



## 9.7 Township of Frelinghuysen

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

### 9.7.1 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
Nicholas Pachnos, OEM Coordinator 210 Main Street, Johnsonburg, NJ 07825 (908) 256-6355 <a href="mailto:Nick_pachnos@bmc.com">Nick_pachnos@bmc.com</a>	Kenneth Lang, Deputy OEM Coordinator 210 Main Street, Johnsonburg, NJ 07825 (201) 317-5576 <a href="mailto:Kml9705@ptd.net">Kml9705@ptd.net</a>

### 9.7.2 Municipal Profile

The Township of Frelinghuysen is approximately 24 square miles in size and located in northwest Warren County. The Township is bordered to the north by Hardwick Township and Sussex County; to the east by Allamuchy Township and Sussex County; to the south by the Townships of Independence and Liberty; and to the west by the Townships of Blairstown and Hope. The Township contains mountains, valleys, rivers, marshes, rock ledges, and rolling farmland. Paulins Kill makes up the northwestern border of the Township. There are several unincorporated communities in the Township that include Johnsonburg, Kerrs Corners, Ebenezer, Southtown and Marksboro. According to the U.S. Census, the 2010 population for Township of Frelinghuysen was 2,230. Additionally, the Township is located within the New Jersey Highlands Region.

### Growth/Development Trends

The Township of Frelinghuysen 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.

### 9.7.3 Natural Hazard Event History Specific to the Municipality

Warren 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 9.7-1. Hazard Event History

Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
October 28, 2008	Heavy Snow and Strong Winds	N/A	N/A	Scattered Power Outages
September 28 – October 6, 2011	Remnants of Tropical Storm Lee	DR-4039	Yes	Several Flooded Basements
October 29, 2011	Severe Storm	DR-4048	Yes	Scattered Power Outages



Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
October 26 – November 8, 2012	Hurricane Sandy	DR-4086	Yes	Widespread power outages of a long duration (up to 12 days). Closed roads. Town utility shed destroyed by fallen tree. Town Hall was opened to residents to allow them to charge their phones and computers. Water was distributed as well.

### 9.7.4 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 Frelinghuysen. 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 Frelinghuysen.

Table 9.7-2. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Dam Failure	Damage estimate not available	Occasional	24	Medium
Drought	Damage estimate not available	Frequent	30	Medium
Earthquake	100-Year GBS: \$0	Occasional	28	Medium
	500-Year GBS: \$158,426			
	2,500-Year GBS: \$2,454,813			
Flood	1% Annual Chance: \$1,863,600	Frequent	18	Medium
Geologic	RCV Exposed to Carbonate Rock Areas: 6	Occasional	36	High
	100-year MRP: \$116,682.00			
Hurricane	500-year MRP: 472385	Frequent	48	High
	Annualized: \$7,383.00			
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Storm	100-Year MRP: \$116,682	Frequent	48	High
	500-year MRP: \$472,385			
	Annualized: \$7,383			
Severe Winter Storm	1% GBS: \$1,615,984	Frequent	51	High
	5% GBS: \$8,079,921			
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$15,256,920	Occasional	16	Medium
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 20-30+





- Low = Total hazard risk ranking below 20
- 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 2.2 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 Frelinghuysen.

Table 9.7-3. 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)
Frelinghuysen, Township of	9	3	\$43,138	0	0	1

Source: FEMA, 2014

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of December 31, 2014 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. Number of claims includes open and closed claims. The number of claims represents claims closed by 12/31/2014.

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 boundary.

### Other Vulnerabilities Identified by Municipality

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. Further, mitigation projects have been identified that may more specifically detail vulnerabilities in the community. There are no additional vulnerabilities identified at this time.



### 9.7.5 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
- 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 Frelinghuysen.

**Table 9.7-4. 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.)
<b>Planning Capability</b>				
Master Plan	Yes	Local	Land Use Board Planning Board, Environmental Commission, Farmland Preservation Committee	Master Plan, September 2007
Capital Improvements Plan	Yes	Local	Twp. Committee	
Floodplain Management / Basin Plan	No			
Stormwater Management Plan	Yes	Local	Planning Board	Adopted May 2, 2005
Open Space Plan	Yes	Local	Township Environmental Commission	Open Space and Recreation Plan, February 2006
Stream Corridor Management Plan	No			
Watershed Management or Protection Plan	No			
Economic Development Plan	No			
Comprehensive Emergency Management Plan	No	County and Local	OEM	Emergency Operations Plan (EOP)
Emergency Response Plan	No	Local		Emergency Operations Plan (EOP)
Post-Disaster Recovery Plan	No			
Transportation Plan	No			
Strategic Recovery Planning Report	No			
Other Plans:	No		Farmland Preservation Committee	Farmland Preservation (2008) Environmental Resource Inventory (2012)



**Table 9.7-4. 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.)
Natural Resource Inventory	No			
<b>Regulatory Capability</b>				
Building Code	Yes	State & Local	Construction Department	State Uniform Construction Code Act (N.J.S 52.27D-119 et esq)
Zoning Ordinance	Yes - 1987			
Subdivision Ordinance	No			
NFIP Flood Damage Prevention Ordinance	Yes		Engineer/NFIP Floodplain Administrator	Chapter XVI, Ordinance No. 2011-09 (July 2003)
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	No			
Growth Management Ordinances	No			
Site Plan Review Requirements	No			
Stormwater Management Ordinance	Yes – 2006	Local	Planning Board	Chapter XVIII
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)]	No			

**Administrative and Technical Capability**

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

**Table 9.7-5. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Land use Board
Mitigation Planning Committee	No	
Environmental Board/Commission	Yes	Environmental Commission
Open Space Board/Committee	Yes	Open Space Advisory Committee
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	No	





**Table 9.7-5. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mutual Aid Agreements	Yes	
<b>Technical/Staffing Capability</b>		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Land Use Board; Consultant
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Paul Sterbenz, Municipal Engineer
Planners or engineers with an understanding of natural hazards	Yes	Paul Sterbenz, Municipal Engineer
NFIP Floodplain Administrator	Yes	Paul Sterbenz, Municipal Engineer
Surveyor(s)	Yes	
Personnel skilled or trained in GIS and/or Hazus-MH applications	Yes	Municipal Engineer's Office
Scientist familiar with natural hazards	No	
Emergency Manager	No	
Grant Writer(s)	Yes	Municipal Engineer's Office
Staff with expertise or training in benefit/cost analysis	No	
Professionals trained in conducting damage assessments	No	

**Fiscal Capability**

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

**Table 9.7-6. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	No
User fees for water, sewer, gas or electric service	No
Impact Fees for homebuyers or developers of new development/ homes	No
Stormwater Utility Fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	No
Open Space Acquisition Funding Programs	No
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 Frelinghuysen.

Table 9.7-7. 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	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	NP	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	2015
Storm Ready	No	NP	N/A
Firewise	No	NP	N/A
Disaster/Safety Programs in/for Schools	No	NP	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No	NP	N/A
Public Education Program/Outreach (through website, social media)	No	Stormwater/ Env. Education	N/A
Public-Private Partnerships	No	NP	N/A

NP = Not participating

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 CRS class applies to flood insurance while the 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 1000 feet of a creditable fire hydrant and is within 5 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 Frelinghuysen’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.





**Table 9.7-8. Self-Assessment of Capability**

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability	Small budget, staff constraints		
Administrative and Technical Capability	Small staff, many volunteers		
Fiscal Capability	Budget		
Community Political Capability			Many volunteers and participants in political activity
Community Resiliency Capability		x	
Capability to Integrate Mitigation into Municipal Processes and Activities.	Limited budget and staff		

### National Flood Insurance Program

#### NFIP Floodplain Administrator (FPA)

Paul M. Sterbenz, PE, PP, Township Engineer

#### Flood Vulnerability Summary

The Township maintains lists/inventories of properties that have been damaged by floods. For those properties interested in mitigation (acquisition/elevation), funding would be provided by the property owner, flood insurance, ICC and grant funding.

#### Resources

NFIP administration services and functions that the FPA provides include permits and inspections. The Township does not provide any education or outreach to the community regarding flood hazards/risk or flood risk reduction. The FPA indicated that there are barriers to running an effective floodplain management program that includes limited staff and funding. The FPA feels that NFIP should provide training to FPA to help them fulfill their duties. The FPA would consider attending education and/or certification training on floodplain management if it were offered.

#### Compliance History

The Township is currently in good standing with the NFIP.

#### Regulatory

The Township's floodplain management ordinances meet the FEMA and State minimum requirements. It is found in Chapter XXI of the municipal code and is in accordance with a model ordinance provided by the State of New Jersey 2011. Additionally, the Township has provisions in their land use code to restrict development in certain areas such as floodplains, steep slopes, etc.



### Community Rating System

The Township of Frelinghuysen does not participate in the Community Rating System (CRS) program. The Township has considered joining and would attend an informational seminar if offered locally.

### 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

The 2007 Master Plan aims to promote a land use pattern that takes into account the environmental features of the Township; these features include ground and surface waters, wetlands, steep slopes, and floodplains. The Plan also seeks to maintain a balanced open space program and support increases of safety and health related activities (police, fire, EMS, public health). It addresses the importance of these environmental features, as well as the importance in efficient response and recovery services.

The 2008 Comprehensive Farmland Preservation Plan details the current state of farmland preservation in the Borough, as well as proposes preservation goals and other mitigation actions. At the time of the Plan's development, the Borough had already preserved 1,433 acres of farmland; future goals were: 2008 target of 100 additional acres, 2013 target of additional 500 acres and 2017 target of 1,000 additional acres of farmland preservation.

The 2012 Environmental Resource Inventory identifies natural resources and environmentally sensitive areas and is used in conjunction with the goals and objectives detailed in the 2012 Open Space and Recreation Plan and 2008 Comprehensive Farmland Preservation Plan to aid in Land Use development decisions. It identifies floodplains, karst zones, steep slopes and other environmental features as needing of protecting and preservation.

#### Regulatory and Enforcement (Ordinances)

The Township has multiple ordinances pertaining to the mitigation of hazards. These ordinances include the NFIP Flood Damage Prevention Ordinance, a stormwater management ordinance, and an ordinance for fire prevention. The Township's ordinances are available on the Township's website.

The Township encourages the consideration of low occupancy, low-density zoning in hazard areas when practical. The Township also limits development in high hazard areas. When updating the municipal ordinances, hazard mitigation is and will continue to be a priority. When reviewing permits, the process includes addressing hazards in the Township. Hazard resistant construction standards are incorporated into the design and location of projects as well. The Township's rezoning procedures also recognize hazard areas as limits on zoning changes.

#### Operational and Administration

The Township has established a Land Use Board, Environmental Commission, Open Space Advisory Committee, and Farmland Preservation Committee that aid in planning decisions to support the conservation and preservation of the Township's critical environmental features. Frelinghuysen has implemented maintenance programs in order to reduce risk, and has administrative and police mutual aid agreements that allow surrounding communities to provide and receive additional support during an emergency event.



### Funding

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There is no line-item in the municipal budget for mitigation project funding. However, in the past, the Township has used local funds to implement mitigation projects. No FEMA funding has been used in the past to fund mitigation activities.

### Education and Outreach

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The Office of Emergency Management offers multiple outlets of notification for emergency events, these include: Rapid Notify, which is managed by the Warren County OEM, Door to Door Notification, the Frelinghuysen Emergency Operational Center will continuously be staffed to answer any questions during an event, and the Township's website will be frequently updated to provide residents with current information during an event.

## 9.7.6 Mitigation Strategy and Prioritization

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

### Past Mitigation Initiative Status

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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 9.7-9. Past Mitigation Initiative Status

2011 Mitigation Action	Responsible Party	Status (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 2016 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why
Frelinghuysen Township 1: Anchoring of facility trailers to withstand extreme high winds at the Ridge and Valley Charter School located on Route 94.	Facility Administrator	No Progress	Funding was not secured	Discontinue	Due to lack of funding, this project has been put on hold. This action will not be included in the 2016 HMP update.
Frelinghuysen Township 2: Retrofit impact resistant windows and shutters to Frelinghuysen Municipal Building located on Route 661. (Building is over 100 years old.)	Department of Public Works (DPW) Supervisor	No Progress	The merger of Green and Frelinghuysen OEM allows for the use of alternative sites for our EOC and initial shelter.	Discontinue	Discounted – other facilities can provide OEM coverage
Frelinghuysen Township 3: Culvert upgrade and improvement located on Main Street and Mill Road.	DPW Supervisor	No Progress	1.Funding not secured 2. We are in the midst of investigating including Fire Department Standpipe to expand this project.	Include in 2016 HMP	Feasibility study on including Fire Department Standpipe near river water source to provide primary water supply for fires in Johnsonburg
Frelinghuysen Township 4: Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	WCOEM, TWP OEM	In Progress	Conducted sessions for various groups	Include in 2016 HMP	Additional sessions are scheduled in 2016.



### **Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy**

The Township has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2011 Plan:

- Lessen Impact of High Ground Water on South Street by digging a swale – 75% complete

### **Proposed Hazard Mitigation Initiatives for the Plan Update**

The Township participated in a mitigation action workshop in March 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, the County hosted a second workshop led by FEMA Region 2 and NJOEM and was provided the results to the risk assessment to further assist with the identification of mitigation actions.

Table 9.7-10 summarizes the comprehensive-range of specific mitigation initiatives the Borough 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 9.7-11 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



**Table 9.7-10. 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
Frelinghuysen-1 (old)	Culvert upgrade and improvement located on Main Street and Mill Road. Feasibility study on including Fire Department Standpipe near river water source to provide primary water supply for fires in Johnsonburg.	Both	All	1, 2	Township Engineer, DPW	High	High	FEMA HMA Funding, Local Match	Short / DOF	High	SIP	PP
Frelinghuysen-2 (old)	Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	N/A	All	3, 4	Township	High	Low	Municipal	Short / DOF	High	EAP	PR
Frelinghuysen-3	Lessen Impact of High Ground Water on South Street by digging a swale.	Existing	Flood, Severe Storm, Hurricane / Tropical Storm	All	DPW, Township Engineer	High	High	FEMA HMA Funding, Local Match	Short / DOF	High	SIP	PP
Frelinghuysen-4	Utilize the HMP as a guide during the next Master Plan update	Both	All	1, 2,	Township	High	Low	Municipal	Short / DOF	High	LPR	PR

**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  
 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:**

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

**Timeline:**

Short 1 to 5 years  
 Long Term 5 years or greater  
 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 reapportionment 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 9.7-11. 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	Total	High / Medium / Low
Frelinghuysen-1 (old)	Culvert upgrade and improvement located on Main Street and Mill Road. Feasibility study on including Fire Department Standpipe near river water source to provide primary water supply for fires in Johnsonburg.	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
Frelinghuysen-2 (old)	Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	1	1	1	1	0	1	1	1	1	1	1	1	0	0	11	High
Frelinghuysen-3	Lessen Impact of High Ground Water on South Street by digging a swale.	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
Frelinghuysen-4	Utilize the HMP as a guide during the next Master Plan update	1	1	1	1	0	1	1	1	1	1	1	1	0	0	11	High

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



### **9.7.7 Future Needs To Better Understand Risk/Vulnerability**

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None at this time.

### **9.7.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Township of Frelinghuysen 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 Frelinghuysen has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

### **9.7.9 Additional Comments**

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None at this time.

DRAFT



Figure 9.7-1. Township of Frelinghuysen Hazard Area Extent and Location Map 1

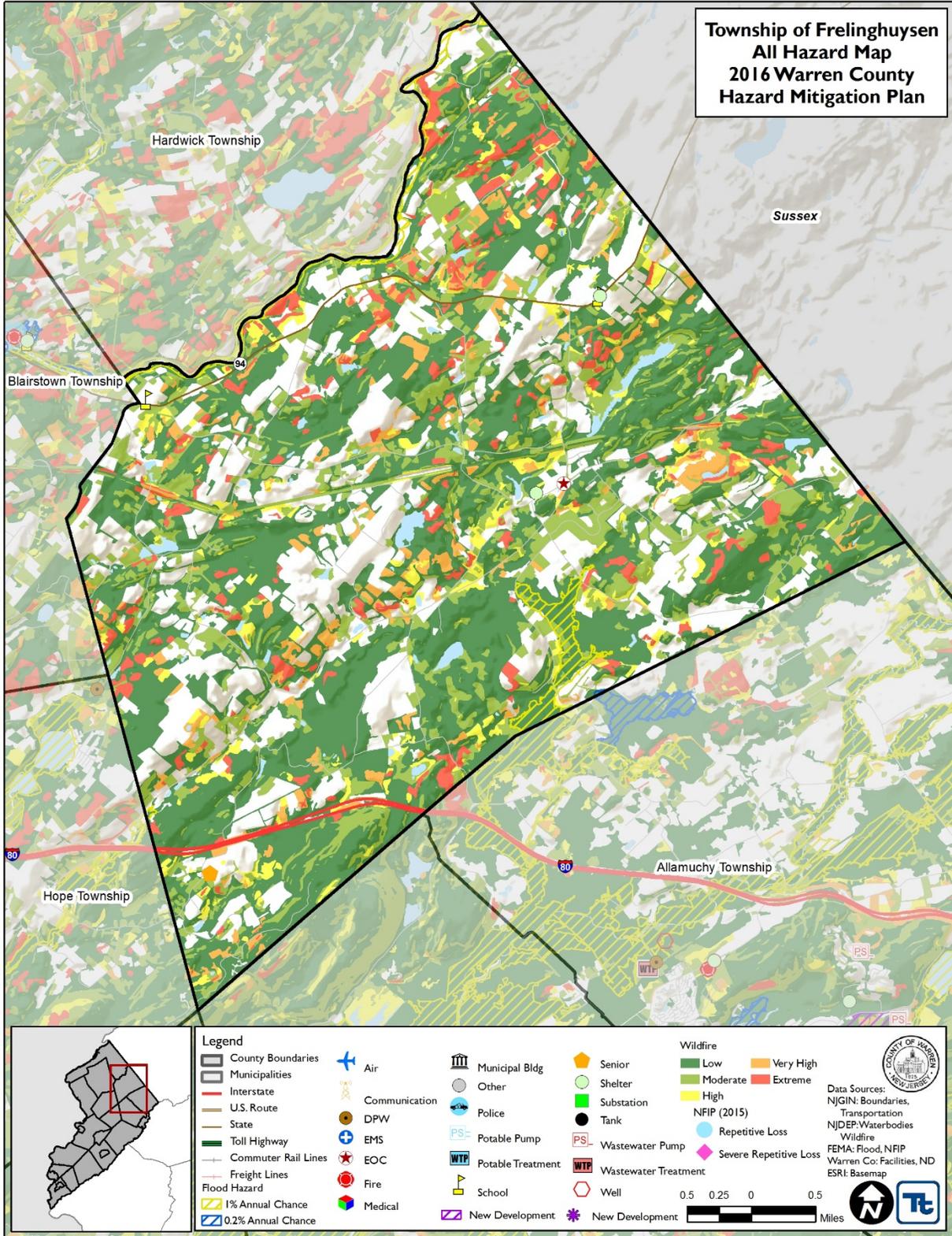
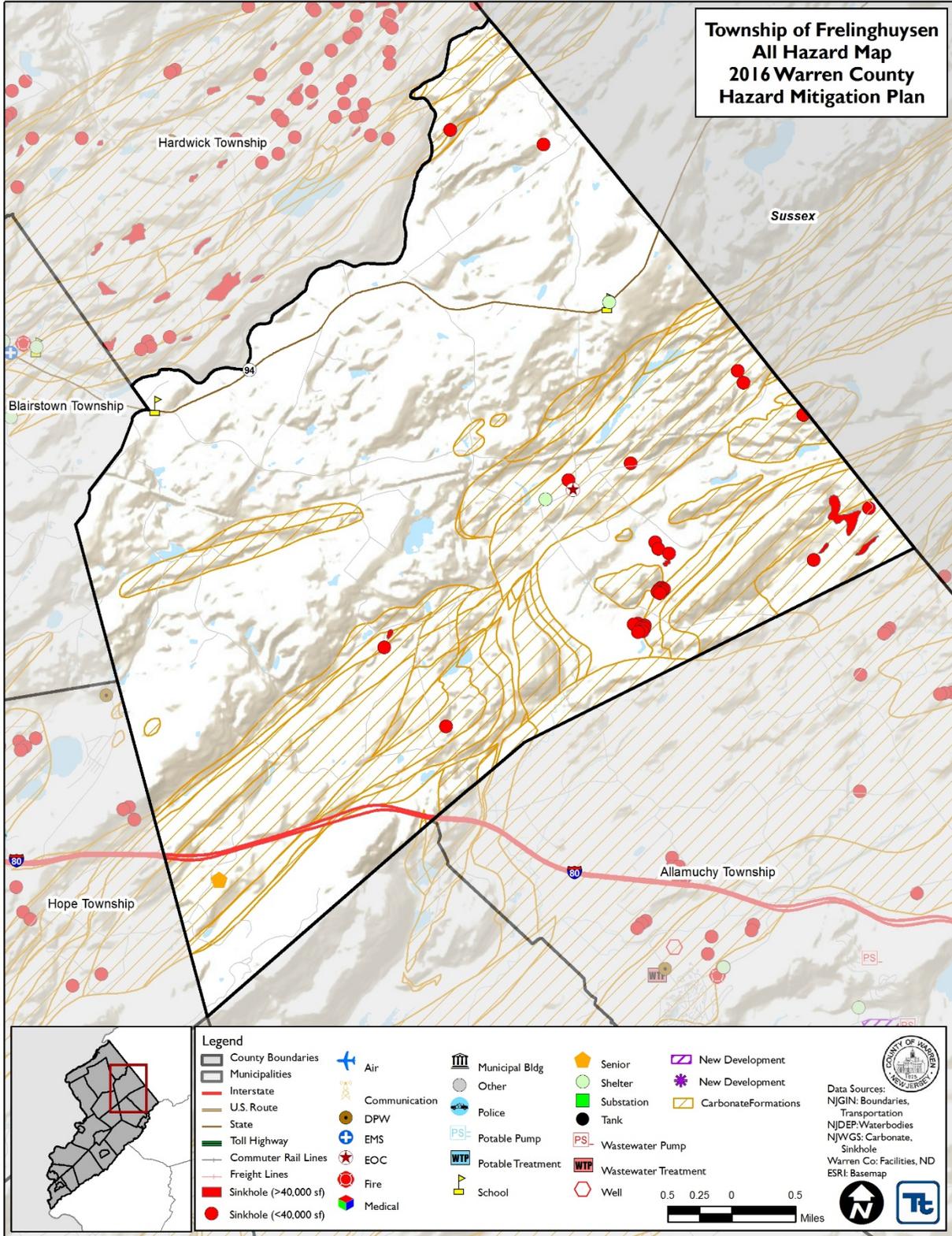




Figure 9.7-2. Township of Frelinghuysen Hazard Area Extent and Location Map 2





**Action Number:** Frelinghuysen - 1  
**Mitigation Action/Initiative:** Improve stormwater on Main Street and Mill Road through culvert upgrades and improvements.

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm, Hurricane/Tropical Storm
<b>Specific problem being mitigated:</b>	Stormwater flooding on Main Street and Mill Road
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	Culvert upgrade and improvement located on Main Street and Mill Road. 1. Feasibility study on including Fire Department Standpipe near river water source to provide primary water supply for fires in Johnsonburg. 2. Do nothing 3. Elevate roadway
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Culvert upgrade and improvement located on Main Street and Mill Road. Feasibility study on including Fire Department Standpipe near river water source to provide primary water supply for fires in Johnsonburg.
<b>Action/Project Category</b>	SIP
<b>Goals/Objectives Met</b>	1, 2
<b>Applies to existing and/or new development; or not applicable</b>	Existing
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	High
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible/Lead Agency/Department</b>	Township Engineer, DPW
<b>Local Planning Mechanism</b>	
<b>Potential Funding Sources</b>	FEMA HMA Funding, Local match
<b>Timeline for Completion</b>	Short / depends on available funding
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	Date: Progress on Action/Project:



**Action Number:** Frelinghuysen - 1

**Mitigation Action/Initiative:**

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Grant funding will be needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Local Champion	0	
Other Community Objectives	0	
Total	11	
<b>Priority (High/Med/Low)</b>	High	



**Action Number:**

Frelinghuysen - 3

**Mitigation Action/Initiative:**

Dig a swale on South Street to reduce flooding due to high ground water

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm, Hurricane/Tropical Storm
<b>Specific problem being mitigated:</b>	Flooding on South Street
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	1. Lessen Impact of High Ground Water on South Street by digging a swale.
	2. Do nothing
	3.
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Dig a swale on South Street to reduce flooding due to high ground water
<b>Action/Project Category</b>	SIP
<b>Goals/Objectives Met</b>	1, 2
<b>Applies to existing and/or new development; or not applicable</b>	Existing
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	High
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible/Lead Agency/Department</b>	Township Engineer, DPW
<b>Local Planning Mechanism</b>	
<b>Potential Funding Sources</b>	FEMA HMA Funding, Local match
<b>Timeline for Completion</b>	Short / depends on available funding
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	Date: Progress on Action/Project:



**Action Number:** Frelinghuysen - 3

**Mitigation Action/Initiative:** Dig a swale on South Street to reduce flooding due to high ground water

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Grant funding will be needed to implement
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Local Champion	0	
Other Community Objectives	0	
Total	11	
<b>Priority (High/Med/Low)</b>	High	