

## 9.30 Village of Hastings-On-Hudson

This section presents the jurisdictional annex for the Village of Hastings-On-Hudson.

### 9.30.1 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
Charles V, Minozzi, Jr. 7 Maple Ave Hastings-On-Hudson, NY 914-478-3400 X613 cminozzi@hastingsgov.org	Michael Gunther 7 Maple Ave Hastings-On-Hudson, NY 914-478-3400 X613 mgunther@Hastingsgov.org

### 9.30.2 Municipal Profile

This section provides a summary of the community.

#### Population

According to the U.S. Census, the 2010 population for the Village of Hastings-On-Hudson was 7,849.

#### Location

The Village of Hastings-on-Hudson is located in the southwestern portion of Westchester County. The Village is bordered by the Village of Dobbs Ferry to the north, the Town of Greenburgh to the east, the City of Yonkers to the south and the Hudson River to the west. The Village is approximately 2.0 square miles in area and 19 miles north of Manhattan.

#### Brief History

The land that comprises the present-day Village of Hastings-on-Hudson was once home to an Algonquin tribe known as the Weckquaesgeeks. In 1682, Dutch carpenter Frederick Philipse traded with the Native Americans for their land (Hastings-on-Hudson and Dobbs Ferry). During the Revolutionary War, the land was designated as “neutral territory” between the American Continental Army and the British Army, though in actuality this made the area subject to numerous skirmishes and raids. After the American Revolution, the State of New York confiscated the land of Royalist Colonel Frederick Philipse and sold off his land to tenant farmers. Westchester County was subsequently divided into towns and the Village, which came to be known as “Hastings-Upon-Hudson, arose from a portion of the Town of Greenburgh”.

The Village began its century-long transformation from farming village to residential suburb when the Croton Aqueduct was constructed in the 1830s and 40s to transport water from the Croton River to New York City to the south. The opening of the New York and Hudson Railroad line in 1849 further spurred growth in the Village by increasing the ease with which people could travel to and from New York City. Fire destroyed many of the waterfront buildings during the mid-1870s, including the sugar refinery. The owners declined to rebuild, and the resulting job loss led to the many of the German immigrants leaving the community. The remaining residents voted to incorporate the Village in 1879 as Hastings-on-Hudson. Over a century and a half of manufacturing on the waterfront left significant levels of land and river contamination, which continue to require remediation.

**Governing Body Format**

Hastings-on-Hudson has a council/manager form of government. The governing body consists of five elected officials, a mayor and four trustees, who each serve a term of two years. The manager is appointed by the Mayor and Board of Trustees and provides professional management of the day-to-day operations of the Village.

**Growth/Development Trends**

The following table summarizes recent residential/commercial development since 2005 and any known or anticipated major development that has been identified in the next five years within the municipality.

**Table 9.30-1. Growth and Development**

Property or Development Name	Type (e.g. Res., Comm.)	Number of Units / Structures	Location (address and/or Parcel IDs)	Known Hazard Zones*	Description / Status
<b>Recent Development</b>					
No recent development identified					
<b>Known or Anticipated Development</b>					
Saw Mill Lofts	Residential - Currently zoned Mixed Use PDD (MUPDD)	66	425 Saw Mill River Road	Flood	Development of new apartment complex

\* Only location-specific hazard zones or vulnerabilities identified.

**9.30.3 Natural Hazard Event History Specific to the Village of Hastings-On-Hudson**

Westchester 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 2005 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 9.30-2. Hazard Event History**

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
October 27- November 8, 2012	Hurricane Sandy	DR-4085	Yes	Flooding to roadways and homes. Debris removal, power outages. Police, fire and public service overtime costs
September 7- 11, 2011	Remnants of Tropical Storm Lee	DR-4031	No	Flooding of roadways, police, public service overtime
August 26 - September 5, 2011	Hurricane Irene	DR-4020	Yes	Flooding to roadways and homes. Police, fire and public service overtime costs

Notes:

- EM Emergency Declaration (FEMA)
- FEMA Federal Emergency Management Agency
- DR Major Disaster Declaration (FEMA)

IA Individual Assistance  
 N/A Not applicable  
 PA Public Assistance

### 9.30.4 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 following summarizes the hazard vulnerabilities and their ranking in the Village of Hastings-On-Hudson. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

#### Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the natural hazard risk/vulnerability rankings of potential hazards for the Village of Hastings-On-Hudson.

**Table 9.30-3. Natural 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>
Earthquake	100-Year GBS: \$0 500-Year GBS: \$999,644 2,500-Year GBS: \$21,726,932	Occasional	24	Medium
Extreme Temperature	Damage estimate not available	Frequent	30	Medium
Flood	1% Annual Chance: \$142,162,384	Frequent	36	High
Severe Storm	100-Year MRP: \$2,844,849 500-year MRP: \$21,769,641 Annualized: \$226,463	Frequent	48	High
Winter Storm	1% GBS: \$15,276,557 5% GBS: \$76,382,785	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$59,452,445	Frequent	18	Medium

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
  - b. The valuation of general building stock and loss estimates was based on the custom inventory developed for Westchester County and probabilistic modeling results and exposure analysis as discussed in Section 5.
  - c. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages.
  - d. Frequent = Hazard event that is likely to occur within 25 years;  
Occasional = Hazard event that is likely to occur within 100 years; and  
Rare = Hazard event that is not likely to occur within 100 years
  - e. The estimated potential losses for Severe Storm are from the HAZUS-MH probabilistic hurricane wind model results. See footnote c.
- GBS = General building stock  
 MRP = Mean return period  
 RCV = Replacement cost value

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Hastings-On-Hudson.

**Table 9.30-4. 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)
Village of Hastings-	38	25	\$864,744.31	1	0	1

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)
On-Hudson						

Source: FEMA Region 2, 2014

- (1): Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of March 31, 2014. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents the number of claims closed by March 31, 2014.
- (2): Information regarding total building and content losses was gathered from the claims file provided by FEMA Region 2.
- (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. 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 HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1-percent annual chance flood events.

**Table 9.30-5. Potential Flood Losses to Critical Facilities**

Name	Municipality	Type	Exposure		Potential Loss From 1% Event		
			1% Event	0.2% Event	% Structure Damage	% Content Damage	Days to 100-Percent
Hastings Pioneer Boat Club	Hastings-on-Hudson (V)	Marina	X	X	-	-	-
Hastings-on-Hudson MTA Station	Hastings-on-Hudson (V)	Rail		X	-	-	-
Palisade Boat Club	Hastings-on-Hudson (V)	Marina	X	X	-	-	-
Tower Ridge Yacht Club	Hastings-on-Hudson (V)	Marina	X	X	-	-	-
Uhlich Color Corp.	Hastings-on-Hudson (V)	Hazmat	X	X	-	-	-

Source: Westchester County, FEMA 2014

Note: Please note it is assumed that wells have electrical equipment and openings are three-feet above grade.

- (1) HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).
- (2) In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type.

### Other Vulnerabilities Identified by Village of Hastings-On-Hudson

The following flood-prone areas have been identified by the Village of Hastings-on-Hudson through the Westchester County Stormwater Reconnaissance Plan process (see Section 6 – Capability Assessment for a description of the program; see map at the end of this annex for location of these problem areas):

**Map Area ID:** HAS-1

**Municipality:** HASTINGS

**General Location:** (1) NEPERA PLACE AND (2) INTERSECTION OF STANLEY AVENUE AND CLARENCE AVENUE and (3) AREA OF 33 SAW MILL RIVER ROAD.

**Nearest Watercourse or Water Body:** SAW MILL RIVER

**Associated Study/Report:** NONE

**Evaluation Score:** Medium

**General Description of Flooding:** Three areas in residential/Mixed Use neighborhoods next to the Saw Mill River Parkway, west/east of the Saw Mill River flooded in 2007 and again in 2010 and 2011. The areas are within the 100-year flood zone, repetitively impacting approximately two to three single-family residential buildings one 2 family and two commercial buildings in an area with 15 residential buildings containing approximately 20 residential units and 2 commercial properties. Habitable space below the base flood elevation likely exists in at least three of the buildings. Flooding originates from the Saw Mill River, and generates standing water which may contain sewage. The depth of standing water was reported to be approximately 15 inches to 18 inches lasting two to three days. The areas begin to experience flooding after about four inches of rain has fallen, which, according to the respondent, has occurred approximately three times over the past decade.

### 9.30.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- 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 village.

**Table 9.30-6. Planning and Regulatory Tools**

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	State, local	Building Department	Chapter 101
Zoning Ordinance	Y	Local	Building, Planning Department	Chapter 295, Adopted 1994
Subdivision Ordinance	Y	Local	Building Department	Chapter 295, Article 13, Adopted 1994
NFIP Flood Damage Protection Ordinance	Y	Federal, State, Local	Building Department	Chapter 146, 2007
NFIP - Freeboard	Y	Federal, State, Local	Building Department	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP - Cumulative Substantial Damages	Y	Local	Building Department	Chapter 146
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)	N			
Growth Management	N			
Floodplain Management / Basin Plan	Y	Local	Building and Planning Departments	Chapter 146 and 250
Stormwater Management Plan/Ordinance	Y	Local	Building Department	Chapter 250, Adopted 2007

**Table 9.30-6. Planning and Regulatory Tools**

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Comprehensive Plan / Master Plan	Y	Local	Planning Board	May 2010
Capital Improvements Plan	Y	Local	Planning Board	Multi-year 2013/2017
Site Plan Review Requirements	Y	Local	Building Department	Chapter 295 Article 12
Habitat Conservation Plan	N			
Economic Development Plan	N			
Emergency Response Plan	Y	Local	Village Manager, Chief of Police	Chapter 146
Post Disaster Recovery Plan	N			
Post Disaster Recovery Ordinance	N			
Real Estate Disclosure req.	Y	State	State	NYS mandate Article 14
Other (e.g. steep slope ordinance, local waterfront revitalization plan)	Y	Local	Building Department	Steep Slope Ordinance Chapter 249
Shoreline Management Plan	Y	Local	Building Department Zoning	Addressed in Comprehensive Plan

(1) NYS Subdivision laws provide a general framework, but allow room for local ordinances and interpretation.

**Administrative and Technical Capability**

The table below summarizes potential staff and personnel resources available to the Village of Hastings-On-Hudson.

**Table 9.30-7. Administrative and Technical Capabilities**

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Consultants on an as needed basis
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Inspector, Charles V. Minozzi, Jr.
Planners or engineers with an understanding of natural hazards	Y	Consultants on an as needed basis
NFIP Floodplain Administrator	Y	Building Inspector, Charles V. Minozzi, Jr.
Surveyor(s)	N	
Personnel skilled or trained in “GIS” applications	Y	Building Inspector, Charles V. Minozzi, Jr.
Scientist familiar with natural hazards in the County.	N	
Emergency Manager	Y	Village Manager
Grant Writer(s)		
Staff with expertise or training in benefit/cost analysis	N	
Professionals trained in conducting damage assessments	N	

**Fiscal Capability**

The table below summarizes financial resources available to the Village of Hastings-On-Hudson.

**Table 9.30-8. Fiscal Capabilities**

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

### Community Classifications

The table below summarizes classifications for community program available to the Village of Hastings-On-Hudson.

**Table 9.30-9. Community Classifications**

Program	Classification	Date Classified
Community Rating System (CRS)	NP	
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	
Public Protection	TBD	
Storm Ready	NP	
Firewise	NP	

*N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.*

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/>

### **National Flood Insurance Program**

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The following section provides details on the National Flood Insurance Program (NFIP) as implemented within the Village of Hastings-On-Hudson:

#### **NFIP Floodplain Administrator:**

Charles V. Minozzi, Jr., Village Building Inspector is the Floodplain Administrator

#### **Flood Vulnerability Summary**

The Village does not maintain lists/inventories of properties that have been damaged by floods. Currently, there are no residents interested in mitigation (elevation or acquisition) in the Village.

#### **Resources**

The Floodplain Administrator is the sole person assuming responsibilities of floodplain administration and feels that he is adequately supported and trained to fulfill his responsibilities. The Floodplain Administrator would consider attending continuing education and/or certification training on floodplain management. With the exception of providing NFIP mapping, the Village has historically not provided any education or outreach to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc. The Village intends to develop and implement a program of outreach to flood vulnerable property owners, including those repetitively flooded, to support mitigation of these properties.

#### **Compliance History**

The Village continues to be in compliance with the NFIP.

#### **Regulatory**

The Village's floodplain management regulations/ordinances do not exceed the FEMA and State minimum requirements. There are local ordinances, plans and programs that support floodplain management and meet the NFIP requirements. The community will continue to evaluate participation in the CRS program, however the current NFIP policy base (benefits) does not appear to support the costs to the Village. The Village would be interested in attending a CRS workshop to better understand the program, if offered locally.

### **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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**Comprehensive Planning:** The Village will continue to manage natural hazard risk, including the effects and long-term impacts of climate change, through the findings, recommendations, goals and objectives identified in the Village Comprehensive Plan (adopted July 2011), specifically:

With respect to the development/redevelopment of "Large Tracts" within the Village, the following objectives have been set for the remaining Large Tracts in Hastings-on-Hudson:



Objective 2. Protect and enhance the environmental quality of the Village through preservation of environmentally sensitive areas.

- Strategy 2.1 Update Open Space Inventory
- Strategy 2.2: Protect, enhance and manage the Village's natural resources.
- Strategy 2.3: Map, protect and enhance local wetlands.
- Strategy 2.4: Restrict development adjacent to the Hudson and Saw Mill Rivers.

With respect to Environmental Sustainability and Climate Change:

- Objective 1. Be aware of and implement best practices for mitigating and adapting to global climate change.
- Objective 3. Encourage sustainable design and construction in the Village.
- Strategy 3.1: Incorporate considerations of climate change in the SEQR process.

Regarding Sustainable Infrastructure:

- Objective 1. Minimize stormwater runoff.
- Strategy 1.1: Review existing stormwater management planning.
- Strategy 1.3: Incorporate Low Impact Design...into the Zoning Code.
- Strategy 1.4: Set annual stormwater management goals.
- Strategy 1.6: Keep the community well informed on ways to minimize runoff.
- Objective 2. Preserve and protect floodplains and water bodies.
- Strategy 2.1 Restrict development within floodplains.
- Strategy 2.2 Establish and maintain buffer areas along the Hudson and Saw Mill Rivers.
- Objective 3. Preserve, protect and restore wetlands.
- Objective 4. Anticipate more intense storms and higher water levels associated with climate change.

With increasing water levels and higher storm surges, low lying areas in Westchester will be more vulnerable to flooding. Adaptation strategies need to be developed and considered by the Village when making decisions for capital improvements, infrastructure investments, and granting project approvals. In order to anticipate the more intense storms and higher water levels associated with climate change, the Village should:

- Inventory and map existing sanitary and stormwater infrastructure.
- Inventory existing areas that currently experience flooding.
- Analyze sub-watersheds to understand the areas that are contributing to regulated outfalls.
- Develop a Climate Adaptation Plan including site-specific protection strategies with priority given to the most vulnerable areas of the Village.
- Promote climate protection through community land use tools. Update land use policies, building codes, and community plans in ways that reduce sprawl, carefully examine development in floodplains to ensure minimal impact, and protect forests. Take into consideration climate change in site plan approval.

Look to New York City (NYC), New York State Department of Environmental Conservation (DEC), and the Federal Emergency Management Agency (FEMA) for information on how to address the rising levels of the Hudson River and expected increases in inland flooding. For example, NYC is revising their floodplain maps and creating a hydraulic model that will be used to conduct a risk analysis and predict potential impact areas from climate change.

**Comprehensive Emergency Management Planning:** The Village's Comprehensive Emergency Management Plan was updated coincidentally with the development of its original Hazard Mitigation Plan, promoting integration and coordination of these two aspects of emergency management planning.

**Stormwater Management Planning:** The Village has an active MS4 stormwater management program, that in addition to quality of stormwater runoff also addresses quantity and resultant localized flood issues.

### **Regulatory and Enforcement**

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The community will continue to evaluate participation in the CRS program, however the current NFIP policy base (benefits) does not appear to support the costs to the Village. The Village would be interested in attending a CRS workshop to better understand the program, if offered locally.

### **Operational and Administration**

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The Village supports its stormwater management program through partnerships with the Saw Mill River Coalition (general stormwater education, land use and habitat restoration), and the Westchester County Information Technology Department (mapping).

### **Fiscal**

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Regarding Sustainable Infrastructure in the 2011 Comprehensive Plan, specifically Objective 4. Anticipate more intense storms and higher water levels associated with climate change.

With increasing water levels and higher storm surges, low lying areas in Westchester will be more vulnerable to flooding. Adaptation strategies need to be developed and considered by the Village when making decisions for capital improvements, infrastructure investments, and granting project approvals.

### **Education and Outreach**

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The Village intends to develop and implement a program of outreach to flood vulnerable property owners, including those repetitively flooded, to support mitigation of these properties.

The Village provides education and outreach to its residents about stormwater management and associated flooding via informational kiosks and displays; list-serves; TV spots/programs; printed materials in the Village Hall, Library, Community Center and during Clean-Up Events; the Village website; and in partnership with the Saw Mill River Coalition.

### 9.30.6 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 current 2011 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

**Table 9.30-10. Past Mitigation Initiative Status**

Description	Status	Review Comments
Purchase and install a back-up generator for the Community Center so that it may be used as a shelter	Complete	
Purchase and install a back-up generator for the four fire stations in the Village so that they may be used as shelters	On-going	Funding and budget constraints have prevented these generators being purchased. The Village is still exploring funding resources as these generators are needed.
Re-study the drainage in the Fenwick Area and to implement results/recommendations to mitigate flooding.	Minimal progress pending expanded scope.	The Village wished to expand the scope of work for this study to include flooding issues for the entire Village. This revised initiative will be included in the 2014 Plan
Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.  Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation.  Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Continuous	Budget and personnel issues have prevented this action from being implemented. A modified version of this initiative is being carried forward in the updated mitigation strategy, combined with the following prior initiative.
Purchase, or relocate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.  Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting.  Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Continuous	Budget and personnel issues have prevented this action from being implemented. A modified version of this initiative is being carried forward in the updated mitigation strategy, combined with the preceding prior initiative.
Maintain compliance with and good-standing in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum	Discontinued	The Village wishes to remove this initiative from the 2014 plan update as it is an administrative function that is performed annually by the Building Department

Table 9.30-10. Past Mitigation Initiative Status

Description	Status	Review Comments
NFIP standards and criteria through the following NFIP-related continued compliance actions identified as Initiatives 7 – 16 (below).		
Begin the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements).	Complete	The Village wishes to remove this initiative as it already has procedures that follows all federal and state guidelines
<p>Conduct and facilitate community and public education and outreach for Village residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction:</p> <ul style="list-style-type: none"> <li>• Provide and maintain links to the Greenburgh HMP website, and regularly post notices on the Village homepage referencing the Greenburgh HMP webpages.</li> <li>• Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation.</li> <li>• Use the village email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures.</li> <li>• Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.</li> </ul>	Continuous / Ongoing	The Village will continue public outreach and information through village wide website, email and local television station.
Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	Completed	The Village will continue to maintain contact with State NFIP Administrator. This is an administrative function that will continue.
Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFP, and consider relevant continuing education training such as FEMA Benefit-Cost Analysis.	No progress	Due to budget constraints, the necessary training, courses and testing have not been completed. The Village wishes to continue with this initiative
Begin the process to apply to participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.	No progress	Due to budget constraints and personnel no progress has been made with this initiative. The Village will continue to pursue the process to participate in the Community Rating System.
Archive elevation certificates	Complete	Elevation Certificates are archived for all construction in a flood prone area as of 2014. These certificates will be maintained by the Building Department.
Complete the ongoing updates of the Comprehensive Emergency Management Plans for Greenburgh and the six participating municipalities	Complete	
Create/enhance/ maintain mutual aid agreements with neighboring communities for continuity of operations	Complete	This initiative is an ongoing administrative function between municipalities that continues as needed through various professional associations.

**Table 9.30-10. Past Mitigation Initiative Status**

Description	Status	Review Comments
Identify and develop agreements with entities that can provide support with FEMA/NYS DHSES paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/NYS DHSES paperwork compilation, submissions, record-keeping	Complete	Agreements have been made with entities to provide disaster support. The Village continues to work with FEMA and SOME during times of disaster.
Work with regional agencies (i.e. County and NYS DHSES) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	Discontinued	This initiative is a County responsibility and function. The Village will support and participate in county and state-led workshops, seminars, etc. to build local mitigation and natural disaster response capabilities.
Support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	Completed	The Village is committed to participate in the 2015 plan update.
Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA’s Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including: Support the performance of enhanced risk and vulnerability assessments for hazards including flooding, earthquake, wind, and land failure. Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level.	Complete	The Village is an active participant in the initiative and will continue to support the County and NYS DHSES. The Village Manager is a member of the Saw Mill River Basin Watershed Advisory Board.

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

The Village of Hastings-on-Hudson identified mitigation initiatives they would like to pursue in the future. 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. Table 9.30-11 identifies the municipality’s updated local mitigation strategy.

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 actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.30-12 below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.30-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
VHH-1 (former VHOH-2)	Purchase and install back-up generators for the three remaining fire stations in the Village so that they may be used as shelters. See Action Worksheet.											
	See above.	Existing	Severe Storm; Severe Winter Storm; Climate Change	G-1, G-2, G-5	Village Manager	High – Maintain function of critical facilities	Medium - High	FEMA or other mitigation grant funding; Village for local share	Short DOF	High	SIP	SP
VHH-2 (former VHOH-3)	Conduct a Village wide flood study and implement results and recommendations.											
	See above.	Existing	Flood, Severe Storm, Climate Change	G-1, G-2, G-4	Village Manager	Medium to High	Medium to High	Flood study – Village Budget Project implementation - FEMA funding (dependent upon action) and local budget for cost share	Short DOF	Medium	LPR, SIP, NRP	PR
VHH-3 (former VHOH-4, 5)	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL – 1 currently) and Severe Repetitive Loss (SRL – none currently), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners. Specifically identified are properties in the following locations: Nepera Ave											
	See above.	Exiting	Flooding, Severe Storm	G-2, G-3	Municipal NFIP FPA; support from NYS DHSES and FEMA	High - Reduced or eliminated risk to property damage from flooding	High	FEMA or other mitigation grant funding, NFIP flood insurance and ICC; property owner for local match.	Long-term DOF	High	SIP, EAP	PR
VHH-4 (former VHOH-8)	Conduct and facilitate community and public education and outreach for Village residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction: <ul style="list-style-type: none"> <li>• Provide and maintain links to the Greenburgh HMP website, and regularly post notices on the Village homepage referencing the Greenburgh HMP webpages.</li> <li>• Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation.</li> <li>• Use the village email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures.</li> <li>• Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.</li> </ul>											

Table 9.30-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	See above.	N/A	All hazards	G-1, G-2, G-3, G-4	Village Manager	Medium – Improved public awareness and personal mitigation	Low	Village Budget	Ongoing	High	EAP	PE
VHH-5 (former VHOH-10, 11, 15, 16, 18)	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1)	New and Existing	All Hazards	All Objectives	Westchester County, as supported by relevant local department leads,	High (comprehensive improvements mitigation and risk-reduction capabilities)	Low-Medium (locally)	Local (staff resources)	Short	Medium	LPR, EAP	PR
VHH-6	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM, and consider relevant continuing education training such as FEMA Benefit-Cost Analysis.											
	See above	N/A	Flood	G-1, G-2, G-3, G-4	Village Engineer and FPA	High	Medium	Local (staff and resources)	Short	Medium	LPR	PR
VHH-7	Begin the process to apply to participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community’s current compliance with the NFIP is established.											
	See above	N/A	Flood	G-1, G-2, G-3, G-4	Village Engineer and FPA	High	Medium	Local (staff and resources)	Short	Medium	LPR	PR
VHH-8	<p>Integration Action: The Village will continue to manage natural hazard risk, including the effects and long-term impacts of climate change, through the findings, recommendations, goals and objectives identified in the Village Comprehensive Plan (adopted July 2011). Specifically with respect to climate change and the attended increased risk of natural hazards:</p> <p>Objective 4. Anticipate more intense storms and higher water levels associated with climate change. With increasing water levels and higher storm surges, low lying areas in Westchester will be more vulnerable to flooding. Adaptation strategies need to be developed and considered by the Village when making decisions for capital improvements, infrastructure investments, and granting project approvals. In order to anticipate the more intense storms and higher water levels associated with climate change, the Village should:</p> <ul style="list-style-type: none"> <li>• Inventory and map existing sanitary and stormwater infrastructure.</li> <li>• Inventory existing areas that currently experience flooding.</li> <li>• Analyze sub-watersheds to understand the areas that are contributing to regulated outfalls.</li> </ul>											

**Table 9.30-11. Proposed Hazard Mitigation Initiatives**

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<ul style="list-style-type: none"> <li>Develop a Climate Adaptation Plan including site-specific protection strategies with priority given to the most vulnerable areas of the Village.</li> <li>Promote climate protection through community land use tools. Update land use policies, building codes, and community plans in ways that reduce sprawl, carefully examine development in floodplains to ensure minimal impact, and protect forests. Take into consideration climate change in site plan approval.</li> <li>Look to New York City (NYC), New York State Department of Environmental Conservation (DEC), and the Federal Emergency Management Agency (FEMA) for information on how to address the rising levels of the Hudson River and expected increases in inland flooding. For example, NYC is revising their floodplain maps and creating a hydraulic model that will be used to conduct a risk analysis and predict potential impact areas from climate change.</li> </ul>											
	See above.	Both	Flood, Severe Storm, Severe Winter Storm, Climate Change	All Goals	Village Manager as supported by all Village Departments, Boards and Committees	Medium - High	Medium	Village Budget; grant funding as applicable (e.g. inventories, mapping, studies)	Ongoing / Continuous	High	LPR, SIP, NRP	PR
VHH-9	Implement and Develop a Tree Maintenance Program	N/A	Severe Storm, Severe Winter Storm, Climate Change	G-1, G-2	TBD	Medium	Medium	Village Budget	Short	Medium	SIP, NRP	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:

CAV Community Assistance Visit  
 CRS Community Rating System  
 DPW Department of Public Works  
 FEMA Federal Emergency Management Agency  
 FPA Floodplain Administrator  
 HMA Hazard Mitigation Assistance  
 N/A Not applicable  
 NFIP National Flood Insurance Program  
 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 in 2015)  
 SRL Severe Repetitive Loss Grant Program (discontinued in 2015)

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

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



Costs:

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:

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 9.30-12. 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
VHH-1 (former VHOH-2)	Purchase and install back-up generators for three remaining fire houses	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
VHH-2 (former VHOH-3)	Conduct a Village wide flood study	1	1	1	0	0	1	0	1	0	1	0	0	1	1	8	Medium
VHH-3 (former VHOH-4, 5)	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain	1	1	1	0	1	1	0	1	1	1	1	0	1	1	11	High
VHH-4 (former VHOH-8)	Conduct and facilitate community and public education and outreach	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
VHH-5 (former VHOH-10, 11, 15, 16, 18)	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	1	1	0	1	1	0	0	1	1	1	1	0	1	1	10	Medium
VHH-6	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager	0	1	1	0	1	1	0	1	0	1	0	0	1	1	8	Medium
VHH-7	Apply to participate in the Community Rating System	0	1	1	0	1	1	0	1	1	0	0	0	1	1	8	Medium
VHH-8	Integration Action: Continue to manage natural hazard risk, including the effects and long-term impacts of climate change, through the findings, recommendations, goals and objectives identified in the Village Comprehensive Plan (adopted July 2011).	1	1	1	1	1	1	0	1	1	0	1	1	1	1	12	High
VHH-9	Develop and Implement a Tree Maintenance Program	1	1	1	1	1	1	0	1	0	0	0	0	1	1	9	Medium

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

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

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None at this time.

### **9.30.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Village of Hastings-On-Hudson that illustrate the probable areas impacted within the Village. 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 Village of Hastings-On-Hudson has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

### **9.30.9 Additional Comments**

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None at this time.

Figure 9.30-1. Village of Hastings-On-Hudson Hazard Area Extent and Location Map

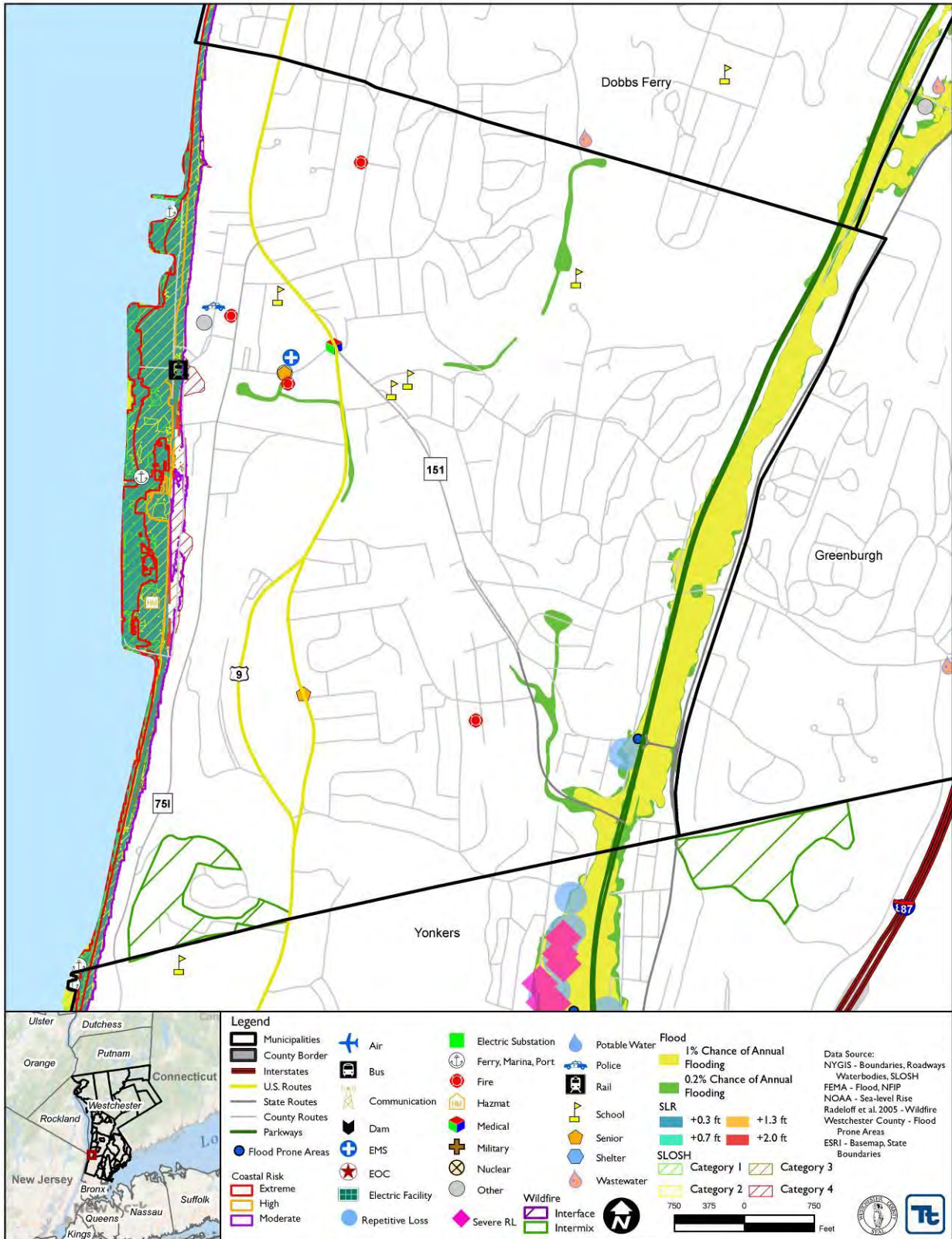
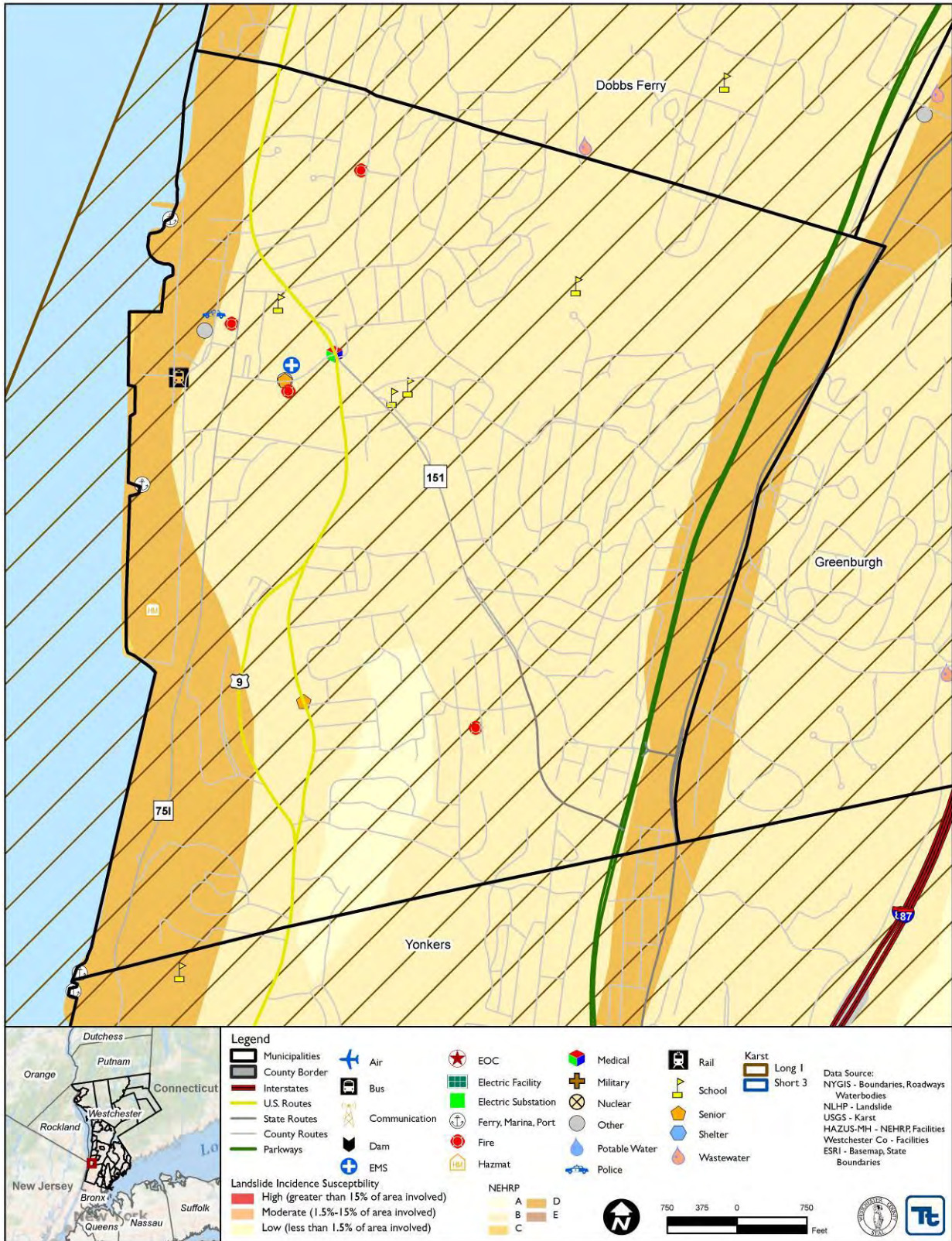


Figure 9.30-2. Village of Hastings-On-Hudson Hazard Area Extent and Location Map



**Name of Jurisdiction:** Village of Hastings on Hudson  
**Action Number:** VHH-1  
**Action Name:** Purchase and Install Remaining Firehouse Emergency Generators

Assessing the Risk	
<b>Hazard(s) addressed:</b>	All hazards related to potential power outages
<b>Specific problem being mitigated:</b>	The remaining three firehouses do not have a back-up generators in the event of a loss of power. The lack of emergency power can slow emergency response without electrical power to open the overhead doors in the fire apparatus bays. Additionally, the firehouses cannot be used as an emergency shelter, warming center or cooling center without emergency power.
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	<ol style="list-style-type: none"> <li>1. Manually open overhead doors when emergency response is necessary- This will significantly slow down response time for fire apparatus.</li> <li>2. Eliminate all firehouses as an emergency shelter during power outages- This will reduce total capacity of all shelters throughout the Village.</li> <li>3.</li> </ol>
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Installation of emergency generator, and upgrade of existing electrical service at the firehouse.
<b>Mitigation Action/Project Type</b>	SIP- Upgrade of critical facility.
<b>Goals and/or Objectives Met</b>	Goal 1- Protect Public Health and Safety Goal 2- Preserve Public Property and Critical Facility
<b>Applies to existing structures/infrastructure, future, or not applicable</b>	Existing
<b>Benefits (losses avoided)</b>	Recent Damages: Decrease response time by emergency services. Add additional emergency shelter capacity.
<b>Estimated Cost</b>	High
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible Organization</b>	VHH OEM and Fire Chief
<b>Local Planning Mechanism</b>	CEMP, Capital Plans, COOP/COG
<b>Potential Funding Sources</b>	FEMA grant with local share
<b>Timeline for Completion</b>	Short- 3 years after funding commitment
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	Date: Progress on Action/Project:

\* Refer to results of Prioritization (page 2)

Action Number:

VHH-1

Action Name:

Purchase and Install Firehouse Emergency Generators

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will protect public safety
Property Protection	1	Will allow fire crews to protect property
Cost-Effectiveness	1	Highly cost effective
Technical	1	Within the technical capabilities of the Village
Political	1	Politically supported
Legal	1	Village has all legal authority to implement
Fiscal	0	Funding not secured for all generators
Environmental	0	No environmental issues
Social	1	Supports all population equally
Administrative	1	Within the administrative capabilities of the Village
Multi-Hazard	1	Addresses all hazards to affect power loss
Timeline	0	Dependent on funding
Agency Champion	1	Fire Chief and Village Manager
Other Community Objectives	1	CEMP, fulfills Village objective to provide consistent emergency services and protection of public safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	