



9.23 TOWNSHIP OF VERNON

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

9.23.1 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
Mayor Harry Shortway 21 Church Street, Vernon, NJ 07462 973.764.4055, ext. 2241 hshortway@vernontwp.com	Ken Clark 21 Church Street, Vernon, NJ 07462 973-764-4055, ext. 2271 973-600-7612 (cell) kenclark213@gmail.com

9.23.2 MUNICIPAL PROFILE

Vernon Township is located in the northeast corner of Sussex County. It has a total area of 70.6 square miles and according to the U.S. Census, the 2010 population for the Township of Vernon was 23,943. The Township is most populous municipalities and has the largest area in the county. It is bordered to the north by New York State, to the south by Hardyston Township, to the east by Passaic County, and to the west by Wantage Township. The following unincorporated communities are located within the Township: Owens, Willow Brook, Wantage, Independence Corner, McAfee, Sand Hills, Glenwood, Vernon Valley, DeKays, Highlands Lakes, Kampe, Cherry Ridge, and Wawayanda. There are many ponds and streams located throughout the Township and include, but not limited to: Highland Lake, Wawayanda Lake, Lake Wildwood, Double Kill, Wawayanda Creek, Pochuck Creek and its tributaries, Black Creek and its tributaries, and the Wallkill River.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the maps later in this annex which illustrate the hazard areas along with the location of potential new development.

Table 9.23-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Block & Lot)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Mountain Creek Day Lodge	Commercial	1	200 Rt 94 Vernon NJ	Could not locate	
Urgent Care Center	Medical	1	123 Rt 94 McAfee NJ	Could not locate	
KDC Solar	Utility	30 acre solar facility	200 Rt 94 McAfee NJ	Could not locate	
Known or Anticipated Development in the Next Five Years					
Theta 456	Residence (senior housing)	30-unit complex	Block 141.02 Lots 4,5,6	Could not locate	
CVS Pharmacy	Commercial	1	302 Rt 94 Vernon, NJ	Could not locate	

* Only location-specific hazard zones or vulnerabilities identified.





9.23.3 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 9.23-2. 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	<p>Various road closures during the impact of storm and the following weeks. Intermittent flooding and road closures Township wide. Sewer pipes clogged and backed up. Unpredictable ponding and flooding. Private and lake communities affected.</p> <p>Numerous homes were flooded within the Township and several families had to evacuate their homes. Persons were also trapped in their vehicles as they were submerged due to fast moving water over roadway. Trees and wires were down on roadways throughout the Township. Flooding damaged roadways and bridges and retaining walls collapsed in parts of the Township. A sinkhole formed on Maple Grange Road, forcing the road to close.</p> <p>DPW force account labor costs: \$10,611.70; direct administrative costs (DPW): \$191.23 Police force Overtime expenses: \$20,219.49</p>
October 26-November 8, 2012	Hurricane Sandy	DR-4086	Yes	<p>Vegetative debris deposited throughout Township requiring immediate clearance which posed a threat to lives, public health and safety, and improved property. Power was out for seven days.</p> <p>Numerous trees and power lines were down in the Township, causing road closures and power outages. Many homes were damaged due to fallen trees.</p> <p>DPW force account labor costs: \$25,184.01; Direct administrative costs (DPW): 250.64; VTMUA force account labor costs: 1,921.24.</p>

9.23.4 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 Vernon. 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 Vernon.

Table 9.23-3. 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	High*
Drought	Damage estimate not available	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$2,405,223 2,500-Year GBS: \$37,991,811	Occasional	28	Medium
Flood	1% Annual Chance: \$42,000,012	Frequent	18	Medium
Geologic	GBS Exposed to Carbonate Rock Areas: \$1,429,071,427	Frequent	39	Medium**
Hurricane	100-year MRP: \$1,058,261 500-year MRP: \$5,431,322 Annualized: \$57,212	Frequent	48	High
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Weather	100-Year MRP: \$1,058,261 500-year MRP: \$5,431,322 Annualized: \$57,212	Frequent	48	High
Severe Winter Weather	1% GBS: \$30,630,729 5% GBS: \$153,153,647	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$143,230,061	Frequent	24	Medium
Hazardous Materials	Damage estimate not available	Frequent	36	High

Notes:

- * The hazard ranking was changed due to the location of high hazard dams in the municipality
- ** The hazard ranking was changed for this hazard based on input from the municipality, population exposed, and/or event history.
- 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 Vernon.





Table 9.23-4. 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 Vernon	46	20	\$165,380	0	0	9

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.

Critical Facilities

The table below presents the number of critical facilities, by type, in the community located in the effective FEMA flood zones (1% and 0.2% annual chance boundaries).

Table 9.23-5. Number of Critical Facilities in the DFIRM 1% and 0.2% Annual Chance Flood Boundaries

Municipality	1% Annual Chance	0.2% Annual Chance
	Shelter	Shelter
Vernon, Township of	1	1

Source: Sussex County; FEMA, 2011

Other Vulnerabilities Identified by Municipality

The hazard profiles in Section 5.0 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.

9.23.5 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 Vernon.





Table 9.23-6. 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	Land Use/ Engineer	2010 Master Plan Update
Capital Improvements Plan	Yes	Local	Administrator	
Floodplain Management / Basin Plan	Yes	County/Local	Engineer	Code Chapter 275-3.4
Stormwater Management Plan	Yes	Local	Land Use/ Engineer	Code Chapter 330-Article XII
Open Space Plan	Yes	Local	Land Use/Planner	Code Chapter 244
Stream Corridor Management Plan	Yes	Local		Code Chapter 330-Article XII
Watershed Management or Protection Plan				
Economic Development Plan				
Comprehensive Emergency Management Plan				
Emergency Response Plan	Yes	Local	OEM Coordinator	Emergency Operations Plan
Post-Disaster Recovery Plan				
Transportation Plan				
Strategic Recovery Planning Report				
Other Plans:				
Regulatory Capability				
Building Code	Yes	State/Local	Construction Department	State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Local	Land Use/Engineer	Code Chapter 330
Subdivision Ordinance	Yes	Local	Land Use/Engineer	Code Chapter 333-Article VI
NFIP Flood Damage Prevention Ordinance	Yes	Federal/State/Local	Construction Official	Code Chapter 275
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State/Local		
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	Land Use/Engineer	Code Chapter 333-Article VI
Stormwater Management Ordinance	Yes	Local		Code Chapter 330-Article XII
Municipal Separate Storm Sewer System (MS4)	No			
Natural Hazard Ordinance	No			



Table 9.23-6. 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.)
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	No	State	Division of Consumer Affairs	N.J.A.C. 13:45A-29.1
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	Local	Land Use/Engineer	Code Chapter 330-Article XII. Slopes, environmental sensitive areas, etc.

Administrative and Technical Capability

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

Table 9.23-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Vernon Township Land Use Board
Mitigation Planning Committee	No	
Environmental Board/Commission	Yes	Vernon Township Environmental Commission
Open Space Board/Committee	No	
Economic Development Commission/Committee	Yes	Vernon Township Economic Development Advisory Committee
Maintenance Programs to Reduce Risk	No	
Mutual Aid Agreements	Yes	
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Engineer/Planner
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineer
Planners or engineers with an understanding of natural hazards	Yes	Engineer
NFIP Floodplain Administrator	Yes	Construction Official (contracted service)
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or Hazus-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Roy Wherry, Emergency Management Coordinator
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 Vernon.

Table 9.23-8. 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	Sewer only
Impact Fees for homebuyers or developers of new development/homes	
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	
Other Federal or State Funding Programs	Yes
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 Vernon.

Table 9.23-9. 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	5x	Update to 3y
Storm Ready	No		
Firewise	No		
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	No		
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 Vernon’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.23-10. Self-Assessment of Capability

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

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Construction Official (contracted service to Harold Pellow & Associates)

Compliance History

The Township is currently in good standing with the NFIP.

Regulatory

The Township’s flood damage prevention ordinance meets the minimum set by FEMA and the State of New Jersey. There are no additional ordinances, plans or programs within the Township that support floodplain management.





Community Rating System

The Township of Vernon 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 Joint Land Use Board which reviews all applications for development and consider natural hazard risk areas in their review.

Vernon Township Master Plan Reexamination 2010: This plan includes 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:

1. Review ordinances to ensure that well-heads, steep slopes and scenic vistas are adequately protected.
2. Ensure that ridgeline protection ordinances provide a clear definition and mapping of what is protected along with methods for ensuring protection of the resource.
3. Review ordinances to ensure that environmentally sensitive areas are protected using best management practices for development in those areas. To preserve and protect Vernon's Natural Resources.
4. Review existing environmental ordinances to ensure they are adequate to preserve environmentally sensitive areas.
5. Adopt necessary protections in the Highlands Preservation Area to be consistent with the Highlands Regional Master Plan.
6. Encourage clustering techniques for developments in order to preserve open space and farmland.
7. Identify, preserve and protect open space areas with significant scenic views and/or important historical, cultural, environmental or agricultural significance.
8. Ensure that ridgeline protection ordinances provide a clear definition and mapping of what is protected along with methods for ensuring protection of the resource.
9. Minimize the impacts of development on environmentally sensitive areas such as wetlands, stream corridors, and aquifer recharge areas.

Highlands: Vernon is located in the New Jersey Highlands Region and is part of both the Highlands Planning and Preservation Areas. As such, the Township is one of 88 municipalities protected by and subject to the provisions of the Highlands Water Protection and Planning Act that protects, enhances and restores Highland's natural resources. The Highlands Act requires that future land use in the Highlands Region be guided by the Regional Master Plan's Land Use Capability Map (LUCM) Series which includes tools to identify and protect the natural, scenic and other resources of the region. In supporting and complying with the Highlands Act, the Township enacted amendments and updates to local zoning and development ordinances that ensure the protection of important resources and areas. The Highland Act creates three primary zones: a Protection Zone, a Conservation Zone and an Existing community Zone. Protection Zones are areas with the highest quality resources with extreme limitations on allowable development while Conservation Zones have significant agricultural lands and associated woodlands and environmental features with allowable development consisting primarily of agricultural uses. Existing Community Zones consist of areas of concentrated development with limited environmental constraints. These zones are overlaid with existing local zoning maps to identify and



address issues of public interest including watershed management, open space preservation, historic preservation, flood protection among others.

Regulatory and Enforcement (Ordinances)

The Township has multiple chapters pertaining to the mitigation of hazards. These ordinances include the Flood Damage Prevention Chapter, Stormwater Control Chapter, and an Environmental Impact Statement requirement.

Chapter 275: Flood Damage Prevention

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 330-78: Stormwater Management

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 of the Townships' citizens and businesses.

Chapter 330-85: Environmentally Impact Statement

Except in connection with applications classified as minor, the effect of every development proposal on the natural and built (or otherwise man-made) environment shall be studied by a qualified expert or experts engaged by the applicant, who shall prepare a report of findings, analysis and conclusions to be known as an "environmental impact statement" (hereinafter "EIS") for submission to the Planning Board and the Environmental Commission. The Environmental Commission shall have 30 days in which to review the same, make a report thereon and submit its report to the Planning Board, with a copy to be supplied simultaneously to the applicant. The Commission's report shall consider the sufficiency of the EIS with particularity and advise the Planning Board as to which elements of the EIS, if any, are deficient in information and/or proposed mitigation. The Planning Board shall consider such report when deciding which elements of an EIS, if any, should be waived at the request of the applicant, or which elements should be further studied and explained.

Highlands: In addition, the Highlands Water Protection and Planning Act provides additional regulatory control over development within the Township. While Major Highlands Development projects, as defined by the Highlands Act, still require local approvals, they must first receive a Highlands Resource Applicability Determination and be evaluated for consistency with the provisions of the Highlands Act. Major Highlands Development projects include a variety of projects such as any non-residential development, any residential development that disturbs one or more acres of land, and any development that disturbs ¼ acres or more of



forest, among others. This process identifies any potential Highlands Resources on the site and if found requires adherence to relevant development standards and restrictions.

Operational and Administration

The Township has established a Joint Land Use Board and an Environmental Committee, that aid in planning decisions to support the conservation and preservation of the Township's critical environmental features. Beyond that the Township employs a Planning Board Secretary and contracts out for professional legal, planning, and engineering services for development review.

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 and The Garden State Preservation Trust Fund grant programs. The Township's 2014 Capital Budget includes line items for improvements to the Municipal Building, as well as a number of drainage and roadway improvements.

Education and Outreach

The Township's website posts information regarding upcoming community events and important municipal decisions on the home page.



Figure 9.23-1. Screenshot of Township Website with Examples of their Emergency Information

The screenshot shows the Vernon Township website. At the top left is the logo for Vernon Township, described as 'New Jersey's four season recreation community'. To the right is a search bar. Below the logo is a green navigation menu with items: HOME, ABOUT VERNON, GOVERNMENT, SERVICES, PUBLIC SAFETY, and SHOP VERNON. On the left side, there is a sidebar menu for 'Section: Public Safety' with options: Fire Department, Ambulance Squad, Emergency Mgmt. (highlighted), and Police Department. The main content area is titled 'Public Safety' and 'Emergency Management'. It contains a paragraph describing the Office of Emergency Management's purpose. Below this is another paragraph about the emergency management coordinator's role. To the right of the main text is an 'ADDITIONAL INFO' box listing contact details for the Emergency Management Coordinator, Roy Wherry, including telephone (973.764.6155), fax (973.764.2518), and address (21 Church Street, Vernon, NJ). At the bottom of the main content area, there are 'Useful Links' for 'Ready.gov' and 'Outbound 9-1-1'.

9.23.6 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 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.23-11. Past Mitigation Initiative Status

Initiative Number	2011 Mitigation Action	Responsible Party	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 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Vernon Township 1	Retrofit roof to meet current snow load standards on Highland Lakes Volunteer Fire Department building located on Canistear Road.	Station Commander	Complete	The roof has been replaced on the Highland Lakes Volunteer Fire Department building.	Discontinue	This project has been completed and will not be included in the 2016 HMP Update.
Vernon Township 2	Retrofit roof to meet current snow load standards on Vernon Valley Police Department building located on Church Street.	Police Chief	In Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Vernon Valley Police Department building on Church Street, ensure that it meets the current snow load standards.
Vernon Township 3	Retrofit roof to meet current snow load standards on Lounsbury Hollow School located on Sammis Road.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Lounsbury Hollow School building on Sammis Road, ensure that it meets the current snow load standards.
Vernon Township 4	Retrofit roof to meet current snow load standards on High School located on Route 565.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the High School building on Route 565, ensure that it meets the current snow load standards.
Vernon Township 5	Implement the Fire Wise Program throughout the township.	OEM Coordinator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	Implement the Fire Wise Program throughout the township.
Vernon Township 6	Retrofit roof to meet current snow load standards on Glen Meadows School located on Sammis Road.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Glen Meadows School building on Sammis Road, ensure that it meets the current snow load standards.
Vernon Township 7	Retrofit roof to meet current high wind standards on Cedar Mountain School located on Sammis Road.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Cedar Mountain School building on Sammis Road,



Initiative Number	2011 Mitigation Action	Responsible Party	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 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
						ensure that it meets the current snow load standards.
Vernon Township 8	Retrofit roof to meet current snow load standards on Rolling Hill School located on Sammis Road.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Rolling Hill School building on Sammis Road, ensure that it meets the current snow load standards.
Vernon Township 9	Retrofit roof to meet current snow load standards on Walnut Ridge School located on route 517.	School Board Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	When replacing the roof of the Walnut Ridge School building on Route 517, ensure that it meets the current snow load standards.
Vernon Township 10	Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.	DPW Administrator	In Progress	The Township is currently in the progress of updating and improving the stormwater management system; however, it has not been completed to date.	Include in 2016 HMP	Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.
Vernon Township 11	Embankment stabilization for Mountain Creek Water Park located on route 94.	Facility Administrator	Complete	This project has been completed.	Discontinue	This project has been completed and will not be included in the 2016 HMP Update.
Vernon Township 12	Stormwater management system along Tenneco Pipeline.	DPW Administrator	In Progress	The Township is currently in the progress of updating and improving the stormwater management system; however, it has not been completed to date.	Include in 2016 HMP	Stormwater management system along Tenneco Pipeline.
Vernon Township 13	Harden SES Americom building located on route 517 and Edsel Drive to FEMA 361 Standards.	Facility Administrator	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	Harden SES Americom building located on route 517 and Edsel Drive to FEMA 361 Standards.
Vernon Township 14	Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	OEM Coordinator, in coordination with SCDEM	No Progress	Due to lack of funding, this project has not been completed.	Include in 2016 HMP	Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.



Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Township has not identified any additional mitigation projects/activities that have been completed since approval of the 2011 HMP.

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, the Township participated in 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 9.23-12 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.' Table 9.23-13 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.23-12. 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	CBS Category
Vernon-1 (new)	Utilize the Hazard Mitigation Plan (HMP) when updating the Comprehensive Master Plan; consider including hazard identification, hazard zones risk assessment information, and hazard mitigation goals as identified in the HMP. Further, the findings and recommendation of the HMP will be considered during any future site plan review processes.	Both	All	All	Planning	High	Low	Municipal	Short	High	LPR	PR
Vernon-2 (old #2)	When replacing the roof of the Vernon Valley Police Department building on Church Street, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	Police Chief	Medium	Medium to High	Municipal budget; grant funding where available	DOF	Medium	SIP	PP
Vernon-3 (old #3)	When replacing the roof of the Lounsbery Hollow School building on Sammis Road, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP
Vernon-4 (old #4)	When replacing the roof of the High School building on Route 565, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP
Vernon-5 (old #5)	Implement the Fire Wise Program throughout the township.	New and Existing	Wildfire	1, 2, 3, 4, 5	OEM Coordinator	Medium to High	Low	Municipal Budget	DOF	High	EAP	PI
Vernon-6 (old #6)	When replacing the roof of the Glen Meadows School building on Sammis Road, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP
Vernon-7 (old #7)	When replacing the roof of the Cedar Mountain School building on Sammis Road, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP
Vernon-8 (old #8)	When replacing the roof of the Rolling Hill School building on Sammis Road, ensure that it meets the current snow load standards.	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP
Vernon-9 (old #9)	When replacing the roof of the Walnut Ridge School building on Route 517,	Existing	Severe Winter Weather	1, 2, 6	School Board Administrator	Medium	Medium to High	School Budget	DOF	Medium	SIP	PP





Table 9.23-12. 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	CBS Category
	ensure that it meets the current snow load standards.											
Vernon-10 (old #10)	Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.	Existing	Flood, Hurricane / Tropical Storm, Severe Weather, Severe Winter Weather	1, 2, 6	DPW	Medium to High	Medium to High	Municipal Budget; grant funding where available	Short Term / DOF	High	SIP	PP
Vernon-11 (old #12)	Stormwater management system along Tenneco Pipeline.	Existing	Flood, Hurricane / Tropical Storm, Severe Weather, Severe Winter Weather	1, 2, 6	DPW	Medium to High	Medium to High	Municipal Budget; grant funding where available	Short Term / DOF	High	SIP	PP
Vernon-12 (old #13)	Harden SES Americom building located on route 517 and Edsel Drive to FEMA 361 Standards.	Existing	Hurricane / Tropical Storm, Severe Weather	1, 2, 6	Facility Administrator	Medium	Medium	Municipal Budget	DOF	Medium	SIP	PP
Vernon-13 (old #14)	Conduct all-hazards public education and outreach program for hazard mitigation and preparedness. This will include providing better information regarding hazard risks and high-hazard areas in the Township.	N/A	All	All	OEM Coordinator in coordination with County OEM	High	Low	Municipal Budget and Time	Ongoing	High	LPR, EAP	PR, PI
Vernon-14 (new)	Ensure continuity of operations at critical facilities, municipal buildings, and infrastructure. At this time, the following was identified: Develop an action plan to improve the damage resistance of utilities (electricity, communications) throughout the Township.	Existing	All	All	Township with support from utility providers	Medium to High	Low	Municipal Budget	Short Term / 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
RFC	Repetitive Flood Claims Grant Program (discontinued)
SRL	Severe Repetitive Loss Grant Program (discontinued)

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 9.23-13. 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
Vernon-1 (new)	Utilize the Hazard Mitigation Plan (HMP) when updating the Comprehensive Master Plan; consider including hazard identification, hazard zones risk assessment information, and hazard mitigation goals as identified in the HMP. Further, the findings and recommendation of the HMP will be considered during any future site plan review processes.	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
Vernon-2 (old #2)	When replacing the roof of the Vernon Valley Police Department building on Church Street, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-3 (old #3)	When replacing the roof of the Lounsberry Hollow School building on Sammis Road, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-4 (old #4)	When replacing the roof of the High School building on Route 565, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-5 (old #5)	Implement the Fire Wise Program throughout the township.	1	1	1	1	1	0	0	1	1	1	0	0	1	0	9	High
Vernon-6 (old #6)	When replacing the roof of the Glen Meadows School building on Sammis Road, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-7 (old #7)	When replacing the roof of the Cedar Mountain School building on Sammis Road,	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium



Table 9.23-13. 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
	ensure that it meets the current snow load standards.																
Vernon-8 (old #8)	When replacing the roof of the Rolling Hill School building on Sammis Road, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-9 (old #9)	When replacing the roof of the Walnut Ridge School building on Route 517, ensure that it meets the current snow load standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-10 (old #10)	Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.	1	1	1	1	1	1	0	1	0	1	1	1	0	0	10	High
Vernon-11 (old #12)	Stormwater management system along Tenneco Pipeline.	1	1	1	1	1	1	0	1	0	1	1	1	0	0	10	High
Vernon-12 (old #13)	Harden SES Americom building located on route 517 and Edsel Drive to FEMA 361 Standards.	1	1	1	0	0	0	0	1	1	0	0	0	1	0	6	Medium
Vernon-13 (old #14)	Conduct all-hazards public education and outreach program for hazard mitigation and preparedness. This will include providing better information regarding hazard risks and high-hazard areas in the Township.	1	1	1	1	1	1	1	0	1	1	1	0	0	0	10	High
Vernon-14 (new)	Develop an action plan to improve the damage resistance of utilities (electricity, communications) throughout the Township.	1	1	1	1	0	0	1	0	1	1	1	0	0	0	8	High

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





9.23.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

None at this time.

9.23.8 HAZARD AREA EXTENT AND LOCATION

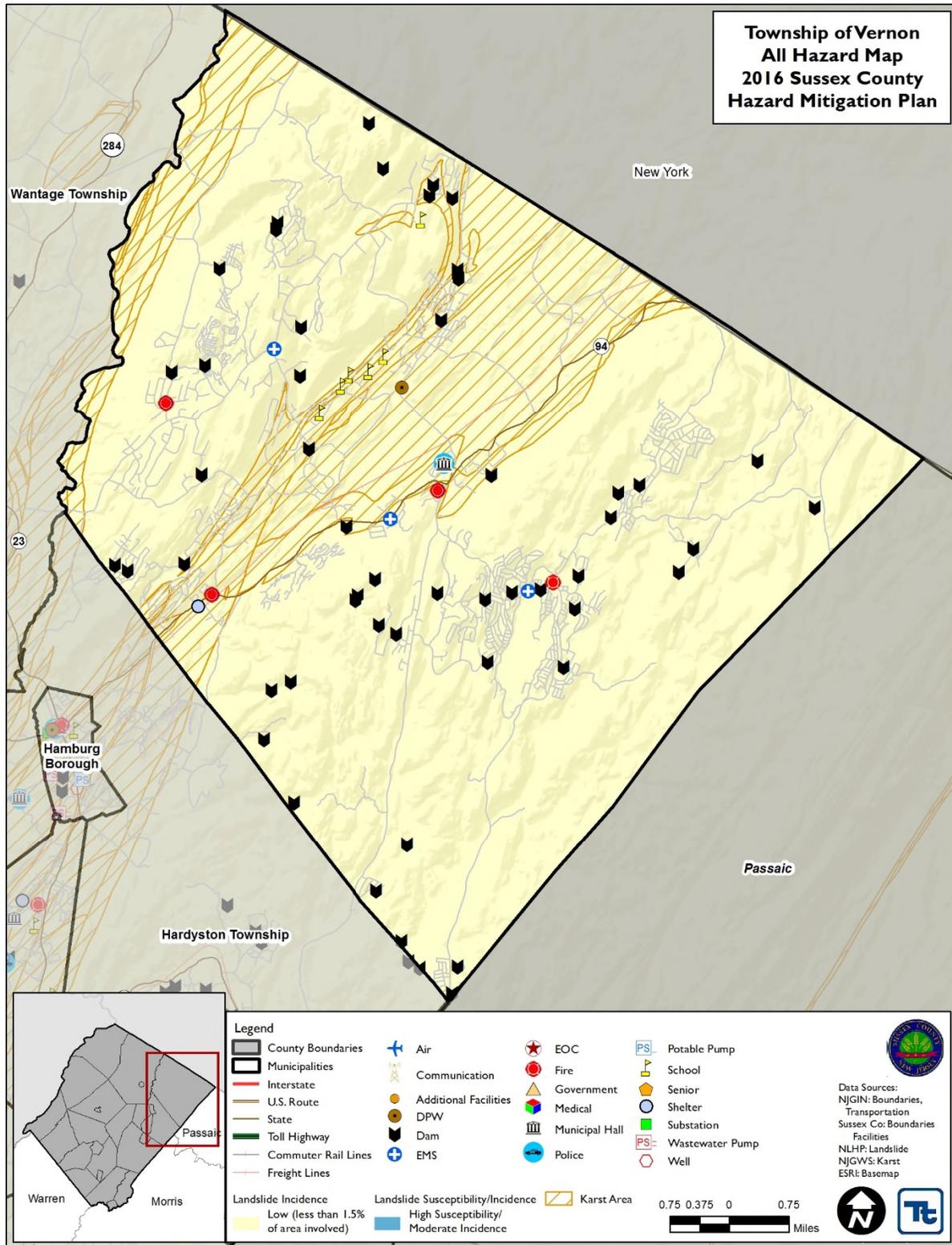
Hazard area extent and location maps have been generated for the Township of Vernon that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Vernon has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this HMP.

9.23.9 ADDITIONAL COMMENTS

None at this time.



Figure 9.23-3. Township of Vernon Hazard Area Extent and Location Map 2





Action Number: Vernon-10

Mitigation Action/Initiative: Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Hurricane / Tropical Storm, Severe Weather, Severe Winter Weather
Specific problem being mitigated:	Stormwater management system is in need of upgrading
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	DPW
Local Planning Mechanism	Stormwater Management, Capital Improvements
Potential Funding Sources	Municipal budget; grant funding where available
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Vernon-10

Mitigation Action/Initiative: Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Decrease damages to surrounding properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Local Champion	0	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	



Action Number: Vernon-11

Mitigation Action/Initiative: Stormwater management system upgrade and improvement along Tenneco Pipeline

Assessing the Risk	
Hazard(s) addressed:	Flood, Hurricane / Tropical Storm, Severe Weather, Severe Winter Weather
Specific problem being mitigated:	Stormwater management system is in need of upgrading
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Stormwater management system upgrade and improvement along Tenneco Pipeline
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stormwater management system upgrade and improvement along Tenneco Pipeline
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	DPW
Local Planning Mechanism	Stormwater Management, Capital Improvements
Potential Funding Sources	Municipal budget; grant funding where available
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Vernon-11

Mitigation Action/Initiative: Stormwater management system upgrade and improvement along Maple Grange Road and Vernon Crossing Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Decrease damages to surrounding properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Local Champion	0	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	