**Hazard Impacts**

Subject matter experts on the Steering Committee ranked natural hazard impacts during the planning process. Table 16 presents that ranking, determined by multiplying the probability of occurrence by an average score for potential impact to the Built and Natural Environments, People, and Economy. This tool can be used for determining hazard mitigation priorities within the State and Local Hazard Mitigation Plans. The column headers are not perfectly siloed. Basic definitions are provided below to better understand the potential impacts under each column header, but each category is cross-cutting and related to the others. Additionally, it is an imperfect process to rank slow-moving hazards, with creeping impacts such as drought or invasive species, using the same criteria as fast-moving hazards such as inundation flooding. Additionally, crossing-cutting issues and other challenges will be further discussed within Section 5 of the Plan. Specific hazard impacts on the built and natural environments, people, and economy are expanded upon in each hazard profile.

Table 17 details the hazard assessment ranking criteria used in Table 16. Hazard ranking is determined by frequency of occurrence (probability) and potential impact. *Minor economic disruption* is considered isolated and very short-term – characterized by employees unable to make it to work or businesses closed for 1-3 days, and supply chain issues lasting less than a few weeks. *Short-term economic impact* has further-reaching and longer-lasting impacts, but the state will recover in less than 5 years. Both minor economic disruption and short-term economic impact will be most detrimental to low-income individuals and communities that may not have savings necessary to weather a temporary loss of work. In addition to economic impacts, hazard events can severely impact quality of life for individuals and communities. Certain Individuals and communities may feel the brunt of hazards more so than others depending on several factors. Vermont’s Climate Action Plan defines Frontline Communities as those who feel the “worst and first” consequences of climate change. Through the hazard ranking process, the steering committee was instructed to think about the impact of each hazard on frontline communities.

The ***Built Environment*** is comprised of the manmade structures and infrastructure in our communities, including municipal water systems, buildings, bridges, roads, sidewalks, wastewater treatment plants, electrical and communication systems, libraries, medical facilities, fire stations, and town halls. Features of the built environment can be both functionally and culturally valuable to the people living there. After a disaster, the impacts to the built environment are some of the most visible.

***Natural Environment*** encompasses natural resources and ecosystems, but also the natural features integrated with our communities including urban trees and agricultural land. Water, soil, air, forest products, fish and wildlife are all natural resources. Ecosystems include lakes, forests, meadows, and rivers. Ecosystem services are the processes of the natural environment producing benefits to humans such as flood control and water filtration by wetlands. In the absence of human intervention, the natural environment can withstand natural disturbances, and depends on natural hazards to maintain normal ecosystem function. It is due to human dependence on the natural environment for food, water quality, and other natural resources, and human influence on the natural environment, particularly climate change impacts on ecosystem health, that we are concerned with hazard impacts to the environment.

***People*** refers to both life and well-being of those who live in, work in, or visit Vermont. Hazard mitigation planning centers around protecting life and property. Hazards can be deadly, but there are many other impacts of hazards that need to be accounted for. A few examples of potential hazard impacts to people are loss of housing, loss of childcare, displacement, food insecurity, unemployment, illness, psychological trauma, depression, and loss of life.

***Economy*** captures the economic impacts of hazards that can lead to short and long-term financial hardships. Hazards can cause agricultural losses, decline in tourism, damages to storefronts and goods for sale, loss of employers and jobs, and disruption in supply chains. There is also the substantial cost of paying for recovery from hazard events for the state, municipalities, individuals, nongovernmental organizations, and businesses.

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| **Table 16: Hazard Assessment**  |
| **Hazard Impacts** | **Probability** | **Potential Impact** | **Score\*:** |
| Built Environment | People | Economy | Natural Environment | **Average:**  |
| Fluvial Erosion  | 4 | 4 | 3 | 4 | 4 | 3.75 | 15 |
| Inundation Flooding | 4 | 4 | 3 | 4 | 2 | 3.25 | 13 |
| Ice | 3 | 3 | 3 | 3 | 2 | 2 | 8.25 |
| Snow | 4 | 1 | 3 | 2 | 1 | 1.75 | 7 |
| Wind | 4 | 2 | 2 | 1 | 1 | 1.5 | 6 |
| Heat | 3 | 1 | 3 | 2 | 2 | 2 | 6 |
| Cold | 3 | 1 | 3 | 2 | 2 | 2 | 6 |
| Drought | 3 | 1 | 2 | 2 | 3 | 2 | 6 |
| Landslides | 3 | 3 | 2 | 1 | 2 | 2 | 6 |
| Wildfire | 2 | 3 | 3 | 3 | 2 | 2.75 | 5.5 |
| Earthquake | 2 | 3 | 3 | 3 | 2 | 2.75 | 5.5 |
| Invasive Species | 2 | 1 | 1 | 2 | 3 | 1.75 | 3.5 |
| Infectious Disease Outbreak | 2 | 1 | 3 | 2 | 1 | 1.75 | 3.5 |
| Hail | 3 | 1 | 1 | 1 | 1 | 1 | 3 |

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| **Table 17: Hazard Assessment Ranking Criteria** |
|  | **Frequency of Occurrence:** Probability of a plausibly significant event based on previous occurrences and climate change projections.  | **Potential Impact:** Severity and extent of damage and disruption to built and natural environments, people, and the economy |
| **1** | Unlikely: <1% probability of occurrence per year | Negligible: isolated occurrences of minor built or natural environmental damage, potential for minor injuries, health, or well-being impacts, no or minimal economic disruption |
| **2** | Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years | Minor: isolated occurrences of moderate to severe built or natural environmental damage, potential for injuries or health or well-being impacts, minor economic disruption |
| **3** | Likely: >10% but <75% probability per year, at least 1 chance in next 10 years | Moderate: severe built or natural environmental damage on a community scale, injuries, fatalities, impacts to individual and community well-being, short-term economic impact |
| **4** | Highly Likely: >75% probability in a year | Major: severe built or natural environmental damage on a community or regional scale, multiple injuries or fatalities, severe long-term impacts to individual and community well-being, significant long-term economic impact  |

The hazards and explanations of their relative probability and impact scores are detailed in the individual hazards assessment sections below. While these hazards are profiled individually, this Plan and the hazard assessment sections recognize that hazards, like their impacts, do not occur in silos; many of the hazards are inter-related and often occur in tandem. To highlight the most significant relationships, the fluvial erosion and inundation flooding assessments were combined, as well as the ice and snow storm assessments. Each individual hazard assessment section also references the other pertinent hazards and their content, when applicable.