



## 9.10 Township of Hardwick

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

### 9.10.1 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
Joseph Dunn, OEM INSERT ADDRESS 973-868-5796 dunnjose@gmail.com	James J. Perry, Mayor INSERT ADDRESS 908-310-7328 jjperry13@gmail.com

### 9.10.2 Municipal Profile

Hardwick Township is located in northwestern Warren County and had a 2010 population of 1,696. It is a large rural municipality and consists of 36.5 square miles of land area and 1.4 square miles of water. The Township is bordered to the north, east and west by Sussex County, to the northwest by Pennsylvania, and to the south by the Townships of Blairstown, Knowlton and Frelinghuysen. The main roadway in the Township is County Route 521 and travels in a northeasterly direction from Blairstown to Stillwater. Several unincorporated communities are found throughout the Township and include: Pahaquarry, Dunnfield, Galino, Millbrook, Hardwick, Newbakers Corners, Franklin Grove, Hardwick Center, Spring Valley, and Squires Corner. The Delaware River makes up the northwestern and western border of the Township and the Paulins Kill makes up the border between the Township and Frelinghuysen. Additional waterbodies include Vancampens Brook, Blair Creek and its tributaries.

### Growth/Development Trends

The Township of Hardwick 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. Hardwick Township is Warren County’s largest and least populated municipality. 38 square miles in area with 1600+/- residents and 550+/- single family housing units. Virtually all flood plain areas are in public open space. This dramatically limits the vulnerability and the need for mitigation with respect to structures. Public power and phone lines remain our highest vulnerability. In the past, attempts to include these structures in a mitigation plan have been rebuffed and deemed mitigation.

### 9.10.3 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 9.10-1. Hazard Event History**

Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
September 13-15, 2006	Heavy Rains / Dam Breach	N/A	N/A	YMCA Camp Mason on Birch Bridge Road loss a private dam due to breach. Public assistance was received by the New Jersey Dam Safety Program.
February 12-13, 2008	Winter Storm	N/A	N/A	Heavy snow required removal by DPW
March 5, 2008	Strong Wind	N/A	N/A	Tree wind-throw across Twp. taking out utility lines and causing damage to guide rails across Twp.
October 28, 2008	Heavy Snow and Strong Winds	N/A	N/A	Tree wind-throw across Twp. taking out utility lines and causing damage to guide rails across Twp.
February 12, 2009	High Wind	N/A	N/A	Tree wind-throw across Twp. taking out utility lines and causing damage to guide rails across Twp. Heavy snow required removal by DPW
February 1-2, 2011	Winter Storm	N/A	N/A	Heavy snow required removal by DPW
March 11-12, 2011	Heavy Rain and Flooding	N/A	N/A	Tree wind-throw across Twp. taking out utility lines and causing damage to guide rails across Twp.
August 26 – September 5, 2011	Hurricane Irene	DR-4021	Yes	Rainfall event created flooding and washout of county bridges and municipal roads. Two county bridges (Jacksonburg Creek @ Gaisler Rd. and Blair Creek & Jones Lane) Township Roads were flooded (Hardwick, Gaisler, Paulinskill, Jones roads) needed repair of payment & guiderails. Numerous Roads closed to tree felling across road. Residential driveways and culverts washed out and limited access. Hardwick & Millbrook-Stillwater Roads needed to be repaired. EOC activated DPW & Engineer involved in response & repairs. Overtime pay used for response. Paulinskill Road converted from through road to dead end due to washout from the Paulins Kill.
September 28 – October 6, 2011	Remnants of Tropical Storm Lee	DR-4039	Yes	Hardwick has a limestone geology involving numerous springs. Spring Valley Road was closed due to flooding. Most likely rainfall associated with Hurricane Irene. Spring Valley Rd was closed for several weeks. County had the adjoin swamp pumped to lower water elevation.
October 29, 2011	Severe Storm	DR-4048	Yes	Heavy snow required removal by DPW
October 26 – November 8, 2012	Hurricane Sandy	DR-4086	Yes	Tree wind-throw across Twp. taking out utility lines and causing damage to guide rails across Twp. EOC activated. DPW response to make roads passable. Power Co., restored power 7-15 days after event.

**9.10.4 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 Hardwick. 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 Hardwick.

**Table 9.10-2. 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	Frequent	36	High
Drought	Damage estimate not available	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$158,426 2,500-Year GBS: \$2,454,813	Occasional	28	Medium
Flood	1% Annual Chance: \$1,426,500	Frequent	18	Medium
Geologic	RCV Exposed to Carbonate Rock Areas: \$68,472,305	Occasional	36	High
Hurricane	100-year MRP: \$53,209.00 500-year MRP: 219820 Annualized: \$3,510.00	Frequent	48	High
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Storm	100-Year MRP: \$53,209 500-year MRP: \$219,820 Annualized: \$3,510	Frequent	48	High
Severe Winter Storm	1% GBS: \$964,108 5% GBS: \$4,820,541	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$14,324,680	Frequent	24	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 Hardwick.

Table 9.10-3. 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)
Hardwick, Township of	3	1	\$0	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 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.



### 9.10.5 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 Hardwick.

**Table 9.10-4. 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	Twp.,via State MLUL	Twp. Planning Bd	1976 NJ Municipal Land Use Law NJSA 40:55 et. Seq.
Capital Improvements Plan	No			
Floodplain Management / Basin Plan	Yes	NJ Stormwater Mgmt Act	Twp Planning Bd.	1981 Stormwater Management Act PL 1981 c 32
Stormwater Management Plan	Yes	NJ		1981 Stormwater Management Act PL 1981 c 32 & Township Ordinance
Open Space Plan	Yes	Twp. County & State		
Stream Corridor Management Plan	Yes	Twp,via state MLUL		1981 Stormwater Management Act PL 1981 c 32
Watershed Management or Protection Plan	No			
Economic Development Plan	No			
Comprehensive Emergency Management Plan	No			
Emergency Response Plan	Yes	Twp., County & State	Twp. Emergency Mgmt.	
Post-Disaster Recovery Plan	No			
Transportation Plan	Yes			
Strategic Recovery Planning Report	No			
Other Plans:				
<b>Regulatory Capability</b>				
Building Code	Yes	State & Local		State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Twp.	Zoning Officer	Township Code Book, MLUL



**Table 9.10-4. 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.)
Subdivision Ordinance	Yes	Twp.		
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	NJDEP Div. Landuse Regulation, Twp Engineer	
NFIP: Cumulative Substantial Damages	Yes	State		
NFIP: Freeboard	Yes	State		
Growth Management Ordinances	Yes	State, Local		
Site Plan Review Requirements	Yes	State, Local	NJDEP, NJDCA, Twp Planning Bd.	1976 NJ Municipal Land Use Law NJSA 40:55 Et. Seq., Residential Site Improvement Standards, Stormwater Mgmt Rules., Town Code Book
Stormwater Management Ordinance	Yes	State, Local		1981 Stormwater Management Act PL 1981 c 32
Municipal Separate Storm Sewer System (MS4)	Yes	State, Local	Twp Engineer NJDEP	Stormwater Mgmt Rules
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	Yes (11.04.09)	State, Local, Professional	NJDEP, Twp. Engineer, Licensed Realtor,	Remediation of contaminated sites, NJAC 7:26C,
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Rural Character Zone (aka 10 acre lot averaging)	Twp.	Local Planning Board	1976 NJ Municipal Land Use Law NJSA 40:55 et. Seq. & Township Code Book

**Administrative and Technical Capability**

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

**Table 9.10-5. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
<b>Administrative Capability</b>		
Planning Board	No	No staff Bd does exist per MLUL but utilizes Consultants
Mitigation Planning Committee	No	No Committee
Environmental Board/Commission	Yes	Bd only
Open Space Board/Committee	Yes	Bd only





**Table 9.10-5. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	No	
Mutual Aid Agreements	Yes	Mutual Aid is contracted with adjoining Twp.'s No First Responders under Twp. Authority
<b>Technical/Staffing Capability</b>		
Planner(s) or Engineer(s) with knowledge of land development and land management practices		Consultants Only
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Utilized Consulting Engineer and State Construction Code Off.
Planners or engineers with an understanding of natural hazards	Yes	Consulting Engineer & Planner
NFIP Floodplain Administrator	Yes*	Municipal Consulting Engineer
Surveyor(s)	Yes	Consultant for Tax Map purposes
Personnel skilled or trained in GIS and/or Hazus-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Part Time Stipend Staff
Grant Writer(s)	No	
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 Hardwick.

**Table 9.10-6. 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 when needed (ie: DPW Trucks, new Town Hall)
Authority to Levy Taxes for specific purposes	No
User fees for water, sewer, gas or electric service	No Public utilizes owned by Township
Impact Fees for homebuyers or developers of new development/ homes	Yes for the purposes of affordable housing
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	Yes
Other Federal or State Funding Programs	
Open Space Acquisition Funding Programs	Yes Special Tax has been effect since 1999+/- 60% of all lands in the Twp are dedicated to Open Space
Other	



### 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 Hardwick.

Table 9.10-7. 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		
Public Protection (ISO Fire Protection Classes 1 to 10)	No		
Storm Ready	No	NP	N/A
Firewise	Yes	N/A	December 22, 2004
Disaster/Safety Programs in/for Schools	NO	NO SCHOOLS	IN TOWN
Organizations with Mitigation Focus (advocacy group, non-government)	NO		
Public Education Program/Outreach (through website, social media)	YES	SWIFT-911	2012
Public-Private Partnerships	YES	OPEN SPACE PARTNERS	1999+/-

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 Hardwick’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.





Table 9.10-8. 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)

Norton "Ted" Rodman PE

Flood Vulnerability Summary

The Township does not maintain lists/inventories of properties that have been damaged by floods. Data is not available for the number of structures damaged during Sandy or other events. Virtually all of the floodplain of significance is located within lands owned by federal and state authorities. The inundation maps associated with dam safety rules are except to this. The FPA did not make Substantial Damage estimates; just general assessments for preliminary reports to qualify for emergency declarations. It is unknown if any properties are interested in mitigation.

Resources

Floodplain management is the purview of the Township Engineer. Virtually all the floodplain of significance is located within lands owned by Federal & State authorities. The Township Engineer provides NFIP administration services to satisfy NJDEP mandates. The Township does not provide 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 program. He stated that the NJDEP Division of Land Use Regulation severely regulates the floodplain regardless of the intent of the activity. Often the cost of the regulations exceeds the benefits anticipated. The FPA also stated that the Township has limited structures in floodplain virtually all the lands within the floodplain are open space owned by Federal and State entity. The inundation maps associated with Dam Safety rules are the exception to the comments above. The FPA would consider attending continuing education and/or certification training on floodplain management if it were offered in the County.

Compliance History

The Township is in good standing with the NFIP. The Township has limited structures in floodplain virtually all the lands within the floodplain are open space owned by Federal and State entity. All new development projects are directed to state floodplain regulatory authorities when appropriate. All FEMA visits have been limited to project proposal, assessment and inspection of Public Assistance associated with Disaster Declarations.





### **Regulatory**

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The Township's floodplain management regulations/ordinances meet the minimum set forth by FEMA and the State. This includes 300 foot buffers on all streams along with additional buffers associated with floodplain and wetland environs make the 300 foot buffers a minimum.

### **Community Rating System**

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

### **Integration of Hazard Mitigation into Existing and Future Planning Mechanisms**

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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**

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The 2014 Master Plan Reexamination and Revision has many diverse goals ranging social to environmental objectives. A major stress is placed upon environmental protection and design developments to take into account the environment and various hazard areas. These goals include preserving the townships existing network of streams and swales, encouraging the use of environmental impact statements for new projects and the use of dual purpose stormwater management basins. The Township wants to avoid development on slopes in excess of 30%, understand the challenges with limestone geology and avoiding development in sinkhole hazard areas, and establish a goal that the average impervious cover for the Town does not exceed 5%. The Plan also addresses the FEMA flood hazard zones as areas of caution for development.

### **Regulatory and Enforcement (Ordinances)**

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The Township has multiple ordinances pertaining to the mitigation of hazards. These ordinances include the NFIP Flood Damage Prevention Ordinance, a stormwater management ordinance, a soil and soil removal ordinance, and an ordinance that establishes the Town as a nuclear free zone.

### **Operational and Administration**

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The Township has established an Environmental Commission, Open Space Committee and Agricultural Advisory Board that aid in planning decisions to support the conservation and preservation of the Township's critical environmental features.

### **Education and Outreach**

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The Town currently uses the Swift 911 emergency notification system to provide residents with up-to-date information and announcements regarding emergency events.

## **9.10.6 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.

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**Table 9.10-9. Past Mitigation Initiative Status – PLEASE COMPLETE THIS TABLE**

2011 Mitigation Action	Responsible Agency	Status (In progress, No progress, Complete)	Describe Status 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)?	Next Step (Include in 2016 HMP? or Discontinue)	Describe Next Step 1. If including action in the 2016 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why
Hardwick Township 1: Flood-proof the Hardwick Township Municipal Building located on Spring Valley Road.	Twp Engineer	Choose an item.	1. 2. 3.	Choose an item.	1. 2.
Hardwick Township 2: Culvert pipe upgrade and improvement to prevent backwater over Spring Valley Road between Hardwick House Restaurant and Ferla's Swamp.	Twp Engineer	Choose an item.	1. 2. 3.	Choose an item.	1. 2.
Hardwick Township 3: Implement Fire Wise Program throughout the Township	Twp OEM	Choose an item.	1. 2. 3.	Choose an item.	1. 2.
Hardwick Township 4: Protect utility lines by identifying and removing potential hazard causing trees along 28 miles of Township roads.	Department of Public Works Supervisor	Choose an item.	1. 2. 3.	Choose an item.	1. 2.
Hardwick Township 5: Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	WCOEM, Twp OEM	Choose an item.	1. 2. 3.	Choose an item.	1. 2.





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

There are no additional mitigation projects/activities identified that have also been completed but were not identified in the previous mitigation strategy in the 2011 Plan.

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

The County hosted 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, 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 9.10-11 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 9.10-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



**Table 9.10-10. Proposed Hazard Mitigation Initiatives** PLEASE COMPLETE THIS TABLE USING WORKSHEET #7

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

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 9.10-11. Summary of Prioritization of Actions - **PLEASE COMPLETE THIS TABLE USING WORKSHEET #7**

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

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

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

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None at this time.

### **9.10.8 Hazard Area Extent and Location**

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

### **9.10.9 Additional Comments**

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None at this time.

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Figure 9.10-1. Township of Hardwick Hazard Area Extent and Location Map 1

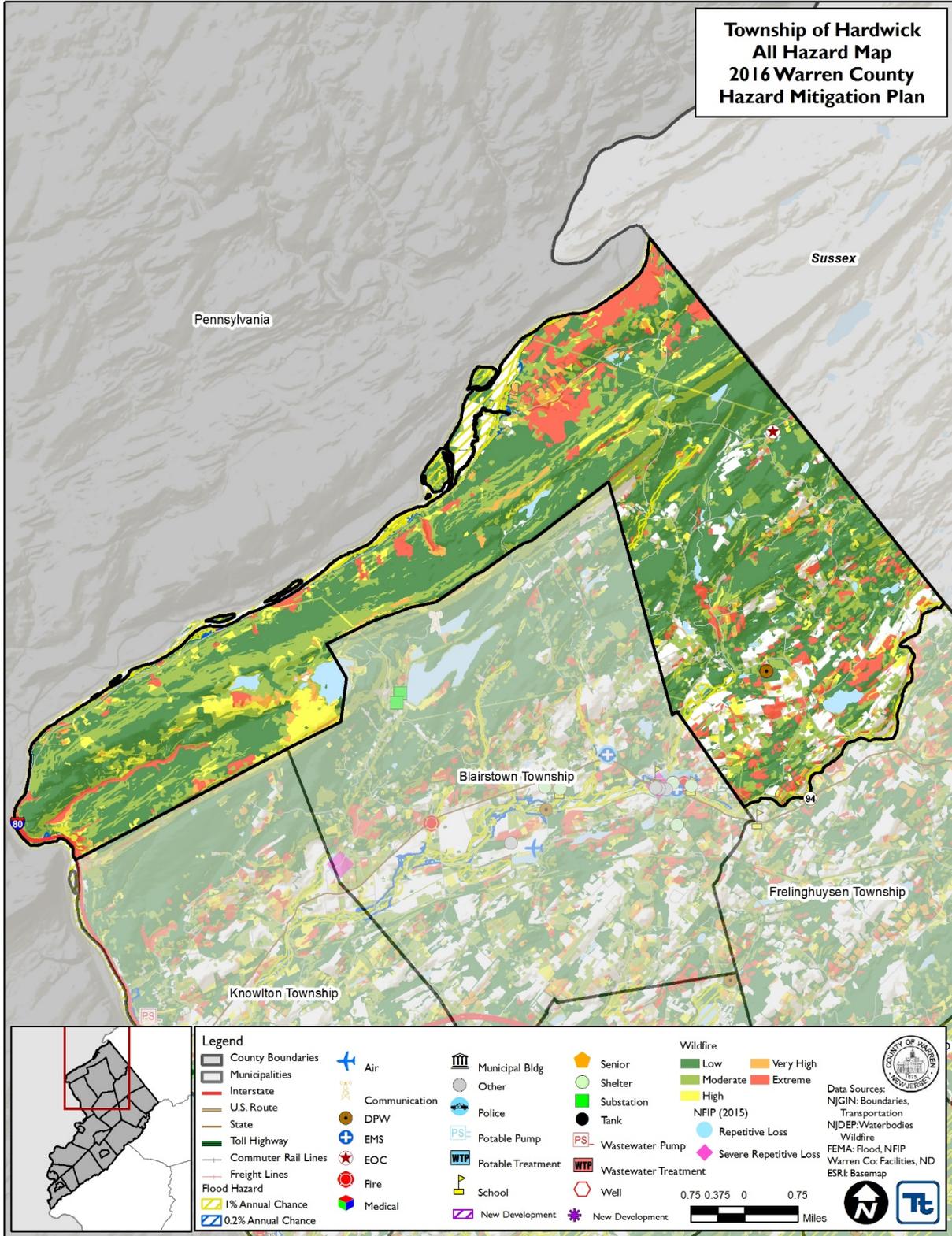
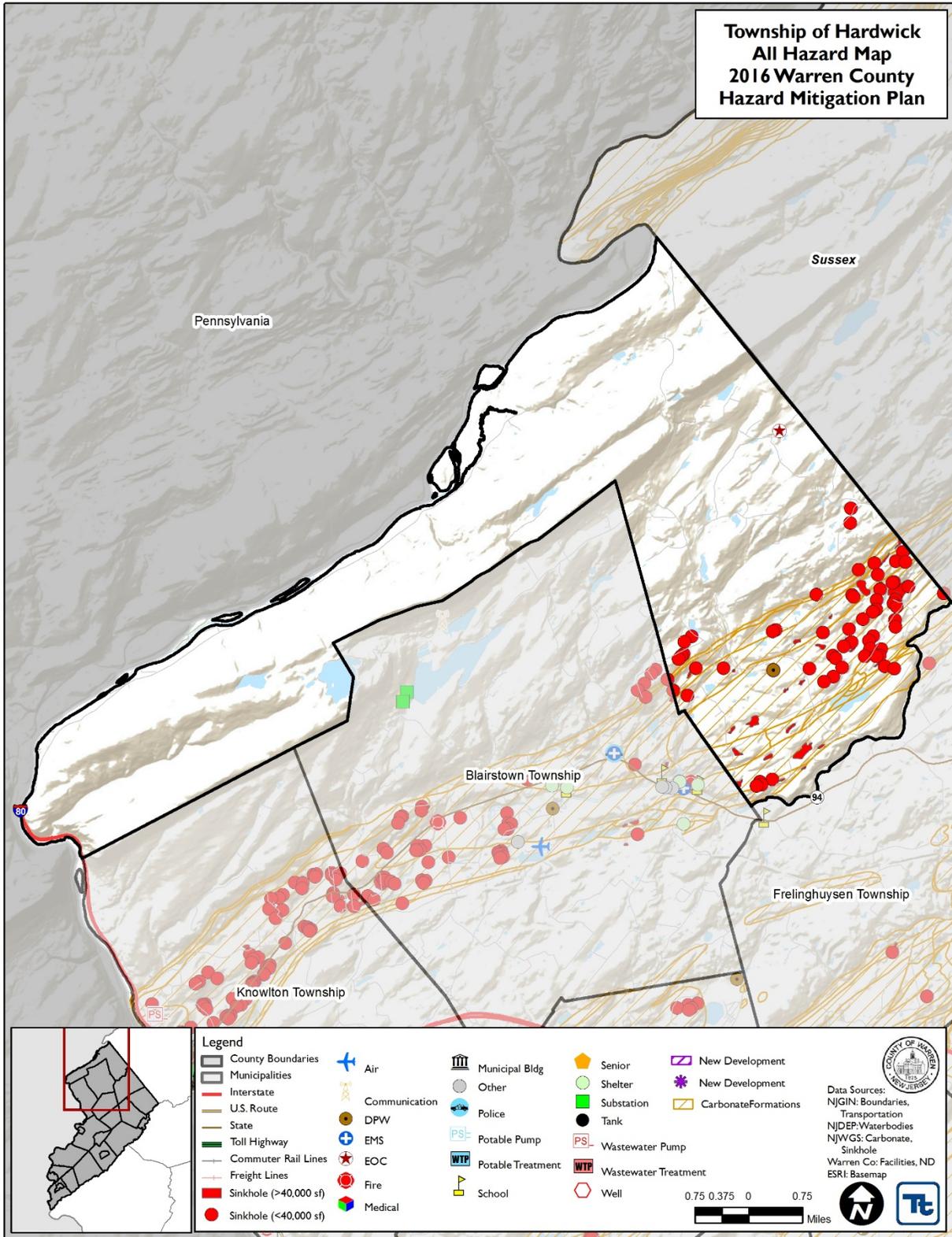




Figure 9.10-2. Township of Hardwick Hazard Area Extent and Location Map 2





Action Number: \_\_\_\_\_

Mitigation Action/Initiative: \_\_\_\_\_

Assessing the Risk	
Hazard(s) addressed:	
Specific problem being mitigated:	
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1.
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	
Action/Project Category	
Goals/Objectives Met	
Applies to existing and/or new development; or not applicable	
Benefits (losses avoided)	
Estimated Cost	
Priority*	
Plan for Implementation	
Responsible/Lead Agency/Department	
Local Planning Mechanism	
Potential Funding Sources	
Timeline for Completion	
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



**Action Number:** \_\_\_\_\_

**Mitigation Action/Initiative:** \_\_\_\_\_

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