

## SECTION 6: MITIGATION STRATEGIES

This section presents mitigation actions for the Village to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this plan. The Planning Committee reviewed the Risk Assessment to identify and develop these mitigation actions, which are presented herein.

This section includes:

- (1) Background and past mitigation accomplishments
- (2) General mitigation planning approach
- (3) Village mitigation goals and objectives
- (4) Identification, analysis, and implementation of potential mitigation actions for each hazard
- (5) Proposed hazard mitigation actions

This section addresses both mitigation actions that are specific to particular hazards, as well as those that apply to multiple hazards.

**Hazard mitigation** reduces the potential impacts of, and costs associated with, emergency and disaster-related events. Mitigation actions address a range of impacts, including impacts on the population, property, the economy, and the environment.

**Mitigation actions** can include activities such as: revisions to and enforcement of building codes, revisions to land-use planning, training and education, and structural and nonstructural safety measures.

### BACKGROUND AND PAST ACCOMPLISHMENTS

Although DMA 2000 does not require a discussion regarding past mitigation efforts, an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and actions outlined in this HMP. The Village, through previous and ongoing hazard mitigation actions, has demonstrated that it is pro-active in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include:

- The Village participates in the NFIP, which requires the adoption of FEMA floodplain mapping and certain minimum construction standards for building within the floodplain.
- The Village is currently updating its Comprehensive Plan and has requested citizen participation (surveys, postings in public locations) to assure it's relevance to the concerns and needs of the general population.
- Local flooding, particularly after Tropical Storm Floyd, prompted several studies along the Pocantico River. The Village submitted two mitigation project applications for HMGP funding available through Federal Disaster Declaration 1296.
  - Pleasantville Road Bridge Enhancement Project: This application, submitted to NYSEMO in April 2000, presented five alternatives/projects to address flooding problems along the Pocantico River in the vicinity of Pleasantville Road. Results for all five studies were included with a detailed cost-benefit analysis. The recommended action for this application was Alternative 1, the replacement of an existing undersized arch culvert of the Pleasantville Road Bridge; this would be replaced with three box culverts. The funding granted was not sufficient to conduct the project.

- Pocantico Channel Widening Project: The application, submitted to NYSEMO in April 2000, presented four alternatives/projects to address flooding problems in the same Pleasantville Road area, with affected properties located along on Ash Road, Oak Road, Pleasantville Road, Todd Lane and Carleton Avenue. The application presented the results of studies of all four options, including a detailed cost-benefit analysis. The recommended action was Alternative 1, conducting channel widening and stream bank stabilization along a 2,400 foot section of the Pocantico starting at Pleasantville Road. This action would remove all 14 homes lying within the 10-year floodplain, and 13 of the 18 homes lying within the 100-year floodplain. The funding granted for this project was not sufficient.
- A Budgetary Needs Assessment for Storm Water Improvements was conducted in 2006 and identified the following 11 locations that require storm water/drainage improvements:
  - Long Hill Road (Scarborough Road to Ridgecrest Road)
  - Scarborough Road (Old Briarcliff to Sleepy Hollow)
  - Old Briarcliff Road (Central Drive to Pleasantville Road)
  - Sleepy Hollow Road (Near Scarborough)
  - Elm Road (Tuttle Road to Birch Road)
  - South State Road (North of Long Hill Road)
  - Hall Road
  - Long Hill Road at Shellbark Lake
  - Holly Place
  - Quinn Lane Court
  - Scarborough Station Road at Route 9

Improvement projects have been proposed at each of these eleven locations. Long Hill Road West and Scarborough Road (Old Briarcliff Road to Sleepy Hollow Road) have been designated as priority areas by the Village.

- Recently completed storm water improvement projects include:
  - Todd Lane Bridge
  - Box culvert on Sleepy Hollow Road at Aspinwall Road
- Five of the eight sanitary sewer pump stations in the Village have been installed or improved in the last 10-15 years; two were constructed in 2006.
- The Village has developed and maintains Public Works mutual aid agreements with the Towns of Mount Pleasant and Ossining and mutual aid capabilities are assessed as excellent. County-wide mutual aid agreements exist for police, fire and EMS.
- The Village emergency staff recently conducted National Incident Management System (NIMS) training with a County Coordinator.
- The Village Police Department, Fire Department, and EMS have been issued appropriate emergency communication equipment and channels to avoid interference with other jurisdictions during emergency responses.

- To ensure critical assets and essential services maintain power during hazard events, the Village has invested in backup generators for the following:
  - The Village Fire Department has generators on its trucks
  - The Village Police, Fire and EMS Departments each have a portable power generator to maintain communication during hazard events
  - The Village Hall has a permanent generator to maintain operations during hazard events
  - Seven of the eight sanitary sewer pump stations have backup generators
- The Village has obtained several mitigation grants and completed the following:
  - Purchased a Weapons of Mass Destruction (WMD) response trailer, which it is maintaining and for training being conducted
  - Purchased and installed smoke/carbon monoxide (CO) detectors in senior housing
- The Village has several media tools, including newsletters and a cable TV station, which are regularly used to inform and educate the public on hazard preparedness and emergency procedures. In addition, updates to the public on the HMP and related matters are made at Village BOT meetings.

These past and ongoing actions have contributed to the Village's understanding of its hazard preparedness and future mitigation action needs, costs, and benefits. These efforts provide a foundation for the Planning Committee to use in developing this HMP.

## GENERAL MITIGATION PLANNING APPROACH

The general mitigation planning approach used to develop this plan is based on the FEMA publication, *Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies* (FEMA 386-3) and input provided by NYSEMO. The FEMA document and NYSEMO guidance include four steps, which were used to support mitigation planning. These steps are summarized below and presented in more detail in the following sections.

- **Develop mitigation goals and objectives:** Mitigation goals were developed using the hazard characteristics, inventory, and findings of the risk assessment, and through the results of the public outreach program. By reviewing these outputs and other municipal policy documents, objectives tying to these overarching goals were identified and characterized into similar themes.
- **Identify and prioritize mitigation actions:** Based on the risk assessment outputs, the mitigation goals and objectives, existing literature and resources, and input from the participating entities, alternative mitigation actions were identified. The potential mitigation actions were qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium, and low.
- **Prepare an implementation strategy:** High priority mitigation actions are recommended for first consideration for implementation, as discussed under each hazard description in the following sections. However, based on community-specific needs and goals and available funding and costs,

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad, long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.

FEMA defines **Mitigation Actions** as specific actions that help to achieve the mitigation goals and objectives.

some low or medium priority mitigation actions may also be addressed or could be addressed before some of the high priority actions.

- **Document the mitigation planning process:** The mitigation planning process is documented throughout this plan.

## Mitigation Goals and Objectives

This section presents the mitigation goals identified to reduce or avoid long-term vulnerabilities to the identified hazards. The Village and the Planning Committee developed these goals and objectives based on the risk assessment results, input received, and the existing authorities, policies, programs, resources, and capabilities within the Village, County and region. The mitigation goals serve as general guidelines that clarify desired hazard reduction outcomes. The goals represent a long-term vision for hazard reduction and the enhancement of mitigation capabilities.

The goals are compatible with the needs and goals expressed in other available community planning documents as well as the NYS HMP. Each goal has a number of corresponding objectives that further define the specific actions or implementation steps. Objectives were then developed and/or selected by the Planning Committee through its knowledge of the local area, review of past efforts, findings of the risk assessment, qualitative evaluations, and identification of mitigation options.

The four mitigation goals with their respective objectives are presented below:

### Goal 1: Protect Life and Property

- *Objective 1-1:* Implement mitigation actions that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.
- *Objective 1-2:* Encourage property owners to take preventive actions in areas that are especially vulnerable to hazards.
- *Objective 1-3:* Better characterize flood/stormwater hazard events by conducting additional hazard studies and identify inadequate stormwater facilities and poorly drained areas.
- *Objective 1-4:* Review existing local laws and ordinances, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings and environmental resources.
- *Objective 1-5:* Incorporate hazard considerations into land-use planning and natural resource management.
- *Objective 1-6:* Educate homeowners, renters, and businesses about insurance coverage available for natural hazards (i.e., flooding).
- *Objective 1-7:* Integrate the recommendations of this plan into existing local programs.
- *Objective 1-8:* Implement mitigation actions that encourage environmental stewardship and protection of the environment.

**Goal 2: Increase Public Awareness**

- *Objective 2-1:* Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities.
- *Objective 2-2:* Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.
- *Objective 2-3:* Implement mitigation actions that enhance the technological capabilities of the Village to better profile and assess exposure of hazards.
- *Objective 2-4:* Provide comprehensive information to local emergency service providers, municipalities, the media and the public during and following disaster and hazard events regarding emergency traffic routes, road closures, shelter locations, traffic restrictions, etc.

**Goal 3: Encourage Partnerships**

- *Objective 3-1:* Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation actions and/or projects.
- *Objective 3-2:* Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation actions more effectively.
- *Objective 3-3:* Encourage shared services in acquiring maintaining and providing emergency services and equipment.
- *Objective 3-4:* Encourage partnerships between neighborhood groups to work together and address hazards specific to their areas.

**Goal 4: Provide for Emergency Services**

- *Objective 4-1:* Encourage the establishment of policies to help ensure the prioritization and implementation of mitigation actions and/or projects designed to benefit essential facilities, services, and infrastructure.
- *Objective 4-2:* Where appropriate, coordinate and integrate hazard mitigation actions with existing local emergency operations plans.
- *Objective 4-3:* Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.
- *Objective 4-4:* Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.
- *Objective 4-5:* Ensure continuity of governmental operations, emergency services, and essential facilities at the local level during and immediately after disaster and hazard events.

- *Objective 4-6:* Identify and pursue funding opportunities to develop and implement local and county mitigation activities.
- *Objective 4-7:* Maintain communications with county/state regarding drainage and icy-road conditions.

### Identification, Analysis, and Implementation of Mitigation Actions

This subsection discusses the identification, analysis and implementation of mitigation actions for the Village.

#### *Identification*

Throughout the mitigation planning process, mitigation actions were submitted by the Planning Committee members. In addition, Committee members were provided with catalogs of potential mitigation actions that addressed the various hazards of concern, met the stated plan goals and objectives, and were within the capabilities of the Village. All proposed mitigation actions were identified in relation to the goals and objectives presented above.

The mitigation actions include a range of options in line with the six types of mitigation actions described in FEMA guidance (FEMA 386-3), including:

1. **Prevention:** Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
2. **Property Protection:** 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.
3. **Public Education and Awareness:** 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 school-age and adult education programs.
4. **Natural Resource Protection:** 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.
5. **Emergency Services:** 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.
6. **Structural Projects:** 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.

The Planning Committee determined that any mitigation action that may help the community become more disaster resistant should be included in the HMP even if funding is not currently available or if a mitigation action was assigned a lower priority based on the FEMA evaluation criteria or a cost/benefit evaluation. This will provide a record of all identified needs. Therefore, most of the mitigation actions identified by the group are included in the following sub-sections.

It should be noted that some mitigation actions are applicable to more than one hazard. For example, the mitigation action of evaluating Village sheltering needs applies to several hazards including, severe storm, flood, and severe winter storm.

### *Analysis*

Potential mitigation actions were initially evaluated qualitatively using consideration of social, technical, administrative, political, legal, economic, and environmental (STAPLEE) opportunities and constraints of implementation to determine the feasibility of implementing each action. Each of these evaluation criteria is summarized below and were assigned a plus (+), minus (-), or not applicable (N) rating in each of these areas to indicate graphically whether or not further support would be required to implement each action. The evaluation criteria are described in terms of situations that present opportunities for implementation success or as areas that must be considered:

- Social criteria: The public must support the overall implementation strategy and specific mitigation actions; therefore, community acceptance of the proposed mitigation actions must be considered.
- Technical criteria: Such factors as technical feasibility of the proposed mitigation action to reduce losses in the long term, with minimal secondary impact, must be considered.
- Administrative criteria: Anticipated staffing, funding, and maintenance for each mitigation action must be considered.
- Political criteria: The political leadership of the communities must support the overall implementation strategy and specific mitigation actions; therefore, decision-maker acceptance of the proposed mitigation actions must be considered.
- Legal criteria: Whether the communities have legal authority to implement the proposed mitigation actions must be considered.
- Economic criteria: Funding needs and budget constraints must be considered.
- Environmental criteria: Environmental impacts that could be caused by implementing specific mitigation actions must be considered.

The STAPLEE evaluation of potential mitigation actions for the Village indicates that all actions are feasible at this time, and is presented in Table 6-1.



**Table 6-1**  
**STAPLEE CRITERIA ACTION EVALUATION TABLE FOR THE VILLAGE OF BRIARCLIFF MANOR**

Mitigation Actions	STAPLEE Criteria Considerations																						
	+ Favorable      - Less favorable      N Not Applicable																						
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)					
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
1. Maintain updated Comprehensive Plan.	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	N	+	+
2. Maintain mutual aid agreements with the surrounding communities (Emergency Services, Water and DPW).	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	N	N	N	+	N	N
3. Encourage communication amongst neighborhood communities. The Village will facilitate inter-neighborhood group meetings to foster the exchange of mitigation ideas and actions	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	N	+	N	+	N	N
4. Develop an automated notification system to alert officials when water and pump stations are not functioning.	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	+	N	N	N	N	N	N	N
5. Assess the Village's capability to shelter residents to ensure that adequate shelter is available in times of displacement.	+	+	+	N	N	N	+	+	+	N	+	+	+	N	+	+	N	+	N	N	N	N	N
6. Evaluate and implement evacuation plans, routes, policies,	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	+	+	+	N	N	N	N	N



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and procedures.																						
7. Continue training in the National Incident Command System (ICS), under National Incident Management System (NIMS).	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	N	N	N	+	+
8. Review, implement and enforce existing Village policies and legislation to maintain trees from threatening lives.	-	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	N	N	N	N	N	N
9. Maintain communications with utility companies to keep trees from threatening lives, property, and public infrastructure during storm events.	-	+	+	+	+	+	+	+	-	-	-	+	+	-	+	N	N	N	N	N	N	N
10. Assess the need to purchase backup generators at critical facilities including schools/shelters and communication facilities.	N	+	+	+	+	+	+	+	+	N	+	N	+	N	+	-	+	+	N	N	N	N
11. Evaluate materials available measures for road closures/traffic delays.	N	+	+	+	N	+	+	+	+	N	+	N	N	N	+	+	+	N	N	N	N	N
12. Conduct a study to evaluate and map evacuation and alternate routes and prioritize routes for emergency services.	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	N	N	N	N	N
13. Protect Village stockpiles of emergency materials (e.g., sand).	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	+	+	+	N	N	+	N
14. Continue and enhance media	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	+	+	N	N	N	N	N

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	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)									
outreach to educate and inform residents on hazard preparedness.																						
15. Evaluate inadequate drainage and subsequent flooding due to runoff from rain events at the Scarborough Train Station.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N
16. Evaluate the current preventative measures for electrical outage vulnerability due to lightening strike on water tower and other Village structures.	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	N	N	N	N	N	N	N
17. Take preventative measures against flood/stormwater damage to Village Buildings.	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	N	N	N	+	+
18. Make NYS flood awareness informational materials available to educate residents on domestic flood mitigation measures and flood insurance.	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	+	+	+
19. Initiate village legislation to address stormwater management.	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	N	N	+	+	+
20. Take preventative measures against flood/stormwater damage to infrastructure (pump stations).	+	+	+	+	+	+	+	+	+	+	N	+	N	+	+	+	N	+	N	N	+	+
21. Conduct study on the DPW vulnerability to flooding to ensure the facility and its resources are accessible and usable during a hazard event.	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	N	N	+	+	+
22. Maintain communication with County regarding funding to	+	+	+	+	N	N	+	+	+	+	+	+	+	+	+	+	+	N	N	+	+	+

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complete the Pleasantville Road Bridge Enhancement project (keep as a County Capital Improvement Projects). (i.e., replace the existing undersized arch culvert of the Pleasantville Rd. bridge with three box culverts.																								
23. Obtain funding to complete a flood-prevention program for the Pocantico River.	-	+	+	+	+	+	-	+	-	+	-	-	-	-	+	+	N	+	+	N	N	+	+	
24. Obtain funding to implement the stormwater/drainage improvements identified in the 2006 Budgetary Needs Assessment for Storm Water Improvements	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	N	N	+	N	
25. Purchase inflatable boats to assist with rescue efforts during flood events.	+	+	+	+	+	+	+	+	+	+	+	N	+	N	+	+	+	+	N	N	N	N	N	
26. Continue to monitor building and renovation in floodplain, and prohibit building in floodways.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	+	
27. Evaluate participation in the CRS.	N	+	+	+	+	N	N	N	+	+	+	N	N	N	+	+	+	N	N	N	N	N	N	
28. Increase communication with NYSDOT to improve traffic control and circulation on Routes 9, 9A, 100 and Taconic Parkway and participate in any studies or steering committees regarding State highways through the Village.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	

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	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)					
29. Continue to attend hazmat response training at the Westchester County Department of Emergency Services Training Center.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	+	N	N	
30. Identify wildfire hazard areas that include high-tension power lines.	+	+	+	+	+	+	N	+	+	+	+	N	N	N	+	+	+	N	N	N	N	N	N	
31. Continue to attend fire training at the Westchester County Department of Emergency Services Training Center.	N	+	+	+	+	+	N	+	+	+	+	N	N	N	+	+	+	N	N	N	N	N	N	

Source: Input from Planning Committee.

### *Implementation, Prioritization and Benefit/Cost Review*

As stated earlier, Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized. The Village of Briarcliff Manor Planning Committee, along with their contract consultant, developed a prioritization methodology for the action plan that meets the needs of the Village while at the same time meeting the requirements of Section 201.6 of 44 CFR. The mitigation alternatives identified earlier in this section were prioritized according to the criteria defined below.

- **High Priority:** A project that meets multiple plan goals and objectives, benefits exceed cost, has funding secured under existing programs or authorizations, or is grant-eligible, and can be completed in 1 to 5 years (short-term project) once project is funded.
- **Medium Priority:** A project that meets at least one plan goal and objective, benefits exceed costs, funding has not been secured and would require a special funding authorization under existing programs, grant eligibility is questionable, and can be completed in 1 to 5 years once project is funded.
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, and project is not grant-eligible and/or timeline for completion is considered long-term (5 to 10 years).

It should be noted that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this plan will be reviewed and updated as needed annually through the plan maintenance strategy described in Section 6 of this plan.

Section 201.6(c)(3)(iii) of 44 CFR requires the prioritization of the action plan to include special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs. As detailed below, the benefits of a proposed project were weighed against its estimated costs as a parameter in the prioritization of that project. This benefit/cost analysis was anecdotal and was not of the detailed variety required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. This anecdotal approach was used because it made little or no sense to perform a detailed and expensive benefit/cost analysis for a project that may not be implemented for up to 10 years. The associated costs and benefits could change dramatically in that time frame. Therefore, a review of the apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to the costs and benefits of these projects.

**Cost** ratings are defined below.

- **High:** Existing funding levels are not adequate to cover the costs of the proposed project and would require an increase in revenue through an alternative source (for example, bonds, grants, and fee increases) to implement.
- **Medium:** The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- **Low:** The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.

**Benefit** ratings were defined as follows:

- **High:** Project will have an immediate impact on the reduction of risk exposure to life and property.
- **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.
- **Low:** Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

It should be noted that for some of the strategies identified in this action plan, the Village may seek financial assistance under FEMA's HMGP or PDM programs. Both of these programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed on projects at the time of application preparation. The Village is committed to implementing an overall mitigation strategy with benefits that exceeds costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Village reserves the right to define "benefits" according to parameters that meet its needs and the goals and objectives of this plan.

Table 6-2 presents the results of applying the prioritization methodology presented at the beginning of this subsection to the set of mitigation actions identified by the Planning Committee, and includes the following prioritization parameters:

- Number of objectives met by the initiative
- Benefits of the project (high, medium, or low)
- Cost of the project (high, medium, or low)
- Do the benefits equal or exceed the costs?
- Is the project grant-eligible?
- Can the project be funded under existing programs and budgets?
- Priority (high, medium, or low)

As detailed previously, this methodology prioritized alternatives according to the following criteria, which included an emphasis on a review of costs vs. benefits:

- **High Priority:** A project that meets multiple plan goals and objectives, benefits exceed cost, has funding secured under existing programs or authorizations, or is grant-eligible, and can be completed in 1 to 5 years (short-term project) once project is funded.
- **Medium Priority:** A project that meets at least one plan goal and objective, benefits exceed costs, funding has not been secured and would require a special funding authorization under existing programs, grant eligibility is questionable, and can be completed in 1 to 5 years once project is funded.
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, and project is not grant-eligible and/or timeline for completion is considered long-term (5 to 10 years).

**Table 6-2**  
**ACTION PRIORITIZATION TABLE FOR THE VILLAGE OF BRIARCLIFF MANOR**

Mitigation Action #	Evaluation against Goals and Objectives	# of Objectives Met	Benefits	Costs	Do Benefits equal or exceed Costs? (Y/N)	Is project Grant eligible? (Y/N)	Can project be funded under existing programs/budgets? (Y/N)	Priority
1.	1-1, 2-2	2	M	L	Y	N	Y	H
2.	1-1, 3-1, 3-3, 4-5	4	M, L	L	Y	N	Y	H
3.	1-2, 3-2, 3-4	3	L	L	Y	N	N	H
4.	2-3, 4-3	2	M	L	Y	N	Y	H
5.	1-1	1	L	L	Y	N	Y	M
6.	1-1, 4-4, 4-7	3	M	M	Y	?	Y	H
7.	4-3	1	L	L	Y	N	Y	M
8.	1-1, 1-2, 4-1	3	M	L	Y	N	Y	H
9.	1-1, 4-1	2	M	L	Y	N	Y	H
10.	4-5, 4-2	2	L	L	Y	N	Y	H
11.	4-2, 4-3, 4-7	3	L	L	Y	N	Y	H
12.	4-2, 4-4	2	L	L	Y	N	Y	H
13.	4-3	1	H	M	Y	?	Y	M
14.	2-1, 2-4	2	M	L	Y	Y	Y	H
15.	1-3, 4-7	2	M	M	Y	N	N	M
16.	1-3	1	M	M	Y	N	N	L-M
17.	1-3	1	H	H	Y	Y	N	M-H
18.	1-6, 2-4	2	M	L	Y	Y	Y	H
19.	1-4, 4-1	2	M	L	Y	N	Y	H
20.	1-1	1	H	M-H	Y	Y	N	H
21.	1-1, 1-3	2	M	M	Y	N	Y	M
22.	1-7, 3-1	2	L	L	Y	N	Y	M
23.	1-1, 1-8, 3-1, 4-6, 4-7	5	H	H	Y	?	N	M
24.	1-1, 1-8, 3-1, 4-6, 4-7	5	M	M	Y	Y	Y	H
25.	4-3	1	L	M	N	N	N	L
26.	1-4, 1-5, 1-7	3	M	L	Y	N	Y	H
27.	1-6, 2-2	3	L-M	L	Y	N	Y	M
28.	3-1, 4-4, 4-5, 4-7	4	L	L	Y	N	Y	H
29.	4-3	1	M	L	Y	N	Y	H
30.	1-1, 1-7	2	L	M	N	N	Y	L
31.	4-3	1	M	L	Y	N	Y	M



Table 6-3 outlines the Village's mitigation action implementation strategy including:

- Mitigation actions for individual and multiple hazards
- Mitigation goals and objectives supported by each action
- An indication of whether the action applies to new or existing assets
- Implementation priority as defined in the previously in this section
- Potential funding sources for the mitigation action (grant programs, current operating budgets or funding, or the agency or jurisdiction that will supply the funding; additional potential funding resources are identified)
- Estimated budget for the mitigation action (financial requirements for new funding or indication that the action is addressed under current operating budgets)
- Time estimated to implement and complete the mitigation action
- Existing policies, programs, and resources to support implementation of the mitigation action (additional policies, programs, and resources identified)
- Lead agency responsible for the mitigation action
- Agencies to support the lead agency (additional agencies identified in other portions of the plan)

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
1. Maintain updated Comprehensive Plan. The Village will annually update the plan as to the status of mitigation actions.	Drought, Flooding, Severe Storm, Severe Winter Storm, Vehicular Accident	1-1, 2-2	E/N	H	Village and State	Medium	> 1 year	Village Comprehensive Plan Committee	Village Manager's Office	Village Planning
2. Maintain mutual aid agreements with the surrounding communities (Emergency Services, Water and DPW). The Village will continue to maintain agreements and formalize others when needed.	Drought, Flooding, Severe Storm, Severe Winter Storm, Earthquake, Wildfire, Vehicular Accident	1-1, 3-1, 3-3, 4-5	E/N	H	Village and County	Low	Ongoing	Mutual Aid Agreements	Village Manager's Office	Town and Village of Ossining; Town of Mount Pleasant; WCOEM
3. Encourage communication amongst neighborhood communities. The Village will facilitate inter-neighborhood group meetings to foster the exchange of mitigation ideas and actions.	Drought, Flooding, Severe Storm, Severe Winter Storm, Earthquake, Wildfire, Vehicular Accident	1-2, 3-2, 3-4	E/N	H	Village	Low	< 1 year	---	Village Manager's Office	NYSEMO, WCOEM
4. Develop an automated notification system to alert officials when water and pump stations are not functioning. The Village has identified three water pump stations (Round Hill Road, Chappaqua Road, and Dalmeny Road) and four sanitary sewer pump stations (Brookwood Drive, Lewiston Court, Wilderness Way, and Long Hill Road West) for retrofit with automated notification systems and is in the process of obtaining the system.	Flooding, Severe Storm	2-3, 4-3	E/N	H	Village	High	> 1 year	Capital Improvement Plan	Village DPW	Village Police and Fire

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
5. Assess the Village's capability to shelter residents to ensure that adequate shelter is available in times of displacement.	Flooding, Severe Storm, Severe Winter Storm, Earthquake, Wildfire, Vehicular Accident	1-1	N/E	M	Village and County	Low	< 1 year	Local EMP	Village Police and Fire	Village Manager's Office; Union Free School District; ARC; WCOEM
6. Evaluate and implement evacuation plans, routes, policies, and procedures. At present the priority roads for snow removal/improvements are Albany Post Road (Route 9, owned by the NYSDOT), Pleasantville Road (Westchester County), and the following Village owned roads: Chappaqua Road, North State Road, Long Hill Road, Sleepy Hollow Road, South State Road, Scarborough Road, Old Briarcliff Road, Elm Road, and Scarborough Station Road.	Flooding, Severe Storm, Severe Winter Storm, Wildfire, Vehicular Accident	1-1, 4-4, 4-7	E/N	H	Village	Medium	< 1 year	County and Local EMPs, GIS capabilities	Village Police and Fire	Village DPW; WC Police, WC DPW, NYS Traffic M'gt. Center
7. Continue training in the National Incident Command System (ICS), under National Incident Management System (NIMS).	Flooding, Severe Storm, Severe Winter Storm, Earthquake, Wildfire, Vehicular Accident	4-3	E/N	M	Village, County and State	Low	Ongoing	State, County and Local EMPs	Village Manager's Office	Village Police and Fire; WCOEM

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
8. Review, implement and enforce existing Village policies and programs to maintain trees from threatening lives.	Severe Storm, Severe Winter Storm	1-1, 1-2, 4-1	E/N	H	Village	Low	Ongoing	Village Building and Zoning Codes; Local and State legislation; Village Code Enforcement; Public Utility Tree Maintenance Programs	Village Building Dep't.	Village Attorney, Public Utilities
9. Maintain communications with utility companies to keep trees from threatening lives, property, and public infrastructure during storm events.	Severe Storm, Severe Winter Storm	1-1, 4-1	E/N	H	Village	Low	Ongoing	ConEd Tree Maintenance Program	Village DPW	Village Manager's Office; ConEd; Verizon; Cablevision
10. Assess the need to purchase backup generators at critical facilities including schools/shelters and communication facilities.	Severe Storm, Severe Winter Storm, Flooding, Earthquake	4-5, 4-2	E/N	H	School District, Village, County and State	Low	Ongoing	State, County and Local EMPs	Village Building Dep't.	Village Police, Fire, DPW and Manager's Office; WCOEM; NYSEMO
11. Evaluate equipment and materials available for road closures/traffic delays.	Flooding, Severe Storm, Severe Winter Storm, Vehicular Accident	4-2, 4-3, 4-7	E/N	H	Village	Low	< 1 year	Local EMP	Village DPW	Village Police and Fire; WCDPW; NYSDOT; NYS TMC

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
12. Conduct a study to evaluate and map evacuation and alternate routes and prioritize routes for emergency services.	Flooding, Severe Storm, Severe Winter Storm, Wildfire, Vehicular Accident	4-2, 4-4	E/N	H	Village, County and State	Low	< 1 year	State, County and Local EMPs; WCOEM Indian Point Evacuation Plan	Village Police	Village DPW and Engineering Office; WCDPW; WCOEM; NYSDOT; NYS TMC
13. Protect Village stockpiles of emergency materials (e.g., sand).	Flooding, Severe Storm, Severe Winter Storm, Vehicular Accident	4-3	E/N	M	Village and State	Medium	> 1 year	Local EMP	Village DPW	Village Engineering Office
14. Continue and enhance media outreach to educate residents on hazard preparedness. Media forums to include newspaper articles, brochures at kiosk in town hall and library, flyers sent to residences, and commercials on cable TV.	Drought, Flooding, Severe Storm, Severe Winter Storm, Earthquake, Wildfire	2-1, 2-4	E/N	H	Village, County and State	Low	< 1 year	Community Bulletin Board; Local Cable Channel; Village Web Site	Village Manager's Office	Village Clerk's Office; NYSDEC; NYSEMO; FEMA
15. Evaluate inadequate drainage and subsequent flooding due to runoff from rain events at the Scarborough Train Station parking lot.	Severe Storm	1-3, 4-7	E	M	Village, HMGP, PDM, FMA	Medium	> 1 year	WC Watershed Study	Village DPW	Village Engineering Office; Metro North
16. Evaluate the current preventative measures for electrical outage vulnerability due to lightening strike on water tower and other Village structures.	Severe Storm	1-3	E	L-M	Village	Medium	> 1 year	---	Village Building Dep't.	Village DPW and Police; ConEd; NYPA

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
17. Take preventative measures against flood/stormwater damage to Village Buildings.	Flood	1-3	E/N	M-H	Village and State	High	> 1 year	Capital Improvement Plan	Village DPW	Village Engineering Office and Manager's Office
18. Make flood awareness informational materials available to educate residents on domestic flood mitigation measures and flood insurance.	Flood	1-6, 2-4	E/N	H	Village and State	Low	< 1 year	NYSDEC; NYSEMO and FEMA materials	Village Manager's Office	WCOEM; NYSEMO; NYSDEC; FEMA; ARC
19. Initiate village legislation to address stormwater management.	Flood	1-4, 4-1	N	H	Village	Low	Ongoing	Local Excavation Law	Village Eng. Office	Village Manager's Office; Village Attorney
20. Take preventative measures against flood/stormwater damage to Village infrastructure (e.g., pump stations).	Flood	1-1	E/N	H	Village and State, HMGP, PDM, FMA	High	> 1 year	Local Code (Flood-Prevention Chapter); FEMA Code	Village DPW	Village Engineering Office; NYSDEC
21. Conduct study on the Village DPW vulnerability to flooding to ensure the facility and its resources are accessible and usable during a hazard event.	Flood	1-1, 1-3	E	M	Village, County and State	Medium	> 1 year	Local Code (Flood-Prevention Chapter); FEMA Code	Village DPW	Village Engineering Office; NYSDEC

TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
22. Maintain communication with County regarding funding to complete the Pleasantville Road Bridge Enhancement project (keep as a County Capital Improvement Projects). (i.e., replace the existing undersized arch culvert of the Pleasantville Road bridge with three box culverts.	Flood	1-7, 3-1	E	M	Village and County, HMGP, PDM, FMA	Low	Ongoing	WC Capital Improvement Plan; Pocantico River Channel Widening Study; Pleasantville Road Bridge Enhancement Study	Village Eng. Office	Village Manager's Office; WCDPW
23. Obtain funding and implement a flood-prevention program for the Pocantico River.	Flood	1-1, 1-8, 3-1, 4-6, 4-7	E/N	M	Village, State and Federal, HMGP, PDM, FMA	High	Ongoing	HMGP; Pocantico River Channel Widening Study; Pleasantville Road Bridge Enhancement Study	Village Manager's Office	Village Engineering Office; NYSDEC; NYSEMO, FEMA
24. Obtain funding and implement the stormwater/drainage improvements including Long Hill Road, Sleepy Hollow Road, Quinn Lane Culvert, Elm Road, Scarborough Road, Tulip Road, South State Road, Old Briarcliff Road, Scarborough Station road, Hall Road, and Holly Place.	Flood	1-1, 1-8, 3-1, 4-6, 4-7	E	H	Village (CIP); HMGP, PDM, FMA	High	Ongoing	Capital Improvement Plan; Village Engineering Study of Problem Drainage Areas	Village Manager's Office and DPW	Village Engineering Office; NYSDEC
25. Purchase inflatable boats to assist with rescue efforts during flood events.	Flood	4-3	E/N	L	Village, County and State	Low	> 1 year	County and Local EMPs	Village Police and Fire	NYSEMO, WCOEM



TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS

Mitigation Action	Hazard	Evaluation Against Goals and Objectives	Applies to new or existing assets	Priority Ranking	Funding Source	Budget	Implementation Timeline	Existing Policies, Programs, and Resources to Support Implementation	Lead Agency	Support Agency
26. Continue to monitor building and renovation in floodplain, and prohibit building in floodways.	Flood	1-4, 1-5, 1-7	E/N	H	Village	Low	Ongoing	Flood Prevention Local Code; NFIP	Village Building Dep't.	NYSEMO, FEMA
27. Evaluate participation in the CRS.	Flood	1-6, 2-2	E/N	M	Village, County and State	Low	Ongoing	NFIP-CRS	Village Manager's Office	NYSEMO, FEMA
28. Increase communication with NYSDOT to improve traffic control and circulation on Routes 9, 9A, 100 and Taconic Parkway and participate in any studies or steering committees regarding State highways through the Village.	Vehicular Accidents (including HAZMAT in transit)	3-1, 4-4, 4-5, 4-7	E/N	H	Village, County and State	Low	Ongoing	---	Village Manager's Office and Police	Village DPW; NYSDOT
29. Continue to attend hazmat response training at the Westchester County Department of Emergency Services Training Center.	Vehicular Accidents (including HAZMAT in transit)	4-3	-	H	Village, County and State	Low	Ongoing	WC Fire Training Center	Village Fire	WCOEM; NYSEMO
30. Identify wildfire hazard areas that include high-tension power lines.	Wildfire	1-1, 1-7	E/N	L	Village, County and State	Medium	> 1 year	"Firewise" Program	Village Fire; Village Engineering Office	WCOEM; NYS Fire Prevention
31. Continue to attend fire training at the Westchester County Department of Emergency Services Training Center.	Wildfire	4-3	E/N	M	Village, County and State	Low	Ongoing	WC Fire Training Center	Village Fire	WCOEM; NYSEMO

**TABLE 6-3 VILLAGE OF BRIARCLIFF MANOR MITIGATION ACTIONS (CONTINUED)**

## Notes:

CP	=	Comprehensive Plan
DOT	=	Department of Transportation
DPW	=	Department of Public Works
EMP	=	Emergency Management Plan
FEMA	=	Federal Emergency Management Agency
H	=	High
L	=	Low
M	=	Medium
NYS	=	New York State
NYSDEC	=	New York State Department of Environmental Conservation
NYSEMO	=	New York State Emergency Management Office
NYS TMC	=	New York State Traffic Management Center
WC	=	Westchester County
WCOEM	=	Westchester County Office of Emergency Management

Budget Estimates: Low = Less than \$10,000, Medium = between \$10,000 and \$100,000, High = over \$100,000.

Specific mitigation actions were identified to prevent future losses; however, current funding is not identified for all of these actions at present. The Village has limited resources to take on new responsibilities or projects. The implementation of these mitigation actions is dependent on the approval of the local elected governing body and the ability of the community to obtain funding from local or outside sources. Where such actions are high priorities, the community will work together with NYSEMO, FEMA and other Federal, State and County agencies to secure funds.

In general, mitigation actions ranked as high priorities will be addressed first. However, medium or even low priority mitigation actions will be considered for concurrent implementation. Therefore, the ranking levels should be considered as a first-cut, preliminary ranking and will evolve based on input from Village departments and representatives, the public, NYSEMO, and FEMA as the plan is implemented.

Users should note that budget estimates for this plan include preliminary estimates based on professional knowledge and Planning Committee input; refined and revised budget estimates will be prepared as actions are moved forward for implementation. At this stage, resources are not available to prepare detailed budget estimates for each potential mitigation action but preliminary estimates have been made. Where specific dollar value estimates were not available, the Planning Committee used professional knowledge and judgment to assign the resource needs (budget) for each activity as either low, medium, or high, as summarized below:

- Low – Less than \$10,000
- Medium – \$10,000 to \$100,000
- High – Greater than \$100,000

The budget information focuses on the cost to implement actions and not the ability of the municipalities to address the cost. As discussed above, outside funding may be required where municipal funds are not available to support implementation. Potential federal funding sources are discussed in this Plan and a list of federal funding opportunities is identified in the document *Federal Mitigation Programs, Activities, & Initiatives* (Appendix G). This appendix provides information on various federal programs including the type of available assistance and contact information and includes other existing policies, programs, and resources to support the mitigation actions other than those listed below.