



9.8 Township of Fredon

This section presents the jurisdictional annex for the Township of Fredon.

9.8.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
John A. W. Richardson, Township Committeeman/OEM Coordinator 443 Route 94, Newton, NJ 07860 Phone: (973) 222-8196 Email: jawr3@centurylink.net	Virgil Rome, Deputy OEM 443 Route 94, Newton, NJ 07860 Phone: (973) 951-4196 Email: vrome461@me.com

9.8.2 Municipal Profile

The Township of Fredon was incorporated in 1904. The Township is located in southwestern Sussex County and has a total land area of 17.65 square miles. It is bordered to the north by Hampton Township, to the south by Green Township, to the east by Andover Township and Newton, and to the west by Stillwater Township and Warren County. According to the U.S. Census, the 2010 population for the Township of Fredon was 3,437. The Pequest River, Paulins Kill, and Bear Brook all flow through the Township. In addition, numerous ponds and lakes are located throughout the Township.

Growth/Development Trends

The Township of Fredon did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality. The Township notes that there was a \$140 million loss in assessed valuation with 3% of the housing stock in foreclosure.

9.8.3 Natural Hazard Event History Specific to the Municipality

Sussex County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.8-1. Hazard Event History

Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
August 26 – September 5, 2011	Hurricane Irene	DR-4021	Yes	Stillwater Station Road washed out; downed trees and power lines; Township had over \$7,900 in cleanup costs and overtime.
September 28 – October 6, 2011	Remnants of Tropical Storm Lee	DR-4039	Yes	The Township had over \$31,000 in losses, cleanup costs, debris removal and overtime. There were also power outages throughout the Township.
October 29, 2011	Severe Storm	DR-4086	Yes	This event brought heavy snow to the Township which led to downed trees and



Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
				power lines. There were power outages in the Township and over \$42,000 in cleanup costs, snow removal and overtime.
October 26 – November 8, 2012	Hurricane Sandy	DR-4086	Yes	The storm brought down trees and power lines which led to power outages in the Township. Debris removal, cleanup and overtime costs for the Township was over \$44,000.

9.8.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The risk ranking methodology is presented in Section 5.3. However, each municipality had the opportunity to adjust the final ranking based on municipal feedback. The following summarizes the hazard vulnerabilities and their ranking in the Township of Fredon. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Fredon.

Table 9.8-2. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Dam Failure	Damage estimate not available	Occasional	24	Medium
Drought	Damage estimate not available	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$377,871 2,500-Year GBS: \$5,941,808	Occasional	28	Medium
Flood	1% Annual Chance: \$554,358	Frequent	18	Medium
Geologic	Exposed to Carbonate Rock Areas: \$67,425,407	Occasional	12	Low
Hurricane	100-year MRP: \$141,647 500-year MRP: \$1,574,454 Annualized: \$10,233	Frequent	48	High
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Weather	100-Year MRP: \$141,647 500-year MRP: \$1,574,454 Annualized: \$10,233	Frequent	48	High
Severe Winter Weather	1% GBS: \$5,240,179 5% GBS: \$26,200,896	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$81,432,841	Frequent	33	High
Hazardous Materials	Damage estimate not available	Frequent	36	High



Notes: GBS = General building stock; MRP = Mean return period.

- a. The general building stock valuation is based on the custom inventory generated for the municipality and based on improved value.
- b. High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 15-30+
Low = Total hazard risk ranking below 15
- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using Hazus-MH 3.0 and the 2011 FEMA DFIRM for the 1-percent annual chance event. For the geologic and wildfire hazards, the improved value and estimated contents of buildings located within the identified hazard zones is provided.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Fredon.

Table 9.8-3. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% Flood Boundary (3)
Township of Fredon	4	1	\$6,937	0	0	0

Source: FEMA, 2014

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of November 31, 2014 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 11/31/2014.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Note (5) A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Critical Facilities

There are no critical facilities located in the FEMA 1% or 0.2% annual chance flood boundary.

Other Vulnerabilities Identified by Municipality

The Township identified the following vulnerable areas in the community:

- Glenn Terrace Pond is a dammed (Paulinskill Water Shed #2 Dam) pond created by the USACE to use as stormwater control in this section of the Township. It is owned by the Town of Newton; however, it is located in Fredon Township. The dam is owned by Green Hills Estate POA and is identified as a significant hazard dam. Moores Brook flows from Glenn Terrace Pond feeds under a commercial area in the Township and in Newton. There is one commercial building and one residential/commercial building where the Brook flows through the basement of these buildings.
- Whittemore Pond is a manmade farm pond that drains the surrounding farmland and feeds into the Glenn Terrace Pond.
- There is major concern of a dam failure at either of these ponds. If a dam failure were to occur, it would impact, and most likely destroy, homes surrounding the ponds. There are EAPs for both dams and are maintained by the Town of Newton.



9.8.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education/Outreach and Community classification
- Self-Assessment of Capability
- National Flood Insurance Program
- Community Rating System
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Township of Fredon.

Table 9.8-4. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Planning Board	2008
Capital Improvements Plan	Yes	Local	Township	2015
Floodplain Management / Basin Plan	No			
Stormwater Management Plan	Yes	Local and Federal	Planning Board	Master Plan
Open Space Plan	Yes	Local, State	Planning Board	2000
Stream Corridor Management Plan	Yes			Master Plan
Watershed Management or Protection Plan	Yes			Master Plan
Economic Development Plan	No			
Comprehensive Emergency Management Plan	Yes	Local	OEM	2014
Emergency Response Plan	Yes	Local	OEM	2014
Post-Disaster Recovery Plan				
Transportation Plan	Yes	Local	OEM	2014
Strategic Recovery Planning Report	No			
Other Plans:	No			
Regulatory Capability				
Building Code	Yes	State	Building Dept.	Chapter 200 – Construction Codes, Uniform
Zoning Ordinance	Yes	Local	Zoning	Chapter 550 - Zoning
Subdivision Ordinance	Yes	Local	Planning and Zoning	Chapter 550 - Zoning



Table 9.8-4. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
NFIP Flood Damage Prevention Ordinance	Yes	Local		Chapter 270 – Flood Control
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State		
Growth Management Ordinances	Yes	Local	Planning and Zoning	Ongoing
Site Plan Review Requirements	Yes	Local	Planning and Zoning	Chapter 424 – Site Plan Review
Stormwater Management Ordinance	Yes	Local	Planning and Zoning	Chapter 457 – Stormwater Control
Municipal Separate Storm Sewer System (MS4)	No			
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	No			
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	Local	Planning and Zoning	Chapter 441 – Soil Erosion and Sediment Control

Administrative and Technical Capability

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

Table 9.8-5. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning and Zoning Boards
Mitigation Planning Committee	Yes	
Environmental Board/Commission	Yes	Environmental Commission
Open Space Board/Committee	Yes	Open Space Commission
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	Yes	
Mutual Aid Agreements	Yes	Verbal agreements
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Pellow Engineering
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	State



Table 9.8-5. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Planners or engineers with an understanding of natural hazards	Yes	Pellow Engineering and State
NFIP Floodplain Administrator	Yes	Construction Official (as per Township Code)
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Appointed by Township Committee
Grant Writer(s)	No	
Staff with expertise or training in benefit/cost analysis	No	
Professionals trained in conducting damage assessments	Yes	State Building Inspector

Fiscal Capability

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

Table 9.8-6. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
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	No
Impact Fees for homebuyers or developers of new development/ homes	Yes
Stormwater Utility Fee	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
Other Federal or State Funding Programs	State Aid
Open Space Acquisition Funding Programs	Yes
Other	No



Education/Outreach and Community Classifications

The table below summarizes education/outreach programs the community participates in and the classifications for community program available to the Township of Fredon.

Table 9.8-7. Education/Outreach and Community Classifications

Program	Do you have/participate in this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No		
Building Code Effectiveness Grading Schedule (BCEGS)	No		
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	5	2014
Storm Ready	No		
Firewise	No		
Disaster/Safety Programs in/for Schools	Yes	Fire Prevention	Annual
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes		Daily as needed
Public-Private Partnerships	No		

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery, and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The Community Rating System (CRS) class applies to flood insurance while the Building Code Effectiveness Grading Schedule (BCEGS) and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1,000 feet of a creditable fire hydrant and is within five road miles of a recognized fire station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>



Self-Assessment of Capability

The table below provides an approximate measure of the Township of Fredon’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.8-8. Self-Assessment of Capability

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability			X
Administrative and Technical Capability			X
Fiscal Capability	X		
Community Political Capability		X	
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Construction Official according to Chapter 270, Section 13 of the Township Code.

Flood Vulnerability Summary

During the most recent flooding events in the Township, no homes or structures were damaged. However, during Hurricane Irene, the Township had part of a road washout. According to the Township FPA and OEM Coordinator, the Township does not have flooding issues in the municipality.

Resources

None identified

Compliance History

The Township joined the NFIP on March 11, 1983 and is in good standing. As of August 31, 2015, there are four in-force policies and one claim has been paid.

Regulatory

Chapter 270 of Township Code – Flood Control

Community Rating System

The Township of Fredon does not participate in the Community Rating System (CRS) program.



Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Township has a Planning Board and Zoning Board of Adjustments which reviews all applications for development and consider natural hazard risk areas in their review.

2007 Comprehensive Master Plan Reexamination: The Township completed a Comprehensive Plan, which included the identification of natural hazard risk areas like floodplains, wetlands, and steep slopes, as well as land use and zoning recommendations for managing those risks. The Plan included the following applicable goals and objectives: Some of the recommendations included the following:

GOAL 1: To protect areas constrained by steep slopes, wetlands, category one streams, flood prone areas, forested areas, and areas with threatened or endangered habitat by enforcing the township's environmental regulations and establishing new regulations to address unregulated elements.

Objectives:

1. To encourage township actions to guide the appropriate use or development of all lands in Fredon Township which will promote the public health, safety, morals and general welfare.
2. To secure safety from fire, flood, panic and other natural and man-made disasters.
3. To promote the establishment of appropriate densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment.

Regulatory and Enforcement (Ordinances)

The Township has multiple chapters pertaining to the mitigation of hazards. These ordinances include the Flood Control Chapter, Stormwater Management Chapter, and an Environmental Impact Statement requirement included in the Site Plan Review Chapter. The Township also has a chapter specific to the hazards associated with environmentally sensitive areas.

Chapter 270: Flood Control

The purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- A. To protect human life and health;
- B. To minimize expenditure of public money for costly flood control projects;
- C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. To minimize prolonged business interruptions;
- E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- F. To help maintain a stable tax base by providing for the alternate use and development of areas of special flood hazard so as to minimize future flood blight areas;



- G. To ensure that potential buyers are notified that property is in an area of special flood hazard; and
- H. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

Chapter 457: Stormwater Control

The purposed of the Stormwater Control chapter is to implement best management practices for stormwater management designed to promote the public health, safety and general welfare the citizens.

Chapter 424-22 Article V: Environmental Impact Statement

The purpose of this section of the Chapter is to allow the Township to assess the impact of a proposed development upon the natural environment, particularly with respect to potable water, pollution of all kinds, flooding and waste disposal.

The Township has identified a new mitigation initiative to review the current hazard mitigation plan prior to updating plans, ordinances, etc. within the Township. Refer to Table 9.8-10 below for further information.

Operational and Administration

The Township has established a Planning board and Zoning Board of Adjustments that are responsible for the review of development applications. The Township has a Zoning officer as well as a planning and zoning board secretary.

Funding

Operating Budget: The Township's operating budget contains minimal provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster.

Grants: The Township has received funding from the NJDOT, Sustainable Jersey, The Garden State Preservation Trust Fund, and Clean Communities grant programs for the completion of mitigation and emergency response related projects including roadway and drainage improvements.

Education and Outreach

The Township’s website’s home page posts information regarding upcoming community events and important municipal decisions. The Township has identified a new mitigation initiative to develop and implement a multi-hazard public outreach program. Refer to Table 9.8-10 below.

9.8.6 Mitigation Strategy and Prioritization

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

Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2011 Plan. 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 may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.8-9. Past Mitigation Initiative Status

<u>Initiative Number</u>	<u>2011 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Fredon Township 1	Harden Fredon Town Hall/DPW located on 94S to FEMA 361 Standards.	OEM Coordinator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	Harden Fredon Town Hall/DPW located on 94S to FEMA 361 standards; install a backup generator.
Fredon Township 2	Retrofit roof to meet current high wind standards on school located on Route 94S.	School Board Administrator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 3	Retrofit impact resistant windows and shutters to school located on Route 94S.	School Board Administrator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 4	Emergency generator for school shelter located on Route 94S.	School Board Administrator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 5	Implement Fire Wise prevention program throughout municipality.	OEM Coordinator	No Progress	Due to lack of funding, this initiative has not been completed.	Discontinue	
Fredon Township 6	Inundation Study for twin dams located on Warner Road and Paulinskill Lake Road.	Township Engineer	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 7	Emergency generator for shelter at Civic Center.	OEM Coordinator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	Revised – refer to Fredon Township 1
Fredon Township 8	Inundation study for Whittemore Pond Dam.	Township Engineer	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 9	Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.	Township Engineer	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 10	Install stormwater runoff retention basin located at Newton Memorial Hospital.	Hospital Administrator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.



<u>Initiative Number</u>	<u>2011 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2016 HMP? or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Fredon Township 11	Retrofit roof to meet current snow-load standards on Civic Center/Emergency Services Center on 94S.	Facility Administrator	No Progress	Due to lack of funding, this initiative has not been completed.	Include in 2016 HMP	The Township will include this initiative in the 2016 HMP Update.
Fredon Township 12	Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	OEM Coordinator, in coordination with SCDEM	In Progress	This project is not funded by is part of the email system throughout the Township.	Discontinue	

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Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Township has not identified any mitigation projects/activities that have been completed since the last hazard mitigation plan.

Proposed Hazard Mitigation Initiatives for the Plan Update

The Township participated in a mitigation action workshop in April 2015 and was provided 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). In May 2015, FEMA Region 2 and NJOEM led a second workshop and provided the results of the risk assessment to the municipalities to further assist with the identification of mitigation actions. Additionally, the Township attended an annex support meeting in October 2015 to identify and finalize their mitigation actions for the community.

Table 9.8-10 summarizes the comprehensive-range of specific mitigation initiatives the Township would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may 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, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.8-11 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.8-10. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
Fredon-1	Harden the Township's Civic Center and EOC to FEMA 361 standards.	Existing	All	1, 2, 6	Township Administration, OEM	High	High	HMGP with local cost share	Short Term / DOF	High	SIP	PP
Fredon-2	When updating the roof of the Township school, incorporate current high wind standards into the design.	Existing	All	1, 2, 6	School Administration	High	High	HMGP with local cost share	Short Term / DOF	High	SIP	PP
Fredon-3	Conduct inundation studies for the dams located in the Township: twin dams at Warner Road and Paulinskill Lake Road and at Whittemore Pond.	Existing	All	1, 2, 3, 4	Township Engineer	High	Medium	HMGP with local cost share	Short Term / DOF	High	SIP	PP
Fredon-4	Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.	Existing	All	1, 2, 6	Township Engineer	High	Medium	HMGP with local cost share	Short Term / DOF	High	SIP	PP
Fredon-5	Install stormwater runoff retention basin located at Newton Medical Center	Existing	All	1, 2, 6	Township Engineer, Hospital Administration	High	Medium	HMGP with local cost share	Short Term / DOF	High	SIP	PP
Fredon-6	Review the current hazard mitigation plan prior to updating plans, ordinances, etc. within the Township.	N/A	All	All	Township Administration	High	Low	Municipal Budget / Staff Time	Ongoing	High	LPR	PR
Fredon-7	Develop and implement a multi-hazard public outreach program.	N/A	All	All	Township Administration, OEM	High	Low	Municipal Budget / Staff Time	Ongoing	High	EAP	PI
Fredon-8	Continue with the process of adding additional radio equipment on an existing tower in the Township. Awaiting zoning sign off; then will complete project.	Existing	All	All	Township OEM and County OEM	High	Low	Municipal Budget	Short Term	High	SIP	PP
Fredon-9	Purchase and install backup generators at the following locations: <ul style="list-style-type: none"> Town Hall/DPW Civic Center Township School 	Existing	All	1, 2, 6	Township OEM	High	Medium to High	HMGP with local cost share	Short Term / DOF	High	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

CRS Community Rating System
 DPW Department of Public Works

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program

Timeline:

Short 1 to 5 years
 Long Term 5 years or greater





Acronyms and Abbreviations:

FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
NJDEP	New Jersey Department of Environmental Protection
NJOEM	New Jersey Office of Emergency Management
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

PDM	Pre-Disaster Mitigation Grant Program
HMA	Hazard Mitigation Assistance Program

Timeline:

OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reappropriation of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

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 also 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. Such 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 also preserve or restore the functions of natural systems. These 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. Such 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 9.8-11. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
Fredon-1	Harden the Township's Civic Center and EOC to FEMA 361 standards.	1	1	1	1	0	1	0	0	0	-1	1	0	0	0	5	High
Fredon-2	When updating the roof of the Township school, incorporate current high wind standards into the design.	1	1	1	1	0	-1	0	0	0	-1	1	0	0	0	3	High
Fredon-3	Conduct inundation studies for the dams located in the Township: twin dams at Warner Road and Paulinskill Lake Road and at Whittemore Pond.	1	1	1	1	1	-1	0	1	0	-1	1	0	0	0	5	High
Fredon-4	Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.	1	1	1	1	0	1	0	1	0	-1	1	0	0	0	6	High
Fredon-5	Install stormwater runoff retention basin located at Newton Medical Center	1	1	1	1	0	-1	0	1	0	-1	1	0	0	0	4	High
Fredon-6	Review the current hazard mitigation plan prior to updating plans, ordinances, etc. within the Township.	1	1	1	1	0	1	1	0	0	-1	1	0	0	0	6	High
Fredon-7	Develop and implement a multi-hazard public outreach program.	1	1	1	1	0	1	1	0	0	-1	1	0	0	0	6	High
Fredon-8	Continue with the process of adding additional radio equipment on an existing tower in the Township. Awaiting zoning sign off; then will complete project.	1	1	1	1	1	0	1	0	0	1	1	1	1	0	10	High
Fredon-9	Purchase and install backup generators at the following locations: <ul style="list-style-type: none"> • Town Hall/DPW • Civic Center • Township School 	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.





9.8.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.8.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Township of Fredon 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 considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Fredon has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.8.9 Additional Comments

None at this time.

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Figure 9.8-1. Township of Fredon Hazard Area Extent and Location Map 1

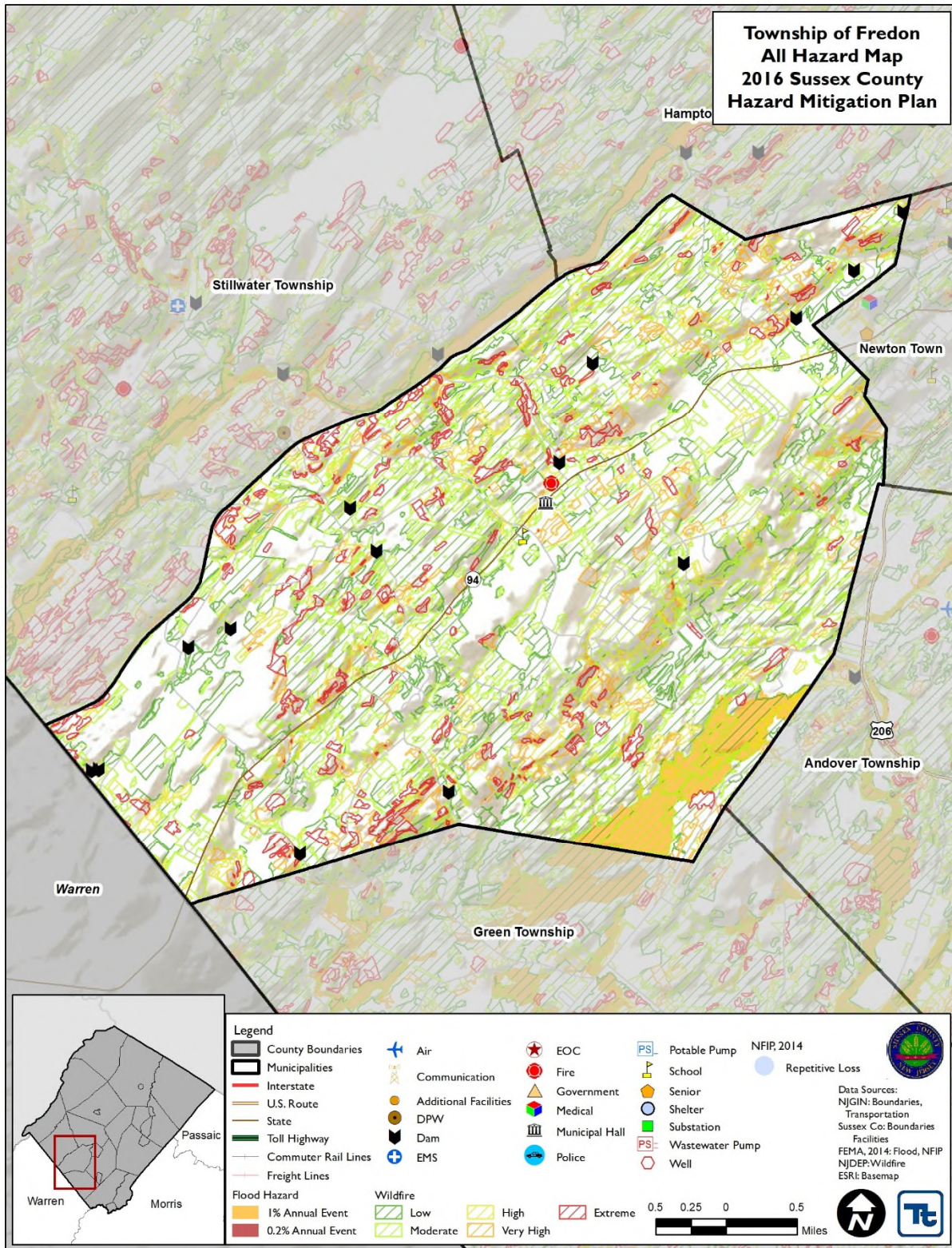
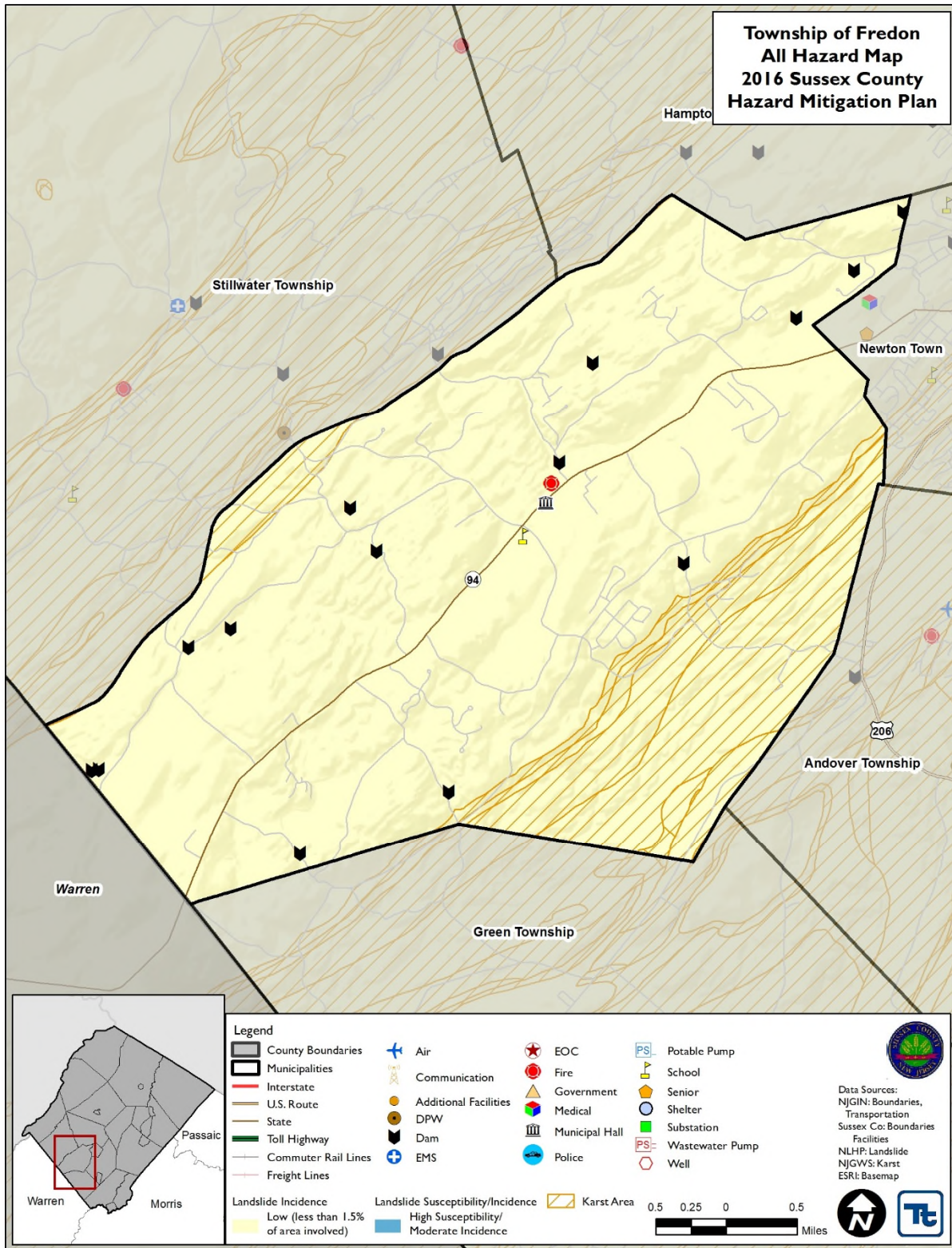




Figure 9.8-2. Township of Fredon Hazard Area Extent and Location Map 2





Action Number: Fredon-1

Mitigation Action/Initiative: Harden the Township's Civic Center and EOC to FEMA 361 standards.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Current building is not protected from tornadoes and hurricanes
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Harden the Township's Civic Center and EOC to FEMA 361 standards.
	2. Construct new facility – too costly
	3. Do nothing – current problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Harden the Township's Civic Center and EOC to FEMA 361 standards.
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Township Administration, OEM
Local Planning Mechanism	Emergency Operations, Capital Improvement
Potential Funding Sources	HMGP with local cost share
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Fredon-1

Mitigation Action/Initiative: Harden the Township's Civic Center and EOC to FEMA 361 standards.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect building from damages from tornadoes and hurricanes
Cost-Effectiveness	1	Reduce impacts from severe weather events
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	-1	
Multi-Hazard	1	Severe Weather, Hurricanes/Tropical Storms
Timeline	0	
Local Champion	0	
Other Community Objectives	0	
Total	5	
Priority (High/Med/Low)	High	



Action Number: Fredon-2

Mitigation Action/Initiative: When updating the roof of the Township school, incorporate current high wind standards into the design.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Current roof of school does meet high wind standards
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. When updating the roof of the Township school, incorporate current high wind standards into the design.
	2. Build new school – too costly
	3. Do nothing – current problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	When updating the roof of the Township school, incorporate current high wind standards into the design.
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority	High
Plan for Implementation	
Responsible/Lead Agency/Department	School Administration
Local Planning Mechanism	School Budget, Emergency Operations
Potential Funding Sources	HMGP with local (school budget) cost share
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Fredon-2

Mitigation Action/Initiative: When updating the roof of the Township school, incorporate current high wind standards into the design.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect building from damages due to high winds
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	-1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	-1	
Multi-Hazard	1	All
Timeline	0	
Local Champion	0	
Other Community Objectives	0	
Total	3	
Priority (High/Med/Low)	High	



Action Number: Fredon-4

Mitigation Action/Initiative: Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Undersized culverts at intersection of Pond Place and Slate Ridge causes flooding in this area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority	High
Plan for Implementation	
Responsible/Lead Agency/Department	Township Engineer
Local Planning Mechanism	Stormwater Management
Potential Funding Sources	HMGP with local cost share
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Fredon-4

Mitigation Action/Initiative: Upgrade and improve stormwater culverts at intersection of Pond Place and Slate Ridge.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents from flooding in this area
Property Protection	1	Protect structures from flood damage
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	-1	
Multi-Hazard	1	All
Timeline	0	
Local Champion	0	
Other Community Objectives	0	
Total	6	
Priority (High/Med/Low)	High	



Action Number: Fredon-5

Mitigation Action/Initiative: Install stormwater runoff retention basin located at Newton Medical Center

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Flooding in this area of the Township
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Install stormwater runoff retention basin located at Newton Medical Center
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install stormwater runoff retention basin located at Newton Medical Center
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority	High
Plan for Implementation	
Responsible/Lead Agency/Department	Township Engineer, Hospital Administration
Local Planning Mechanism	Stormwater Management
Potential Funding Sources	HMGP with local cost share
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Fredon-5

Mitigation Action/Initiative: Install stormwater runoff retention basin located at Newton Medical Center

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents from flooding in this area
Property Protection	1	Protect structures from flood damage
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	-1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	-1	
Multi-Hazard	1	All
Timeline	0	
Local Champion	0	
Other Community Objectives	0	
Total	4	
Priority (High/Med/Low)	High	



Action Number: Fredon-9

Mitigation Action/Initiative: Purchase and install generators at critical facilities in the Township

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Loss of power in the community and lack of emergency generators – Township cannot function properly during emergencies
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Purchase and install generators at critical facilities in the Township
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install generators at critical facilities in the Township
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium to High
Priority	High
Plan for Implementation	
Responsible/Lead Agency/Department	Township OEM
Local Planning Mechanism	Emergency Operations, Capital Improvement
Potential Funding Sources	HMGP with local cost share
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Fredon-9

Mitigation Action/Initiative: Purchase and install generators at critical facilities in the Township

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide shelter facility for residents
Property Protection	1	Allow buildings to function during power outages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All
Timeline	1	
Local Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	High	