary Point of Contact, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Paul Ferrier	Township Engineer	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy, Floodplain Administrator
Nancy Malool	Township Administrator	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy



Figure 9.18-1. Township of Long Hill Hazard Area Extent and Location Map 1

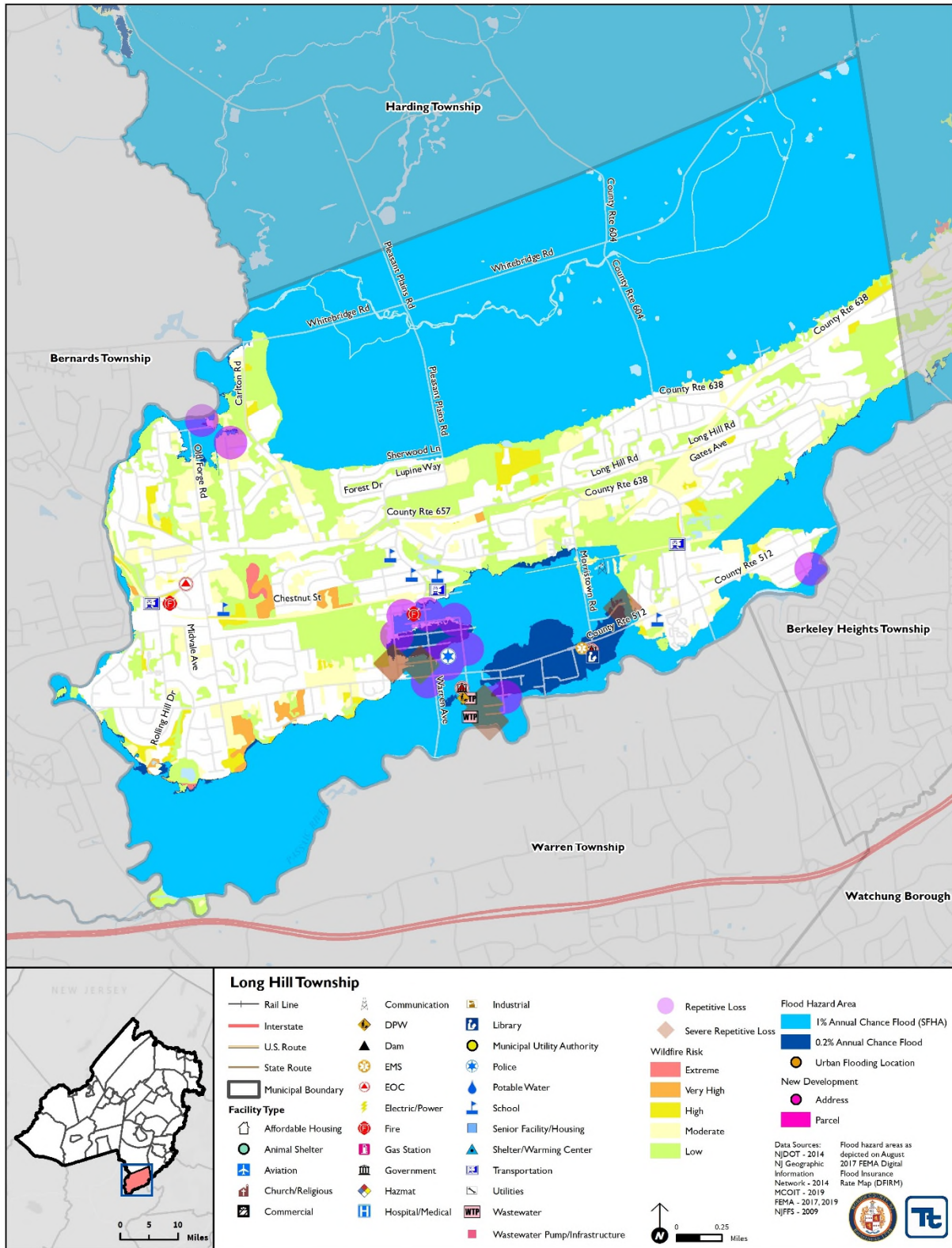
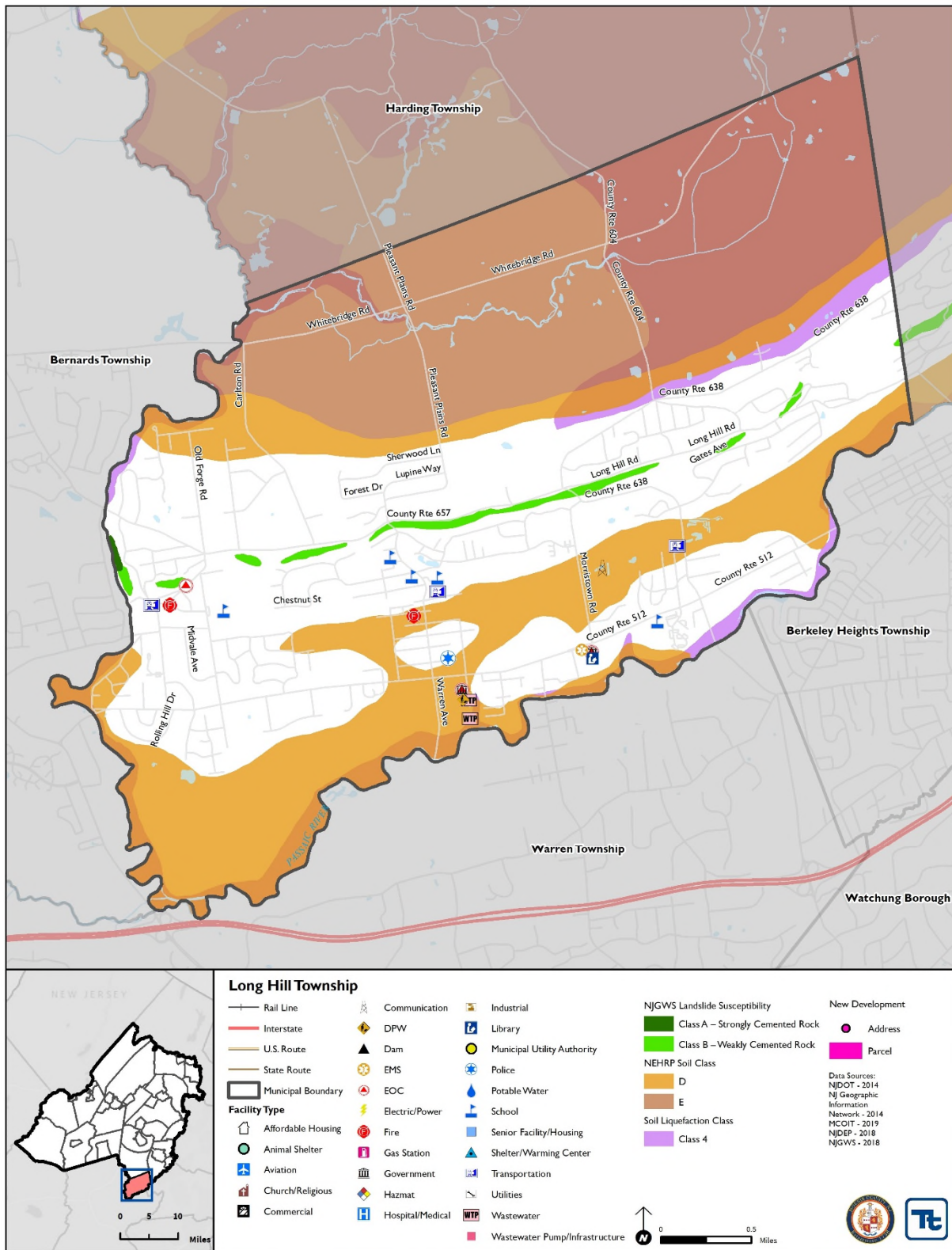




Figure 9.18-2. Township of Long Hill Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	Mitigate flood-prone properties, including RL/SRL properties		
Project Number:	2020-Township of Long Hill-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages in the following areas: Railroad Street, Magnolia Avenue, Cedar Avenue, Laurel Avenue, Mercer Street, Madison Street, Valley Road, and Bungalow Terrace. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding (high risk areas).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event + freeboard (<i>in accordance with flood ordinance</i>)	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	Goals Met:	
Estimated Cost:	\$3Million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Three years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Township Engineer, NFIP Floodplain Administrator, supported by homeowners	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	\$500,000	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$500,000	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Mitigate flood-prone properties, including RL/SRL properties	
Project Number:	2020-Township of Long Hill-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Families moved out of high-risk flood areas.
Property Protection	1	Properties removed from high-risk flood areas.
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The Town has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Project would remove families from Railroad Street, Magnolia Avenue, Cedar Avenue, Laurel Avenue, Mercer Street, Madison Street, Valley Road, and Bungalow Terrace areas of Township.
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Storm water upgrades		
Project Number:	2020-Township of Long Hill-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The following streets have storm water issues: Pleasant Plains Rd, New Vernon Road, Carlton Road County Roads, Main Street, Mercer Street, Valley Road, Poplar Road, Cedar Street, Magnolia Avenue, and Laurel Avenue.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct engineering study to determine appropriate mitigation actions and implement actions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	TBD by engineering study	Estimated Benefits (losses avoided):	Reduction in storm water flooding
Useful Life:	TBD by engineering study	Goals Met:	
Estimated Cost:	TBD by engineering study	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMGP, Municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Storm water Management, Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Rain gardens	\$1,000 per rain garden	Not large enough reduction in storm water volume
	Close roadways during rain events	Emergency staff time	Negative economic impacts
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Stormwater upgrades	
Project Number:	2020-Township of Long Hill-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce flood risk to life
Property Protection	1	Reduce flood risk to property
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Stirling Volunteer Fire Company		
Project Number:	2020-Township of Long Hill-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Stirling Volunteer Fire Company is located in the 100-year floodplain. The Township is uncertain of the level of protection of the Fire Company. The facility is a lifeline facility.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will conduct a feasibility assessment to determine level of exposure and necessary mitigation actions. Implement identified actions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood risk to critical facility
Useful Life:	50 years	Goals Met:	
Estimated Cost:	TBD by assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, PDM, FMA, Municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Planning, Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	\$500,000	No suitable location identified
	Close facility when flood events are forecast	Staff time	Critical services need to be maintained.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Stirling Volunteer Fire Company	
Project Number:	2020-Township of Long Hill-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects facility from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Police Station		
Project Number:	2020-Township of Long Hill-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Police Station is located in the 100-year floodplain. The Township is uncertain of the level of protection of the Fire Company. The facility is a lifeline facility.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will conduct a feasibility assessment to determine level of exposure and necessary mitigation actions. Implement identified actions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood risk to critical facility
Useful Life:	50 years	Goals Met:	
Estimated Cost:	TBD by assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, PDM, FMA, Municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Planning, Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	\$500,000	No suitable location identified
	Close facility when flood events are forecast	Staff time	Critical services need to be maintained.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Police Station	
Project Number:	2020-Township of Long Hill-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects facility from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Long Hill Community Center		
Project Number:	2020-Township of Long Hill-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Long Hill Community Center is in the 100-year floodplain and is a lifeline facility. The facility is capable of being used as a backup shelter and pet friendly shelter for non-flood related hazard events.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will flood proof the facility.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood risk to critical facility
Useful Life:	50 years	Goals Met:	
Estimated Cost:	TBD by assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, PDM, FMA, Municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Planning, Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	\$500,000	No suitable location identified
	Close facility when flood events are forecast	Staff time	Critical services need to be maintained.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Long Hill Community Center	
Project Number:	2020-Township of Long Hill-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects facility from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Long Hill DPW		
Project Number:	2020-Township of Long Hill-006		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Long Hill DPW is in the 100-year floodplain and is a lifeline facility.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will flood proof electrical components and develop an action plan to move equipment during flood events.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Reduction in flood risk to critical facility
Useful Life:	50 years	Goals Met:	
Estimated Cost:	TBD by assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, PDM, FMA, Municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Planning, Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	\$500,000	No suitable location identified
	Close facility when flood events are forecast	Staff time	Critical services need to be maintained.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Long Hill DPW	
Project Number:	2020-Township of Long Hill-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects facility from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	