

9.14 TOWN OF ORANGETOWN

This section presents the jurisdictional annex for the Town of Orangetown.

9.14.1 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
James Dean – Superintendent/Highway Department Email: jdean@orangetown.com Phone: 845-359-6500 ext 4510	Stephen Munno – Administrative Assistant/Highway Department Email: smunno@orangetown.com 845-359-6500 ext 4506
NFIP Floodplain Administrator (FPA)	
John Giardiello, P.E., OBZPAE 845-359-8410 ext. 4301 jgiardiello@orangetown.com	

9.14.2 Municipal Profile

The Town of Orangetown is located along the southern and western border of Rockland County. The Town is bordered to the north by the Town of Clarkstown and its inclusive villages, to the south by the State of New Jersey, to the east by the Town of Ramapo and its inclusive villages, and to the west by the Hudson River. The following hamlets are found in the Town: Blauvelt, Orangeburg, Pearl River, Palisades, Sparkill, Tappan, and Upper Grandview. Lake Tappan and the Hudson River are major bodies of water found throughout the Town.

The Town has a total area of 31.4 square miles, of which, 24.2 square miles is land and 7.2 square miles is water. According to the 2010 Census, the community’s population was 49,212 (inclusive of the Villages of Grand View-on-Hudson, Nyack, Piermont, South Nyack). The Town is governed by the Town Board consisting of the town council and the town supervisor.

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 map in 9.14.8 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.14-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
CVS	Commercial	1	Oak Tree Rd Rt 303	NEHRP: D; WUI: Intermix	Complete
Orangeburg Commons	Commercial	2	Stephens Way and Rt. 303	None Identified.	Complete additional const. in planning stage
Fed Ex	Commercial	1	Al Foxy Way and Rt 303	NEHRP: E	Complete
Known or Anticipated Development in the Next Five (5) Years					
Commercial Bank	Commercial	1	Stephens Way and Rt 303	None Identified.	Planning



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Shopping center	Commercial	1	Rt 303 and Rt 430	Location Undetermined	Planning

* Only location-specific hazard zones or vulnerabilities identified.

9.14.3 Natural Hazard Event History Specific to the Municipality

Rockland 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 9.14-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Rockland County Designated?	Summary of Damages/Losses
March 13-31, 2010	Severe Storms and Flooding DR-1899	Yes	\$583 damages to town facilities, debris clean up throughout Town
December 26-27, 2010	Severe Winter Storm and Snowstorm DR-1957	Yes	Snow removal throughout the town, overtime costs for snow removal
August 25 – September 5, 2011	Hurricane Irene DR-4020	Yes	\$173,000 damages to town facilities, debris clean up throughout the town, various roadways closed
October 27 – November 8, 2012	Hurricane Sandy DR-4085	Yes	\$1.8 million damages to town facilities, debris clean up throughout the town, various roadways closed

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

N/A Not applicable

9.14.4 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 Town of Orangetown. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Orangetown.

Table 9.14-3. 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
Drought	Damage estimate not available	Frequent	39	High
Earthquake	100-Year GBS: \$0 500-Year GBS: \$6,162,568 2,500-Year GBS: \$112,420,027	Frequent	42	High
Extreme Temperature	Damage estimate not available	Frequent	27	Medium
Flood	1% Annual Chance: \$181,745,000	Frequent	36	High
Landslide	RCV Exposed: \$0	Rare	6	Low
Severe Storm	100-Year MRP: \$3,406,868 500-year MRP: \$19,231,034 Annualized: \$244,527	Frequent	48	High
Winter Storm	1% GBS: \$57,655,680 5% GBS: \$288,278,400	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$4,983,712,000	Frequent	54	High

Notes:

- 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 custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- d. Loss estimates for the flood and earthquake hazards represent both structure and contents.
- e. The HAZUS-MH earthquake model results are reported by Census Tract.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Orangetown.

Table 9.14-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Town of Orangetown	152	256	\$3,108,915	12	1	38

Source: FEMA Region 2, 2016

(1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 06/30/2016. The total number of repetitive loss properties does not include the severe repetitive loss properties. The number of claims represents claims closed by 06/30/16.

(2) Total building and content losses 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.

Notes: 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. A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case. Number of policies and claims and claims total exclude properties located outside county boundary, based on provided latitude and longitude.

Critical Facilities

The table below presents the critical facilities identified in the HMP that are located in the FEMA-delineated 1-and/or 0.2-percent annual chance floodplain. The table also summarizes the Hazards United States (HAZUS)

– Multi-Hazards (MH) damage estimates (if any) to each critical facility as a result of the 1-percent annual chance flood event.

Table 9.14-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
Blauvelt P.O.	Post Office	X	X	13.1	74.9
John Paulding Engine Co #1	Fire	X	X	16.7	79.5
O&R Tappan Gate Station – Gas	Hazmat	X	X	-	-
Pearl River EMS	EMS		X	-	-
Volunteer Fire Association of Tappan	Fire		X	-	-
Orangetown Wastewater Treatment Plant	Wastewater		X	-	-

Source: Hazus-MH 3.2, Rockland County

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Route 303 at Mountainview Ave (Flooding)
- Sparkill Creek (Flooding)
- Van Terrace (Flooding)
- Oak Tree Road at Corporate Drive (Flooding)
- Oak Tree Road at Van Wort Drive (Flooding)
- Bright Wood Ave in Pearl River (Flooding)

9.14.5 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 Town of Orangetown.

Table 9.14-6. 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	OBZPAE	
Capital Improvements Plan	Yes	Local	Highway Dept.	
Floodplain Management / Basin Plan	Yes	Fed	OBZPAE	Floodplain/Floodway Maps
Stormwater Management Plan	Yes	Local	DEME	Site by Site Basis
Open Space Plan	No			
Stream Corridor Management Plan	No			
Watershed Management or Protection Plan	No			
Economic Development Plan	No	County	Eco Dev. Agency	
Comprehensive Emergency Management Plan	No			
Emergency Operation Plan	Yes	Local	OPD	
Post-Disaster Recovery Plan	No			
Transportation Plan	No			
Strategic Recovery Planning Report	No			
Other Plans:	Yes	County		E911/ 44 Control
Regulatory Capability				
Building Code	Yes	State & Local	OBZPAE	N.Y.S Codes
Zoning Ordinance	Yes	Local	OBZPAE	Chapter 43
Subdivision Ordinance	Yes	Local	OBZPAE	Chapter 21
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	OBZPAE	Chapter 14B
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State, Local	OBZPAE	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	OBZPAE	Chapter 21A
Stormwater Management Ordinance	Yes	Local	DEME	
Municipal Separate Storm Sewer System (MS4)	Yes	State, Local	DEME	
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			

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.)
Real Estate Disclosure Requirement	Yes	State		NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Yes	Local	OBZPAE	Critical Environment Area

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Orangetown.

Table 9.14-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	OBZPAE
Mitigation Planning Committee	No	
Environmental Board/Commission	No	
Open Space Board/Committee	No	
Economic Development Commission/Committee	No	
Maintenance programs to reduce risk	Yes	ODPW Highway
Mutual aid agreements	Yes	Orangetown Highway
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	OBZPAE and DEME
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	OBZPAE and DEME
Planners or engineers with an understanding of natural hazards	Yes	OBZPAE
NFIP Floodplain Administrator (FPA)	Yes	OBZPAE
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	OBZPAE (GIS)
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	HJ
Grant writer(s)	Yes	Supervisors Office
Staff with expertise or training in benefit/cost analysis	Yes	Finance
Professionals trained in conducting damage assessments	Yes	OBZPAE

Fiscal Capability



The table below summarizes financial resources available to the Town of Orangetown.

Table 9.14-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	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
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other	N/A

Community Classifications

The table below summarizes classifications for community program available to the Town of Orangetown.

Table 9.14-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No		
Building Code Effectiveness Grading Schedule (BCEGS)	Yes		
Public Protection (ISO Fire Protection Classes 1 to 10)	No		
NYSDEC Climate Smart Community	Yes		
Storm Ready Certification	No		
Firewise Communities classification	No		
Natural disaster/safety programs in/for schools	Yes		
Organizations with mitigation focus (advocacy group, non-government)	No		
Public education program/outreach (through website, social media)	Yes		
Public-private partnership initiatives addressing disaster-related issues	Yes		Annual meeting

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

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 <https://www.isomitigation.com/ppc/>
- The National Weather Service Storm Ready website at <http://www.stormready.noaa.gov/index.html>
- The National Firewise Communities website at <http://firewise.org/>

Self-Assessment of Capability

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

Table 9.14-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

John Giardiello – PE, CFM

Flood Vulnerability Summary

Currently, the municipality does not maintain a list or inventory of properties that have been flood damaged. However, there is an inventory of floodplain development permits that have been issued, which includes mitigation of flood damaged properties. During recent storms, including Floyrd, irene, and Sandy, the Town has seen damages to residential and commercial structures. The Town makes Substantial Damage estimates, and one is being evaluated for Hurricane Sandy. One residential building on the Hudson River was evaluated

in accordance with the advisory base flood elevation. Property owners are responsible for funding mitigation efforts.

Resources

The FPA is the sole person assuming the responsibilities of floodplain administration. The NFIP administration services and functions provided by the department include permit review, inspections, damage assessment, and record-keeping. The FPA provided the public information regarding new floodplain maps and regulations when they were adopted. The FPA identified staffing, training, and funding to be barriers to effectively running the floodplain management program in the Town. The FPA indicated that he has been trained over the past three years to be adequately supported to fulfill floodplain administration responsibilities. The FPA would attend continuing education and/or certification training on floodplain management if offered in the County.

Compliance History

The community is in good-standing in the NFIP, and the most recent Community Assistance Visit was performed in 2015.

Regulatory

The community's floodplain management regulations and ordinances meet the minimum FEMA and state requirements. Other local planning and zoning ordinances, plans, or programs that support floodplain management and meeting the NFIP requirements include site plan review and Zoning Board of Adjustments variances take into account efforts to reduce flood risk during review. The community is not a part of the Community Rating System program and has not considered joining.

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

Comprehensive Plan (2003): The Town's Comprehensive Plan details the planning goals and objectives regarding land-use, environmental resources, economic development, etc. A major focus on the Comprehensive Plan that is incorporated throughout the various planning elements is the protection and preservation of open space and environmental resources. The Plan addresses the role of increased development on stormwater runoff and flooding; maintaining open space throughout the Town is critical in lessening the impacts of flooding, specifically around major waterways, including the Sparkill Creek.

Land Use Planning: The Town of Orangetown has a Planning Board, Zoning Board of Appeals, Architecture & Community Appearance Board of Review, and Historic Areas Board of Review, which review all applications for development and consider natural hazard risk areas in their review. The Department of Planning Services coordinates the efforts of each of these boards, including the Shade Tree Commission and the Citizens' Zoning Advisory Committee. Many development activities require additional levels of environmental review, specifically NYS SEQR requirements.

Regulatory and Enforcement (Ordinances)

Flood Damage Prevention: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Stormwater Management: Chapter 41 of the Town Code deals with ‘Watercourse Diversion and Pollution.’ This ordinance aims to protect the health, well-being, and property of residents in the Town by regulating the use, obstruction and diversion of streams and watercourses. The Town Board wants to prevent unwise diversion and obstructions of streams and watercourses and correct existing abuses which cause drainage problems.

Building Construction Administration: In accordance to Title 19 NYCRR 1203.2(a), the Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code). The Code Enforcement Officer administers and enforces all of the provisions and laws applicable to the Uniform and Energy Code.

Funding

Grants: Between 2013 and 2015, the Town received approximately \$5 million in grants and funding from New York State for various projects, including water quality and flood control improvements for Sparkill Creek, as stated in the 2016 Supervisor Budget Presentation. The Town has also received grants from the Dormitory Authority of the State of New York for \$1.2 million for a bridge replacement, a \$50,000 grant from the Hudson River Estuary Program for engineering of a culvert replacement, and a grant for \$895,000 for the construction of a bioretention basin from the NYS Environmental Facilities Corporation. The Town is seeking additional grant funding for the bridge replacement.

Education and Outreach

The Town utilizes various social media outlets, including Facebook and Instagram, to keep residents up-to-date with what is currently happening in the Town. The Police Department also uses these same outlets to provide the community with information regarding recent crime events, public utility outages, and other hazard related events in the Town and surrounding communities

Rockland County provides the following services to its municipalities:

- County provides Towns and Villages palm-cards on winter storms; information regarding flooding; hurricane; high-winds, tornadoes via email and social media (Twitter and Facebook).
- Emergency Notification Systems: Rockland County has mapping services available to municipalities through their on-line web map portal. Disaster Land is a web-based emergency management software system; municipalities are granted access to it; flood inundation zones are incorporated into it so Emergency Coordinator from the municipality has access to it 24/7 on smart phone/laptop/desktop. The County utilizes NY-Alert and CodeRed (the backup to NY-Alert) for emergency notifications (all Towns and Villages have access to it). There is a mailbox for known inundation areas to target outreach as needed; and have license for FEMA’s IPAWS to issue notifications.

9.14.6 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 2010 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 9.14-11. Status of Previous Mitigation Actions

<u>Action Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2018 HMP or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Old OT-1	Oak Tree Road Bridge – Tappan, NY – replace existing 1878 bridge that has inadequate peak flow capacity.	Orangetown Highway Department	Complete	1. 100% 2. Complete Bridge Replaced 3. NYS Grants, Local budget	Discontinue	Complete
Old OT-2	Route 303 Culvert – Orangeburg, NY – undersized culvert on private roadway on the Sparkill Creek is undersized.	Orangetown Highway Department	In progress	1. 50% 2. In grant process to replace culvert, funding was received for engineering; funding needed for construction 3. NYS Grants	Include in 2018 HMP	Seek funding for construction
Old OT-3	Villa Drive – Pearl River, NY – existing culvert crossing Villa Drive, a town road, is undersized.	Orangetown Highway Department	In progress	1. 0% 2. Looking into engineering - working with Engineering Department 3. No funding secured	Include in 2018 HMP	Outreach to Department and seek funding
Old OT-4	Blauvelt Road “Brunard Ditch” – Pearl River, NY – existing culvert is undersized.	Orangetown Highway Department	In progress	1. 10% 2. Looking into engineering - working with Engineering Department 3. No funding secured	Include in 2018 HMP	Outreach to Department and seek funding
Old OT-5	Ehrhardt Road – Pearl River, NY – stone retaining wall erosion.	Orangetown Highway Department	In progress	1. 10% 2. Looking into engineering - working with Engineering Department 3. No funding secured	Include in 2018 HMP	Outreach to Department and seek funding
1.B	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.	CPG member; Town Supervisor	In progress	1. 10% complete 2. The item is being discussed. 3. No funding secured	Include in 2018 HMP	Actively work to complete/update comprehensive plans; secure funding
2.A	Expand and disseminate GIS and other hazard information on the internet.	CPG member; Town Supervisor	No Progress	1. 0% complete 2. The item is being discussed. 3. No funding secured	Include in 2018 HMP	Seek funding and resources

<u>Action Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2018 HMP or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Old OT-6	Work with local municipalities to pursue the development of an Emergency Notification System call perimeter for high risk locations of natural hazards with delineable hazard areas. Rockland County staff will make aerial mapping available, along with GIS mapping for natural hazards that was completed as part of the hazard mitigation planning project. The County will also facilitate the utilization of the Emergency Notification System by municipalities.	CPG member; Town Supervisor	Complete	<p>Rockland County has mapping services available to municipalities through their on-line web map portal.</p> <p>Disaster Land is a web-based emergency management software system; municipalities are granted access to it; flood inundation zones are incorporated into it so Emergency Coordinator from the municipality has access to it 24/7 on smart phone/laptop/desktop.</p> <p>The County utilizes NY-Alert and CodeRed (the backup to NY-Alert) for emergency notifications (all Towns and Villages have access to it; New Hempstead not using CodeRed). There is a mailbox for known inundation areas to target outreach as needed; and have license for FEMA's IPAWS to issue notifications.</p>	Discontinue	Complete



Action Number	2010 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 2018 HMP or Discontinue)	Describe Next Step 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Old OT-7	Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.	CPG member; Town Supervisor	No progress	1. 0% complete 2. The item is being discussed. 3. No funding secured	Include in 2018 HMP	Work to plan workshops to educate the public on these issues
4.F	Continue to implement best management practices for floodplain areas.	CPG member; Town Supervisor	Complete	1. 100% 2. Continually looking for best management practices during new development and redevelopment 3. Local budget	Discontinue	Action no longer required – standard practice

<u>Action Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2018 HMP or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
4.G	Identify and document repetitively flooded properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.	CPG member; Town Supervisor	In progress	1. 10% complete 2. The item is being discussed. 3. No funding secured	Include in 2018 HMP	Initiate outreach to property owners to discuss potential mitigation actions; secure funding
4.J	Develop specific mitigation solutions for floodprone road systems (roads, bridges, intersections, drainage, etc.) under the leadership of County DPW.	CPG member; Town Supervisor	Complete	1. 100% 2. Town has completed various activities including bridge replacements and culvert upgrades 3. NYS Grants, Local budget	Discontinue	Complete
13.A	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.	CPG member; Town Supervisor	No Progress	1. 0% complete 2. The item was not discussed. 3. No funding secured	Include in 2018 HMP	Updated critical facility specific actions for flooding added for 2018 Update; secure funding
11.B	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.	CPG member; Town Supervisor	No Progress	1. 0% complete 2. The item was not discussed. 3. No funding secured	Include in 2018 HMP	Actively focus on reviewing emergency response plans and work to educate/involve the public

Action Number	2010 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 2018 HMP or Discontinue)	Describe Next Step 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Old OT-8	Public awareness program on hazards, prevention and mitigation: assist CPG Chairperson in maintenance of mitigation planning web presence; assist CPG Chairperson in preparation of annual hazards and mitigation planning fact sheet and its distribution; assist CPG chairperson in preparation of hazards survey; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/TV announcements, etc. at the discretion of the jurisdiction (incorporating as much free information as possible from the FEMA publications warehouse and other appropriate sources).	RCOFES lead with direct participation and involvement form each jurisdiction's CPG member	Complete	1. 100% 2. Police Department, Fire Department and Office of Emergency Management Committee provide information to the public online 3. Local budget	Discontinue	Complete
Old OT-9	Code update: review existing local codes and ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.	Each jurisdictional CPG member	No progress	1. 0% complete 2. The item was not discussed. 3. No funding secured	Include in 2018 HMP	Actively review existing codes and ordinances against the newly identified hazard areas
Old OT-10	Code enforcement: enforcement of NYS and local building codes	Each jurisdictional CPG member	Complete	1. Complete 2. Building codes enforced 3. Local budget	Discontinue	Action no longer required – standard practice

<u>Action Number</u>	<u>2010 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Step</u> (Include in 2018 HMP or Discontinue)	<u>Describe Next Step</u> 1. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Old OT-11	Update/review floodplain management ordinances to be consistent with potential future new FIRMs	Office of Building, Zoning, Planning, Administration and Enforcement	No progress	1. 0% complete 2. The item was not discussed. 3. No funding secured	Include in 2018 HMP	Obtain most up-to-date FEMA data and compare with existing ordinances
Old OT-12	Require staff involved in floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Office of Building, Zoning, Planning, Administration and Enforcement	Complete	1. 100% complete 2. John Giardiello, the FPA, is a CFM	Discontinue	Complete
Old OT-13	Implement floodplain compensating storage	Office of Building, Zoning, Planning, Administration and Enforcement	In progress	1. 10% 2. The item was discussed 3. No funding secured	Include in 2018 HMP	Obtain funding and determining optimal locations for floodplain compensating storage

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Town of Orangetown has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Increase culvert size on Route 303
- Increase culvert size on Villa Drive – Pearl River
- Increase culvert size on Blauvelt Road – “Brunard Ditch” – Pearl River
- Install drainage pipe and drainage junction structures along “ Brunard Ditch” – Pearl River
- Install drainage pipe and drainage structures along the Cherry Brook Creek – Pearl River
- Potential detention/Retention Basin Flood Mitigation Project on Oak Tree Road and Rockland Park Road – Tappan
- Potential Detention/Retention Basin Flood Mitigation Project on Oak Tree Road and Route 340 - Sparkill

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Orangetown participated in a mitigation action workshop in February 16, 2017 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).

Table 9.14-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Orangetown would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.14-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
OT-1 (Old OT-2)	Route 303 Culvert – Orangeburg, NY – undersized culvert on private roadway on the Sparkill Creek is undersized.	Existing	Flooding, Severe Storm	1, 2, 4	Orangetown Highway Department	High	High	Municipal funding; Grant funding	DOF	High	SIP	SP
OT-2 (Old OT-3)	Villa Drive – Pearl River, NY – existing culvert crossing Villa Drive, a town road, is undersized.	Existing	Flooding, Severe Storm	1, 2, 4	Orangetown Highway Department	High	High	Municipal funding; Grant funding	DOF	Medium	SIP	SP
OT-3 (Old OT-4)	Blauvelt Road “Brunard Ditch” – Pearl River, NY – existing culvert is undersized.	Existing	Flooding, Severe Storm	1, 2, 4	Orangetown Highway Department	High	High	Municipal funding; Grant funding	DOF	Medium	SIP	SP
OT-4 (Old OT-5)	Ehrhardt Road – Pearl River, NY – stone retaining wall erosion.	Existing	Flooding, Severe Storm	1, 2, 4	Orangetown Highway Department	High	High	Municipal funding; Grant funding	DOF	High	SIP	SP
OT-5 (Old 1.B)	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.	N/A	All Hazards	1, 2, 3, 5, 7	CPG member; <u>Town Supervisor</u>	Medium	Low	Municipal budget	DOF	Medium	LPR, EAP	PI, PR
OT-6 (Old 2.A)	Expand and disseminate GIS and other hazard information on the internet.	N/A	All Hazards	All	CPG member; <u>Town Supervisor</u>	Medium	Medium	Municipal funding; Grant funding	DOF	Medium	EAP	PI
OT-7 (Old OT-7)	Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.	N/A	All Hazards	1, 2, 3, 5, 7	CPG member; <u>Town Supervisor</u>	High	Low	Municipal Budget	Ongoing	Low	EAP	PI
OT-8 (Old)	Identify and document repetitively flooded	Existing	Flooding, Severe Storm	1, 2, 3, 5, 7	CPG member; <u>Town</u>	High	Low	Municipal Budget	Ongoing	High	LPR, EAP	PR, PI



Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
4.G)	properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.				<u>Supervisor</u>							
OT-9 (Old 13.A)	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.	Existing	All Hazards	1, 2, 5, 7	CPG member; <u>Town Supervisor</u>	Medium	Low	Municipal budget	Short	Medium	LPR	PR
OT-10 (Old 11.B)	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.	N/A	All Hazards	1, 2, 5, 7	CPG member; <u>Town Supervisor</u>	Medium	Low	Municipal budget	DOF	High	LPR	PR



Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
OT-11 (Old OT-9)	Code update: review existing local codes and ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.	N/A	All	1, 2, 3, 5, 7	Jurisdictional CPG member	Medium	Low	Municipal budget	Short	High	LPR	PR
OT-12 (Old OT-11)	Update/review floodplain management ordinances to be consistent with potential future new FIRMs	N/A	Flood	1, 2, 3, 7	Office of Building, Zoning, Planning, Administration and Enforcement	Medium	Low	Municipal budget	Short	High	EAP	PI
OT-13 (Old OT-13)	Implement floodplain compensating storage	N/A	Flood, Severe Storm	1, 2, 4, 6	Office of Building, Zoning, Planning, Administration and Enforcement	High	High	Municipal budget; Grant funding	DOF	High	SIP, NSP	SP, NR
OT-14	Develop and maintain mapping of all natural hazard risk areas in the Town, FEMA delineated or otherwise, to support land use decision making (e.g. Planning Board, site plan review process)	New/Existing	All Hazard	1, 2, 3, 4, 6	Engineering; Office of Building, Zoning, Planning, Administration and Enforcement	Medium	Low	Municipal Budget	DOF	Medium	EAP	PI
OT-15	The following were	Existing	Flood	1, 2, 4, 6	Private Property	High	Low	Municipal budget	Short	High	SIP	PP



Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<p>identified as critical facilities potentially vulnerable to flood events. The Town does not have jurisdiction over these facilities to mitigate. The Town will notify the facility manager/operator regarding potential mitigation options and funding for implementation to consider. Potential projects may include elevation of structure and/or critical mechanics, floodproofing structure or entries/lowest floor, relocation. The Town to inform owners that NYS requires that any mitigation addresses the 500-year flood event or “worst damage scenario”</p> <p>-Blauvelt Post Office -John Paulding Engine Co #1 -O&R Tappan Gate Station – Gas -Pearl River EMS -Volunteer Fire Association of Tappan</p>				<p><u>Owners with Support from the Town:</u> Engineering; Office of Building, Zoning, Planning, Administration and Enforcement</p>							
OT-16	Pipe in open ditches and add additional drainage along the Cherry Brook on Bright Wood Ave	N/A	Flood	1, 2, 4, 6	<p><u>Engineering:</u> Office of Building, Zoning, Planning,</p>	High	Medium	Municipal budget	Short	High	SIP, NSP	SP, NR

Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
					Administration and Enforcement							
OT-17	Investigate mitigation options, including flood-proofing, elevation, etc., to protect the Orangetown Wastewater Treatment Plant up to the 500-year flood elevation and implement the most effective strategy.	Existing	Flood	1, 2, 4, 6	Engineering; Office of Building, Zoning, Planning, Administration and Enforcement	High	High	Municipal budget; Grant funding	DOF	High	SIP	PP

Notes:

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

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

Acronyms and Abbreviations:

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
 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.

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.



Costs:

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

Benefits:

- 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 9.14-13. 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
OT-1	Route 303 Culvert – Orangeburg, NY – undersized culvert on private roadway on the Sparkill Creek is undersized.	1	1	1	1	0	1	-1	1	1	1	0	0	1	0	8	High
OT-2	Villa Drive – Pearl River, NY – existing culvert crossing Villa Drive, a town road, is undersized.	1	1	1	1	0	1	-1	1	1	1	0	0	1	0	8	Medium
OT-3	Blauvelt Road “Brunard Ditch” – Pearl River, NY – existing culvert is undersized.	1	1	1	1	0	1	-1	1	1	1	0	0	1	0	8	Medium
OT-4	Ehrhardt Road – Pearl River, NY – stone retaining wall erosion.	1	1	1	1	0	1	-1	1	1	1	0	0	1	0	8	High
OT-5	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.	1	1	1	1	1	0	1	0	0	1	1	0	0	0	8	Medium
OT-6	Expand and disseminate GIS and other hazard information on the internet.	1	1	1	1	0	0	1	0	0	1	1	0	0	0	7	Medium
OT-7	Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.	1	1	1	1	0	0	1	0	1	1	1	0	1	0	9	Low
OT-8	Identify and document repetitively flooded properties. Work with	1	1	1	1	0	0	1	0	1	1	1	0	1	0	9	High

Table 9.14-13. 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
	owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.																
OT-9	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.	1	1	1	1	0	0	0	0	1	1	1	0	1	0	8	Medium
OT-10	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.	1	1	1	1	1	0	1	0	0	1	1	0	0	0	8	High
OT-11	Code update: review existing local codes and ordinances	1	1	1	1	0	0	0	0	1	1	1	0	1	0	8	High

Table 9.14-13. 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
	against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.																
OT-12	Update/review floodplain management ordinances to be consistent with potential future new FIRMs	1	1	1	1	0	0	0	0	1	1	1	0	1	0	8	High
OT-13	Implement floodplain compensating storage	1	1	1	1	0	0	0	1	0	1	0	0	0	0	6	High
OT-14	Develop and maintain mapping of all natural hazard risk areas in the Town, FEMA delineated or otherwise, to support land use decision making (e.g. Planning Board, site plan review process)	1	1	1	1	0	1	1	0	0	1	1	0	0	0	8	Medium
OT-15	The following were identified as critical facilities potentially vulnerable to flood events. The Town does not have jurisdiction over this facility to mitigate. The Town will notify the facility manager/operator regarding potential mitigation options and funding for implementation to consider. Potential	1	1	1	1	0	1	0	0	0	1	0	0	0	0	6	High

Table 9.14-13. 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	
	<p>projects may include elevation of structure and/or critical mechanics, floodproofing structure or entries/lowest floor, relocation. The Town to inform owners that NYS requires that any mitigation addresses the 500-year flood event or “worst damage scenario”</p> <ul style="list-style-type: none"> -Blauvelt Post Office -John Paulding Engine Co #1 -O&R Tappan Gate Station – Gas -Pearl River EMS -Volunteer Fire Association of Tappan 																	
OT-16	Pipe in open ditches and add additional drainage along the Cherry Brook on Bright Wood Ave	1	1	1	1	0	0	1	1	0	1	0	1	0	0	7	High	
OT-17	Investigate mitigation options, including flood-proofing, elevation, etc., to protect the Orangetown Wastewater Treatment Plant up to the 500-year flood elevation and implement the most effective strategy.	1	1	1	1	0	1	-1	0	0	1	0	0	0	0	5	High	

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.14.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

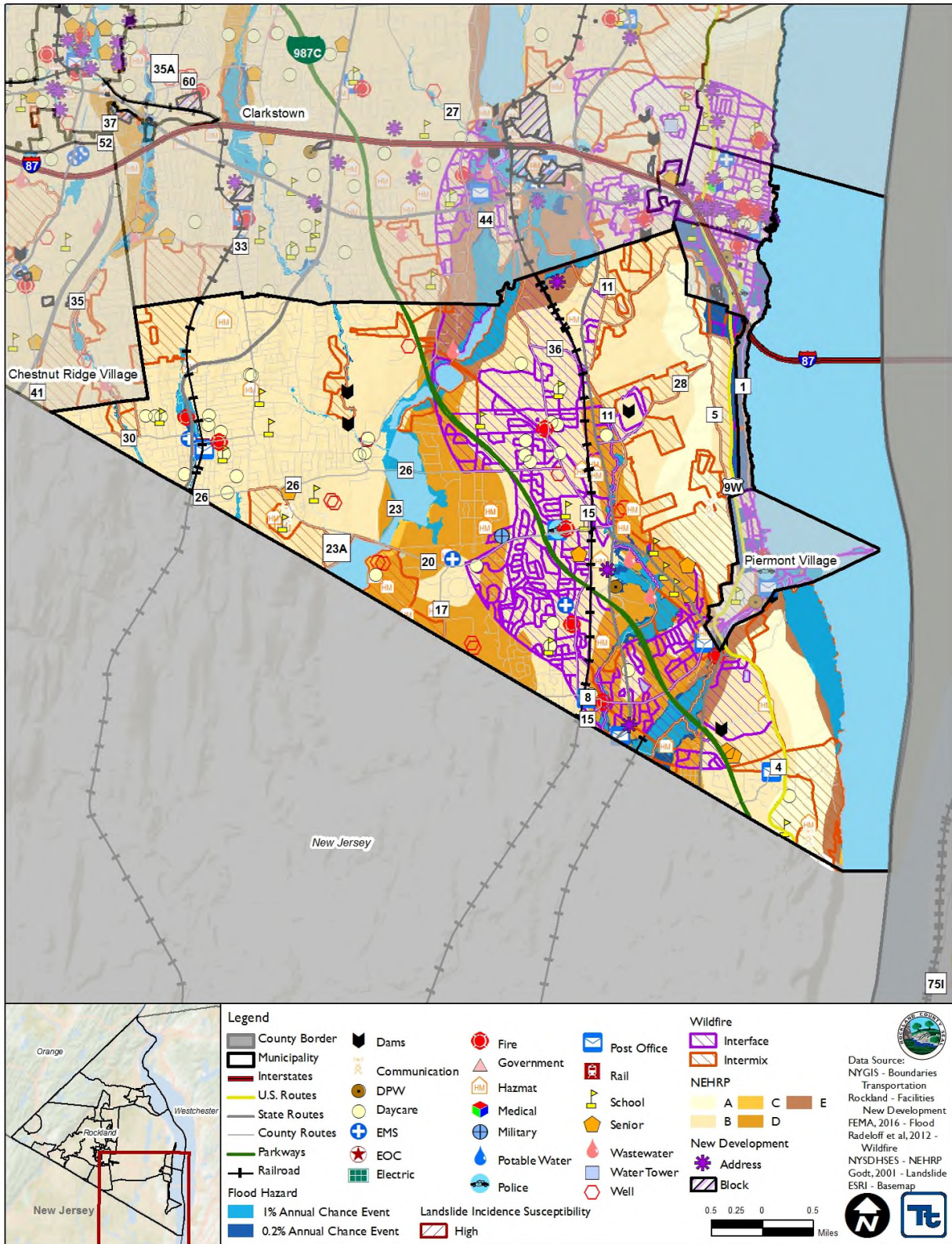
9.14.8 Hazard Area Extent and Location

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

9.14.9 Additional Comments

None at this time.

Figure 9.14-1. Town of Orangetown Hazard Area Extent and Location Map



Action Number:

OT-1

Mitigation Action Name:

Route 303 Culvert – Orangeburg, NY – undersized culvert on private roadway on the Sparkill Creek is undersized.

Assessing the Risk	
Hazard(s) addressed:	Flooding, Severe Storm
Specific problem being mitigated:	Undersize culvert on Route 303, which leads to flooding issues along the roadway
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Move Route 303 and private roadway and remove culvert – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project will upgrade or replace the existing culvert and allow for improved stormwater drainage.
Mitigation Action Type	SIP
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Orangetown Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal funding; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: In grant process to replace culvert, funding was received for engineering; funding needed for construction

Action Number:

OT-1

Mitigation Action Name:

Route 303 Culvert – Orangeburg, NY – undersized culvert on private roadway on the Sparkill Creek is undersized.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	-1	Need to seek funding – municipal budget or grants
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	DOF – may take more than five years to complete
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number:

OT-2

Mitigation Action Name:

Villa Drive – Pearl River, NY – existing culvert crossing Villa Drive, a town road, is undersized.

Assessing the Risk	
Hazard(s) addressed:	Flooding, Severe Storm
Specific problem being mitigated:	Undersize culvert on Villa Drive, which leads to flooding issues along the roadway
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Move Villa Drive and remove culvert – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project will upgrade or replace the existing culvert and allow for improved stormwater drainage.
Mitigation Action Type	SIP
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Orangetown Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal funding; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Looking into engineering - working with Engineering Department

Action Number:

OT-2

Mitigation Action Name:

Villa Drive – Pearl River, NY – existing culvert crossing Villa Drive, a town road, is undersized.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	-1	Need to seek funding – municipal budget or grants
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	DOF – may take more than five years to complete
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number:

OT-3

Mitigation Action Name:

Blauvelt Road “Brunard Ditch” – Pearl River, NY – existing culvert is undersized.

Assessing the Risk	
Hazard(s) addressed:	Flooding, Severe Storm
Specific problem being mitigated:	Undersize culvert on Blauvelt Road, which leads to flooding issues along the roadway
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Move Blauvelt Road and remove culvert – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project will upgrade or replace the existing culvert and allow for improved stormwater drainage.
Mitigation Action Type	SIP
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Orangetown Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal funding; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Looking into engineering - working with Engineering Department

Action Number:

OT-3

Mitigation Action Name:

Blauvelt Road "Brunard Ditch" – Pearl River, NY – existing culvert is undersized.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	-1	Need to seek funding – municipal budget or grants
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	DOF – may take more than five years to complete
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number:

OT-4

Mitigation Action Name:

Ehrhardt Road – Pearl River, NY – stone retaining wall erosion.

Assessing the Risk	
Hazard(s) addressed:	Flooding, Severe Storm
Specific problem being mitigated:	Erosion along the bank may compromise the integrity of the roadway.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Move roadway back away from stream – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Town is looking to construct a stone retaining wall along stream.
Mitigation Action Type	SIP
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Orangetown Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal funding; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Looking into engineering - working with Engineering Department

Action Number:

OT-4

Mitigation Action Name:

Ehrhardt Road – Pearl River, NY – stone retaining wall erosion.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	-1	Need to seek funding – municipal budget or grants
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	DOF – may take more than five years to complete
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number:

OT-5

Mitigation Action Name:

Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	The current comprehensive plan does not incorporate natural disaster mitigation techniques
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Ask local colleges and universities to review plans – may not be interested/capable
Action/Project Intended for Implementation	
Description of Selected Action/Project	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.
Mitigation Action Type	LPR, EAP
Goals Met	1, 2, 3, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Planning Board Review
Potential Funding Sources	Municipal budget
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Action has been discussed; Actively work to complete/update comprehensive plans; secure funding.

Action Number:

OT-5

Mitigation Action Name:

Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review or draft plans by the County Planning Department.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	DOF – may take more than five years to complete
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number:

OT-6

Mitigation Action Name:

Expand and disseminate GIS and other hazard information on the internet.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Lack of public knowledge on the spatial extent of hazards.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Ask local colleges and universities to expand and disseminate GIS – may not be capable/willing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Provide GIS hazard information online for residents and others in the community to view the Village's hazard vulnerabilities.
Mitigation Action Type	EAP
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Hazard Mitigation, Public Education
Potential Funding Sources	Municipal funding; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Seeking funding and resources

Action Number:

OT-6

Mitigation Action Name:

Expand and disseminate GIS and other hazard information on the internet.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	DOF – may take more than five years to complete
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number:

OT-7

Mitigation Action Name:

Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	The public may not be aware of the Village's hazard vulnerabilities and planning/zoning decisions.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards
Action/Project Intended for Implementation	
Description of Selected Action/Project	Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.
Mitigation Action Type	EAP
Goals Met	1, 2, 3, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Low
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Hazard Mitigation, Public Education
Potential Funding Sources	Municipal Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Working to plan workshops to educate the public on these issues

Action Number:

OT-7

Mitigation Action Name:

Hold periodic workshops regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Municipal budget
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	Ongoing
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Low	

Action Number:

OT-8

Mitigation Action Name:

Identify and document repetitively flooded properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.

Assessing the Risk	
Hazard(s) addressed:	Flooding, Severe Storm
Specific problem being mitigated:	Repetitively flooded properties place an undue stress on the property owner and village and efforts should be made to mitigate them.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Identify areas where repetitive loss is likely – approach not as focused, may be more costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify and document repetitively flooded properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.
Mitigation Action Type	LPR, EAP
Goals Met	1, 2, 3, 5, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Hazard Mitigation, Public Education
Potential Funding Sources	Municipal Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Need to initiate outreach to property owners to discuss potential mitigation actions; secure funding

Action Number:

OT-8

Mitigation Action Name:

Identify and document repetitively flooded properties. Work with owners to explore mitigation opportunities for repetitively flooded properties, and if appropriate and feasible, carry out acquisition, relocation, elevation and floodproofing measures to protect these properties.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Municipal budget
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Ongoing
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number:

OT-9

Mitigation Action Name:

Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	If facilities were built before a certain date, they could be more susceptible to damage from a hazard event.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Rebuild all critical facilities and shelters - cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.
Mitigation Action Type	LPR
Goals Met	1, 2, 5, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Action has not been discussed; must secure funding

Action Number:

OT-9

Mitigation Action Name:

Determine the year built and level of protection for critical emergency facilities and shelters to highlight structures built before codes and standards were put in place to provide some degree of protection from natural hazards, and pursue potential mitigation opportunities to protect these sites as funding becomes available.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Municipal budget
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number:

OT-10

Mitigation Action Name:

Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	The current emergency response plans do not implement monitoring or warning systems
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Rewrite emergency response plans but do not include enhancements – problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.
Mitigation Action Type	LPR
Goals Met	1, 2, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	CPG member; Town Supervisor
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Municipal budget
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Actively focus on reviewing emergency response plans and work to educate/involve the public

Action Number:

OT-10

Mitigation Action Name:

Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	DOF
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number:

OT-11

Mitigation Action Name:

Code update: review existing local codes and ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	New vulnerabilities could have emerge or existing vulnerabilities could have worsen, which could warrant a code update.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Encourage residents to use higher standards but do not enforce – sporadic impact
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Village would like to review and potentially update their existing local codes/ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.
Mitigation Action Type	LPR
Goals Met	1, 2, 3, 5, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Jurisdictional CPG member
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Unable to secure funding

Action Number:

OT-11

Mitigation Action Name:

Code update: review existing local codes and ordinances against the identified hazards to determine whether there needs to be any amendments to address identified hazards and, where a need is identified; modify/amend the codes/ordinances as applicable.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Municipal budget
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number:

OT-12

Mitigation Action Name:

Update/review floodplain management ordinances to be consistent with potential future new FIRMs

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Future FIRMS could show the need for a more stringent flood ordinance if risk has increased.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Write new floodplain management ordinance with every new FIRM – not cost effective and repetitive
Action/Project Intended for Implementation	
Description of Selected Action/Project	Update/review floodplain management ordinances to be consistent with potential future new FIRMs
Mitigation Action Type	EAP
Goals Met	1, 2, 3, 7
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Office of Building, Zoning, Planning, Administration and Enforcement
Local Planning Mechanism	Village Board/Zoning Board
Potential Funding Sources	Municipal budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Must obtain most up-to-date FEMA data and compare with existing ordinances

Action Number:

OT-12

Mitigation Action Name:

Update/review floodplain management ordinances to be consistent with potential future new FIRMs

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Municipal budget
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number:

OT-13

Mitigation Action Name:

Implement floodplain compensating storage

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Past development within the floodplain has increased the flood risk over time, designing stormwater storage areas within the floodplain will help to offset these increase.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Increase stormwater system carrying capacity to move runoff to local streams faster – increases flooding potential in natural systems, cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	Design stormwater storage within the floodplain to compensate for development that has occurred.
Mitigation Action Type	SIP, NSP
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Office of Building, Zoning, Planning, Administration and Enforcement
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Must obtain funding and determining optimal locations for floodplain compensating storage

Action Number:

OT-13

Mitigation Action Name:

Implement floodplain compensating storage

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Municipal budget or grant funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood, Severe Storm
Timeline	0	DOF
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	High	

Action Number: OT-14
Mitigation Action Name: Develop and maintain mapping of all natural hazard risk areas in the Town, FEMA delineated or otherwise, to support land use decision making (e.g. Planning Board, site plan review process)

Assessing the Risk	
Hazard(s) addressed:	All Hazard
Specific problem being mitigated:	Development in hazard areas can lead to avoidable casualties and property damage.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Request assistance from local colleges and universities in developing mapping – may not be feasible, sustainable
Action/Project Intended for Implementation	
Description of Selected Action/Project	Spatial database of all natural hazard risk areas in the Village will allow land use decision makers to plan safe and resilient communities and developments.
Mitigation Action Type	EAP
Goals Met	1, 2, 3, 4, 6
Applies to existing and or new development, or not applicable	New/Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Engineering; Office of Building, Zoning, Planning, Administration and Enforcement
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress, new action

Action Number:

OT-14

Mitigation Action Name:

Develop and maintain mapping of all natural hazard risk areas in the Town, FEMA delineated or otherwise, to support land use decision making (e.g. Planning Board, site plan review process)

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	1	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All
Timeline	0	DOF
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number:

OT-15

Mitigation Action Name:

Critical facilities located in floodplain

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	There are five critical facilities in the Town located in the floodplain and vulnerable to a flood event. Critical facilities located in the floodplain are not only susceptible to flood damage but also create unnecessary complications for the municipality during an emergency event and post-disaster recovery.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Town to hire outside contractor to conduct outreach to private property owners and evaluate mitigation options - cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	The following were identified as critical facilities potentially vulnerable to flood events. The Town does not have jurisdiction over this facility to mitigate. The Town will notify the facility manager/operator regarding potential mitigation options and funding for implementation to consider. Potential projects may include elevation of structure and/or critical mechanics, floodproofing structure or entries/lowest floor, relocation. The Town to inform owners that NYS requires that any mitigation addresses the 500-year flood event or “worst damage scenario” -Blauvelt Post Office -John Paulding Engine Co #1 -O&R Tappan Gate Station – Gas -Pearl River EMS -Volunteer Fire Association of Tappan
Mitigation Action Type	SIP
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	‘Private Property Owners’ with Village support
Local Planning Mechanism	Hazard Mitigation, Public Education
Potential Funding Sources	Municipal budget
Timeline for Completion	Short
Reporting on Progress	

Date of Status Report/ Report of Progress	No progress, new action
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Action Number:

OT-15

Mitigation Action Name:

Critical facilities located in floodplain

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	High	

Action Number:

OT-16

Mitigation Action Name:

Pipe in open ditches and add additional drainage along the Cherry Brook on Bright Wood Ave

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Flooding along Bright Wood Ave in Pearl River as a result of excess stormwater flowing into the waterway.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Move Cherry Brook – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Investigation into the feasibility of construction open ditches and additional drainage along the Cherry Brook.
Mitigation Action Type	SIP, NSP
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Engineering; Office of Building, Zoning, Planning, Administration and Enforcement
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress, new action

Action Number:

OT-16

Mitigation Action Name:

Pipe in open ditches and add additional drainage along the Cherry Brook on Bright Wood Ave

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	1	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number:

OT-17

Mitigation Action Name:

Investigate mitigation options, including flood-proofing, elevation, etc., to protect the Orangetown Wastewater Treatment Plant up to the 500-year flood elevation and implement the most effective strategy.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Facility is located within the 500-year floodplain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No Action - current problem continues Protect Plant to 100-year flood – does not meet standards
Action/Project Intended for Implementation	
Description of Selected Action/Project	Determine which type of mitigation option will prove most effective to protecting the Wastewater Treatment Plant and implement the action.
Mitigation Action Type	SIP
Goals Met	1, 2, 4, 6
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Engineering; Office of Building, Zoning, Planning, Administration and Enforcement
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget; Grant funding
Timeline for Completion	DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress, new action

Action Number:

OT-17

Mitigation Action Name:

Investigate mitigation options, including flood-proofing, elevation, etc., to protect the Orangetown Wastewater Treatment Plant up to the 500-year flood elevation and implement the most effective strategy.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	-1	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	5	
Priority (H/M/L)	High	