

HAZARD RANKING METHODOLOGY

After the hazards of concern were identified for the Village, the hazards were ranked to describe their probability of occurrence and their impact on population, property (general building stock including critical facilities) and the economy. This section describes factors that influence the ranking including the probability of occurrence and impact; it also presents the ranking process and outcome.

Probability of Occurrence

The probability of occurrence is an estimate of how often a hazard event occurs. A review of historic events assists with this determination. Each hazard of concern is rated in accordance with the numerical ratings and definitions in Table 5-2. These definitions are consistent with the NYS Plan's ranking methodology; however the rating of zero (0), an event is not likely to occur, is not used (because these hazards were screened out during the hazard identification process).

Table 5-2. Probability of Occurrence Ranking Factors

Rating	Probability	Definition
1	Rare	Hazard event is likely to occur less than once every 30 years.
2	Occasional	Hazard event is likely to occur less than once every 5 years, but more often than once every 30 years.
3	Frequent	Hazard event is likely to occur more than once every 5 years.

Impact

The impact of each hazard is considered in three categories: impact on population, impact on property (general building stock including critical facilities), and impact on the economy. Based on documented historic losses and a subjective assessment by the Planning Committee, an impact rating of high, medium, or low is assigned with a corresponding numeric value for each hazard of concern. In addition, a weighting factor is assigned to each impact category: three (3) for population, two (2) for property, and one (1) for economy. This gives the impact on population the greatest weight in evaluating the impact of a hazard.

Table 5-3 presents the numerical rating, weighted factor and description for each impact category. The impact rating definitions for population and property are also consistent with the NYS Plan's ranking methodology with minor modifications. Impact to the economy is also being evaluated.

Table 5-3. Numerical Values and Definitions for Impacts on Population, Property and Economy

Category	Weighting Factor	Low Impact (1)	Medium Impact (2)	High Impact (3)
Population	3	No injuries or loss of life; Evacuation or short-term sheltering is not necessary	Minimal injuries or death; Limited/localized evacuation and short-term sheltering	Large number of injuries or death; Massive evacuation and/or sheltering operation
Property	2	Limited damage or loss	Local resources are adequate to repair/replace the loss	Major damage or destruction; State and/or Federal resources may be necessary to restore the loss
Economy	1	Limited to no impact	Short-term/Temporary disruption; Losses are easily recovered	Long-term disruption

Risk Ranking Value

The risk ranking for each hazard is then calculated by multiplying the numerical value for probability of occurrence by the sum of the numerical values for impact. The equation is as follows: Impact Value (1, 2, or 3) X Impact Value (6 to 18) = Hazard Ranking Value. Based on the total for each hazard, a priority ranking is assigned to each hazard of concern (high, medium, or low).

HAZARD RANKING RESULTS

Using the process described above, the risk ranking for the identified hazards of concern was determined for the Village. Based on the combined risk values for probability of occurrence and impact to the Village, a priority ranking of “high”, “medium” or “low” risk was assigned. The hazard ranking for the Village, from high to low risk, is summarized below:

1. Severe Storm (windstorms, hurricanes, tropical storms, thunderstorms, hail, lightning and tornados)*
2. Flood*
3. Severe Winter Storm
4. Vehicular Accidents (including hazard materials in transit)
5. Wildfire
6. Drought**
7. Earthquake**

* Severe Storm and Flood have the same total risk ranking (42)

** Drought and Earthquake have the same total risk ranking (12)

The following tables present the step-wise process for the ranking. Table 5-4 shows the probability ranking assigned for likelihood of occurrence for each hazard.

Table 5-4. Probability of Occurrence Ranking for Hazards of Concern for the Village of Briarcliff Manor

Hazard of Concern	Probability	Numeric Value
Drought	Occasional	2
Flood	Frequent	3
Severe Storm (windstorms, hurricanes, tropical storms, thunderstorms, hail, lightning and tornados)	Frequent	3
Severe Winter Storm	Frequent	3
Vehicular Accident (including hazardous materials in transit)	Frequent	3
Wildfire	Occasional	2
Earthquake	Occasional	2

Table 5-5 shows the impact evaluation results for each hazard of concern, including impact on property, structures, and the economy. The weighting factor results and a total impact for each hazard also are summarized.

Table 5-5. Impact Ranking for Hazards of Concern for the Village of Briarcliff Manor

Hazard of Concern	Population			Property			Economy			Total Impact Rating (Population + Property + Economy)
	Impact	Numeric Value	Multiplied by Weighting Factor (3)	Impact	Numeric Value	Multiplied by Weighting Factor (2)	Impact	Numeric Value	Multiplied by Weighting Factor (1)	
Drought	Low	1	3	Low	1	2	Low	1	1	6
Flood	Medium	2	6	High	3	6	Medium	2	2	14
Severe Storm (windstorms, hurricanes, tropical storms, thunderstorms, hail, lightning and tornados)	Medium	2	6	High	3	6	Medium	2	2	14
Severe Winter Storm	Medium	2	6	Medium	2	4	Medium	2	2	12
Vehicular Accident (including hazardous materials in transit)	Medium	2	6	Medium	2	4	Low	1	1	11
Wildfire	Low	1	3	Low	1	2	Medium	2	2	7
Earthquake	Low	1	3	Low	1	2	Low	1	1	6

Table 5-6 presents the total ranking value for each hazard.

Table 5-6. Total Risk Ranking Value for Hazards of Concern for the Village of Briarcliff Manor

Hazard of Concern	Probability	Impact	Total = (Probability x Impact)
Drought	2	6	12
Flood	3	14	42
Severe Storm (windstorms, hurricanes, tropical storms, thunderstorms, hail, lightning and tornados)	3	14	42
Severe Winter Storm	3	12	36
Vehicular Accident (including hazardous materials in transit)	3	11	33
Wildfire	2	7	14
Earthquake	2	6	12

Table 5-7 presents the hazard ranking category assigned for each hazard of concern.

Table 5-7. Hazard Ranking Results for Hazards of Concern for the Village of Briarcliff Manor

Hazard Ranking	Hazard of Concern	Category
1	Severe Storm (windstorms, hurricanes, tropical storms, thunderstorms, hail, lightning and tornados)	High
2	Flood	High
3	Severe Winter Storm	High
4	Vehicular Accident (including hazardous materials in transit)	Medium
5	Wildfire	Low
6	Drought	Low
7	Earthquake	Low

HAZARDS PROFILES AND VULNERABILITY ASSESSMENT

The following sections profile and assess vulnerability for each hazard of concern. For each hazard, the profile includes: the hazard description; its location and extent; previous occurrences and losses; and the probability of future events. The vulnerability assessment for each hazard includes: an overview of vulnerability; the data and methodology used; the impact on life, health and safety; impact on general building stock; impact on critical facilities; impact on the economy; additional data needs and next steps; and the overall vulnerability assessment finding. Hazards are presented as listed above, starting with the severe storm hazard and ending with the drought hazard.