

EMERGENCY MANAGEMENT



A home in Rochester sits destroyed after Tropical Storm Irene in 2011

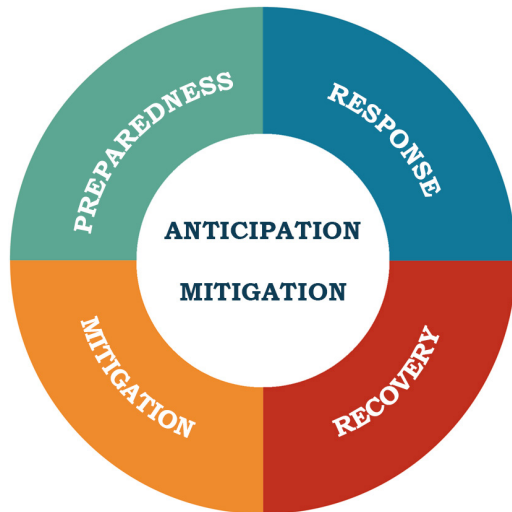
A. Background

Disasters have happened and will happen again. However, the impact of expected but unpredictable natural and human-caused events to the Region can be reduced through proper emergency management. Emergency management is commonly misunderstood as simply emergency response, which is more accurately termed *incident command*. Emergency management is a much more comprehensive field that is generally broken down into four areas—preparedness (getting ready), response, recovery, and mitigation (lessening the impacts next time)—but it also actually includes education and anticipation as well. These two additional areas create a broad understanding of the relative risk we face and a rational foundation for what emergencies we feel we will face. TRORC's strengths are in planning and administration, and therefore it is appropriate that our main attention is focused on assisting towns and the State in preparing to meet the challenges that disasters will bring. We can

also best assist our towns post-disaster through mitigation efforts designed to lessen the future risks residents may face in a subsequent disaster, as well as through supporting local recovery operations that can take months or years and require substantial administrative capacity.

Preparedness covers those actions that individuals, businesses, and communities take in order to prepare themselves for the effects of a disaster before it happens. Preparedness generally focuses on emergency personnel acquiring suitable equipment, creating response plans, and conducting training and exercises. Most emergencies of any scale will require towns to work together and often to work with state or federal agencies. Practicing with all of these partners before an actual emergency is critical to smooth emergency operations. Preparedness is also a responsibility of residents, business, and government to prepare themselves for the effects of a disaster before it happens. The more prepared we all are, at all levels, for disasters, the less loss of life and damage to property there

Are you ready?



will be when a disaster occurs, and the quicker our communities will bounce back. TRORC assists our communities in preparedness by helping them to get proper training, develop and maintain local emergency operations plans, and conduct exercises; and we work to increase coordination amongst towns, the State, nonprofits, and businesses.

Response is the immediate effort by emergency response agencies and the general public during and after a disaster to save lives and property. Besides the neighborly acts of people assisting each other in times of disaster, most response activities are carried out by our local response agencies, with state and federal resources called in during severe and extended disasters.

Recovery is the more long-term process of getting life back to normal, preferably in a manner that does not merely rebuild but creates more resilience than we had. Recovery includes many state and federal agencies, especially the Federal Emergency Management Agency (FEMA) in large disasters. Recovery can take from a few

days to several years. Recovery will be least painful where mitigation steps have already reduced the extent of damage and effective preparedness has resulted in fast response that limits the toll on lives and property. Recovery efforts are also helped by thorough and prompt documentation of losses, good media outreach communicating the assistance that is available, and interim provision of basic services. TRORC works on recovery efforts by assisting the State and FEMA with outreach, helping towns navigate federal reimbursement programs, and writing and managing grants to rebuild better.

Mitigation actions should be the cornerstone of emergency management.

Hazard **mitigation** means any sustained action that reduces or eliminates long-term risk to people and property from natural or human-caused hazards and their effects. Mitigation planning begins with an assessment of likely hazards and then targets activities to reduce the effects of these hazards. Given that the largest threat in Vermont is flood related, good mitigation measures include proper road and drainage construction as well as limiting development in flood-prone areas. Mitigation actions should be the cornerstone of emergency management. Actions can be simple educational efforts, such as awareness campaigns about smoke detectors; smarter land-use regulations that lessen risky behavior in unstable or flood-prone areas; or actual construction projects tied to a rational vulnerability assessment. TRORC works with member towns to develop their own freestanding Local Hazard Mitigation Plans. These plans are an essential ingredient in state and federal grant programs and should be meshed with Town Plans. Many of the concepts of mitigation have been included in the Regional Plan, since how and where we develop has important implications for how vulnerable we are to predictable disasters. TRORC helps towns undertake mitigation projects such as floodplain

restoration projects, including buyouts of damaged structures.

B. Emergency Services

Law Enforcement

The primary law enforcement for most of the Region is the Vermont State Police. State Police from the Royalton Barracks serve eastern central Vermont, and the force from the St. Johnsbury Barracks serves eight of the Region's municipalities located in the northern part of Orange County. Pittsfield is served from the Rutland Barracks. State Police levels are generally sufficient to handle routine incidents, but nighttime coverage is very low. Since they are also often the only law enforcement that may respond to a crime, response times can be over thirty minutes during the day depending on location, and considerably longer in the middle of the night. Vermont DMV and game wardens also possess statewide police powers.

The other large law enforcement agencies in the Region are the Sheriff's departments that cover county areas. The bulk of the Region is covered by the Windsor and Orange County Sheriffs, with Pittsfield served by Rutland County, and Hancock and Granville by Addison County. Though Sheriff's departments have the full ability to enforce the law, they have minimal funding outside of town contracts. Many towns in the Region contract with their Sheriffs for police coverage, especially for speed enforcement.

Several towns or villages in the Region have taken the additional step of creating a paid local police department, sometimes even sharing a department with a neighboring town. However, most towns have no police, but rather just town constables, who are appointed or elected, and who may or may not have any law enforcement training. In some towns the constable is close to being a full-time police officer. For constables to assume full law enforcement powers, they are now required to be certified through the Police Academy.

Fire Protection

The Region is served by a network of local fire departments, some of which are actual town entities, while others are separate volunteer services largely funded by a town. There are no county departments. All towns have at least one local fire department, with the exception of Braintree, which contracts for this service from Randolph. Only one town, Hartford, has a full-time paid department. Although there are a variety of service arrangements, local governments have the responsibility to provide fire protection services.

All of the Region's fire departments are members, formally or informally, of at least one Mutual Aid System, which provides backup assistance from neighboring fire departments when necessary. Towns bordering the Connecticut River often are involved in mutual aid with nearby New Hampshire towns. Despite the resourcefulness of many departments, many departments struggle with the costs of providing fire protection at a level that taxpayers will support. Insurance for firefighters and equipment maintenance are large annual costs, and replacement costs for fire engines can be \$400,000 or higher. These sums require careful budgeting so that they do not come as a shock to residents. However, the greatest difficulty facing departments tends to be attracting enough volunteer members, the extensive training needed, and in having members that are in town during the day for daytime calls. Lack of members close by can lead to delays in responding to calls.

Ambulance and Rescue

Ambulance and FAST (first aid stabilization team) squad services provide emergency medical services (EMS) to the Region and are regulated by the Vermont Department of Health, which coordinates and licenses them. FAST squads stabilize patients, are largely volunteer based, and serve a single town. Ambulance services can treat and transport patients, have at least some paid staff, and serve one to several towns. Only three

EMS services in the Region are full time: Hartford Emergency Services, Upper Valley Ambulance, and White River Valley Ambulance. Both Upper Valley and White River are the contracted ambulance service for several towns each and are supported by town funding. Air ambulance is provided to the Region through Dartmouth-Hitchcock Advanced Response Team (DHART) and their two helicopters. The nineteen EMS services in the Region are located in four state EMS districts (Newbury in #5, Topsham and Corinth in #2, 14 towns in the northwestern part of the Region in #8, and the remainder in #9). As with fire departments, lack of volunteers, particularly for daytime coverage, is a pressing problem for FAST squads especially. The high cost of equipment and the amount of time needed to meet licensing standards has been cited as another problem.

Related Services

In addition to the usual three emergency disciplines above, town highway crews (though not typically categorized as first responders) are a critical part of the local response system, often needed so that responders can simply get to the emergency scene in times of winter weather, downed trees, or washed-out roads. Town staff

rely on state VTrans staff for assistance with road damage. Local response operations also rely on specialized teams, such as Swift Water Rescue; Urban Search and Rescue; the Vermont Hazardous Materials Response Team; K-9 teams, the bomb squad, tactical team, and dive team of the Vermont State Police; ANR Spill Response; Vermont National Guard Civil Support Team; American Red Cross; CERT and other volunteers; as well as federal assets.

The emergency field also relies on a communications system that includes dispatch centers, 911 Public Safety Answering Points (PSAPS), 211, RACES (radio amateur civil emergency service) ham radio operators, and VTAlert and the Emergency Alert System (EAS). Finally, municipal governments may communicate information using a number of avenues including the municipal website, listservs, and social media. All of these communications systems require backup power and redundancy so they do not fail during disasters. Radio, cellular coverage, and even high-speed Internet remains lacking in some areas in the Region, creating dangerous coverage holes in the communications system. FirstNet is a nationwide system being built to ensure cellular and data coverage for responders throughout the nation.

State and Local Emergency Management

Vermont's state emergency management duties are performed by Vermont Emergency Management (VEM) within the Department of Public Safety. VEM is a small agency that largely supports state and local emergency planning and coordinates state resources during disasters. VEM houses the State Emergency Operations Center and should be the primary place for towns to request assistance if they are being overwhelmed by any type of event. VEM coordinates the several state agencies (as well as federal resources) under the State Emergency Operations Plan, as well as serving as the primary point of public information in a widespread event.



Bradford FAST Squad and Fire Dept. | Source: Kevin Geiger

Local emergency management in the Region historically has largely rested with fire departments, since they are present in nearly every town and have emergency vehicles and radios. However, there has been a general increase in awareness over the past several years that there are a wide variety of hazards, such as floods, in which the fire department's statutory powers are limited, and their response role may be other than what they train for. Effective emergency management may be improved by having first responders primarily in operational roles so they can best perform what they are trained and equipped for, while other people can fill emergency management roles.

All towns now have Local Emergency Operations Plans and have designated an Emergency Management Coordinator or Director to help get local planning done and coordinate preparedness, response, and recovery activities. Selectboards are also increasingly realizing that they have an important role in managing many types of emergencies, and they are consequently attending training sessions in such subjects as Incident Command System (ICS) or taking part in emergency exercises. Additional people are needed in local emergency response staffing who do not already have operational roles in order to adequately cover the planning, logistics, and finance parts of disasters.

Planning for preparedness and mitigation efforts must be grounded in the rational evaluation of hazards to the area and the risks these hazards pose.

Local Emergency Planning Committees (LEPCs)

Local Emergency Planning Committee (LEPC) #12 (www.LEPC12.org) covers all of the towns in the Region except for Hartland, which is part of LEPC #3. LEPCs are organizations whose responsibilities are established by state and federal law to help provide emergency planning



Meeting of LEPC #12 at White River Valley Ambulance

| Source: Kevin Geiger

for responding to chemical accidents and to work with local government emergency services, VEM, and the managers of facilities with hazardous chemicals on facility emergency plans. Though LEPCs' statutory responsibilities are largely related to hazardous materials, they take an all-hazards approach to emergency planning. TRORC has assisted LEPC #12 in providing a critical venue for cross-discipline dialogue, various trainings, and a chance for different agencies to meet before having to work together in an emergency.

C. Hazards Assessment

To be most effective, planning for preparedness and mitigation efforts must be grounded in the rational evaluation of hazards to the area and the risks these hazards pose. This can be thought of as the anticipation phase and is usually done through a formal or informal Threats Hazards Inventory and Risk Assessment (THIRA), which in essence asks and answers three basic questions: What bad things can happen? How likely are they to occur? How bad could they be? A summary of the regional THIRA below evaluates expected frequency and severity of hazards to help towns prioritize the types of emergencies they should prepare for, since any community only has limited resources and cannot prepare for all types of events, no matter how remote. For this plan, hazard frequency was classed as follows:

Rare: May never have occurred; annual probability of 1/100 or less.

Unlikely: Has occurred; annual probability of 1/25–1/100.

Unusual: Has occurred in the area; annual probability of 1/10–1/25.

Frequent: Occurs often, although in varying degrees; annual probability of 1/2 or greater.

Each hazard was also assigned a level of severity. These are designated as follows:

Minor: Minor injuries or illness, less than 10% of properties damaged, minimal disruption of quality of life, within local ability to handle.

Serious: Limited major injuries or illnesses that do not permanently disable, 10–25% of properties damaged, shutdown of critical facilities for more than a week, mutual aid systems activated and state resources needed, possible federal resources needed.

Extensive: Multiple severe injuries or illnesses, few fatalities, 25–50% of properties damaged, critical facilities shut down for more than 14 days, state resources activated, federal resources needed.

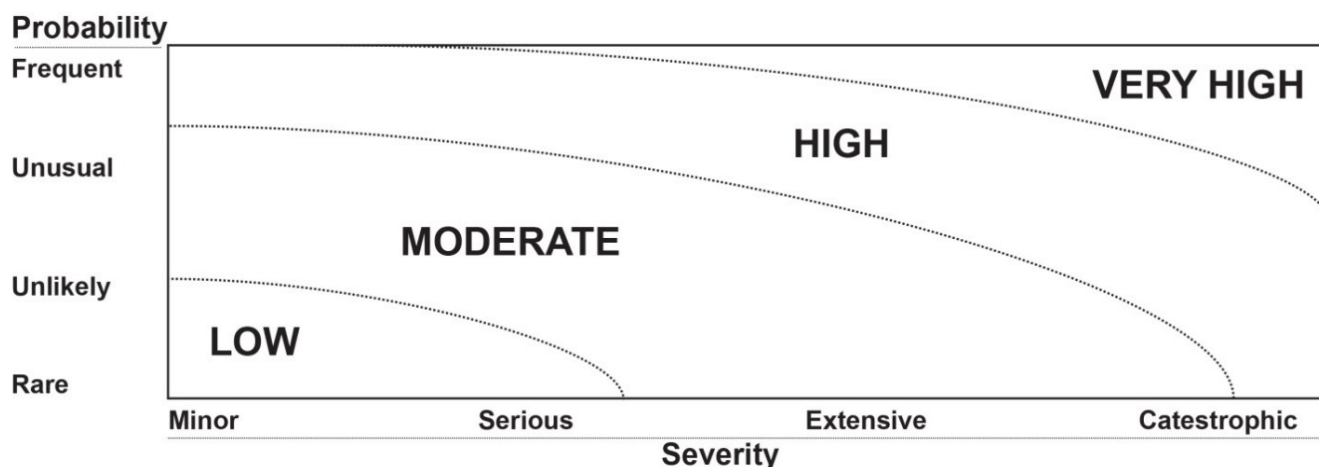
Catastrophic: Multiple fatalities,

widespread injuries, greater than 50% of properties damaged, critical facilities shut down for more than 30 days, state and federal resources needed.

The product of the combination of hazard frequency and severity creates a level of risk for each type of hazard. It is the sense of risk that motivates people to take action to avoid the hazard and prepare for what cannot be feasibly avoided. However, the sense of risk should be an informed one, not one driven by hysteria or popular misconceptions. As you will see from the graphic below, in determining what level of risk to assign, the likelihood of an event is rated slightly stronger than its severity. Consequently, a frequent but minor event is a high risk, while a rare yet catastrophic event is rated only a moderate to high risk. This is because these frequent events are more well known, can be anticipated with greater accuracy, and can be mitigated against with fewer resources. Luckily, we live in a state that has no very high risks.

This regional scale analysis can also be augmented by towns at more detailed levels by considering hazards from the point of view of what they would affect locally in terms of exposure, sensitivity, and adaptive capacity. For example, people along streams are more exposed to flooding than those outside of flood-prone areas. People with poorly insulated homes

Figure 10-1: Level of Risk



and no backup power or heat source are more sensitive to power outages in winter. People or towns with less wealth cannot adapt as easily to threats as those with more resources.

Discussion by Hazard Type

Fifteen types of hazard were reviewed and ranked by risk to the Region. This information is summarized below. Locally specific versions of this process are done when local Hazard Mitigation Plans are developed. Many Internet links about each hazard can be found at <http://www.trorc.org/programs/emergency/specific-hazards/>.

The greatest risk to the Region and the State is from flooding. Flooding has hit the Region in the past and it will again in the future.¹ Extreme storms have become more frequent and this trend is expected to continue. FEMA flood maps are a good indicator of flood risk, but severe damage also occurs along upland streams outside of mapped flood hazard areas, as well as along road drainage systems that fail to convey the amount of water they are receiving. In addition, FEMA maps are focused on inundation and do not take into account lateral movements of rivers and streams, which have undermined homes and businesses. (Note: Additional information, policies, and actions on floods can be found in the Flood Resilience section of the Land Use chapter.)

The second greatest risk to the Region is from structural fire. Vermont has one of the highest per capita death rates from fire in the nation. Towns generally do not have or require fire suppression systems (sprinklers) in older buildings that predate fire code and are not substantially renovated, and sprinklers are not required in new residential construction. Sprinklers can prevent significant loss of life by increasing the time for residents to escape blazes. Less frequent than individual structure fires are major downtown fires that can destroy entire blocks of town centers as have occurred in South Royalton, Bradford, and Randolph.



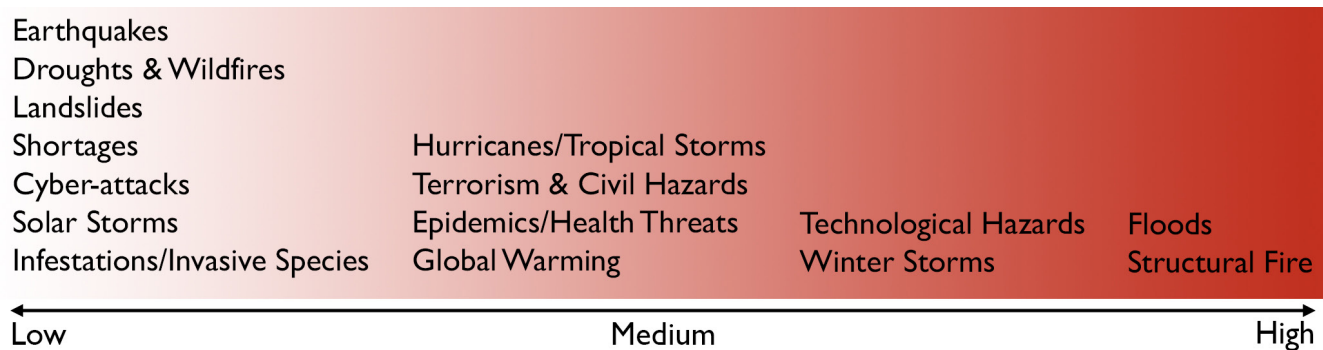
Severely Damaged Culvert, Stockbridge

| Source: Chris Sargent

“Technological hazards” and winter storms are moderate to high risks in the Region. Technological hazards are those unintentional hazards created by man-made substances, facilities, or actions that threaten people or property. This includes train derailments, hazardous materials spills or leaks, explosions, dam failure, and structure collapse. Among these, hazardous materials incidents, primarily involving petroleum products, are the most common. These events are difficult to predict, but they will certainly threaten parts of the Region again. The most memorable, and luckily not injurious, of these events was a rail car propane explosion in Fairlee in the 1970s.

Winter storms (snow or ice) are a regular occurrence in Vermont. However, severe winter storms can cause serious damage, including collapse of buildings due to overloading of roofs, brutal wind chills, and power outages due to downed trees and power lines. The January 1998 ice storm was the most recent widespread severe winter storm, but severe events will occur and ice storms appear to be increasing. The October 2005 early snow event downed trees and power lines in higher elevations in the Region, ice storms hit southeast Vermont in 2008 and

Figure 10-2: Summary of Hazards and Their Risks



northwest Vermont in 2013, and a heavy wet snow in December 2014 caused many outages.

Other hazards that are moderate risks to the Region include high winds, hail, and tornadoes. Hailstorms generally occur about twice a year in Vermont, and a small tornado is almost an annual occurrence.

Lower moderate risks include terrorism and civil hazards, contagious human disease, and climate change. Thankfully, terrorism and civil hazards are unlikely occurrences in Vermont. These hazards include actions that people intentionally do to threaten lives and property. The prime concern in this area is someone with a weapon in a school.

Contagious diseases, especially pandemic influenza due to a novel flu strain will occur some year, and it is estimated that 20–30% of the population will become ill, with a portion of those cases being serious or fatal.² Since the flu is a virus, there are antiviral drugs that can lessen its effects, but antibiotics have no effect, and it is the body's immune system that is the main agent against the virus. Vaccines tailored to a specific viral strain are effective but have to be created several months in advance. The annual flu vaccine is based on estimates of the upcoming strain(s), so if a novel strain emerged, that vaccine would not be ready before it arrived in Vermont.

While many types of emergencies are under local authority, pandemics are a federal and state emergency. Extensive planning has been

done at these levels and such plans emphasize measures to slow the spread of the disease while a vaccine is being developed. It is assumed that the traditional health-care system would be overwhelmed and basic mass care would likely be administered at temporary regional facilities to protect hospitalized populations and leave hospitals available for other needed emergency medical care. Extensive public outreach would be implemented to dispel rumors and provide the best advice, including handwashing and staying home when sick.

Climate change is not a traditional disaster type, as it is more of a disastrous cause of disasters—a meta-disaster. It is affecting us now, but its worst effects will occur over decades, and the severity of its effects are difficult to fully anticipate, as it has not happened to us before. However, the predicted changes range from simply severe if greenhouse gases are quickly lowered to catastrophic if emissions continue unabated.

Earthquakes, landslides, extreme temperatures, solar storms, cyber-attacks, droughts, wildfire, shortages/outages, and invasive species/infestations are lower risks due to estimated rarity or lack of expected severity, but still warrant emergency planning.

Goal, Policies, and Recommendations: **Emergency Management**

Goal

1. There is minimal loss of life, physical and emotional injury, financial loss, and property damage and loss resulting from all hazards.

Policies

1. Response plans and capacities need to reflect an all-hazards approach and be coordinated between towns, the State, and federal agencies.
2. Mitigation must be part of all recovery efforts in order to increase resilience.
3. Information on expected disasters and causes of injury or property damage should be as accurate and up-to-date as possible in order to properly gauge hazards.
4. Agencies or organizations expected to respond in a unified manner should train and exercise together.
5. Towns, individuals, and businesses should all be prepared for predictable disasters.
6. New or rebuilt development shall not increase disaster risk and should take reasonable steps to reduce risk.
7. Mitigation actions should:
 - a. Seek to avoid impacts of a hazard first, then reduce impacts that cannot be reasonably avoided;
 - b. Recognize the connections between land use, development siting, drainage systems, building standards, and road design and maintenance and the effects of disasters on the Region;
 - c. Be mindful of the natural and human resources of the area;
 - d. Be part of a larger systematic effort at disaster reduction; and
 - e. Seek to permanently avoid damages when feasible.
8. Additional telecommunications towers should be built to increase radio and cellular coverage for emergency responders, including FirstNet.
9. Critical facilities, including emergency service buildings, substations, medical facilities, town offices, and town and state garages, must be constructed to be disaster resistant and able to withstand expected 100-year return events with minimal impacts.

Recommendations

1. State and federal governments must continue funding and operation of warning systems, including the National Weather Service's Emergency Alert System, NOAA weather radio, and USGS river and precipitation gauges.
2. Towns should pursue the use of capital programs and reserve accounts to properly budget for emergency vehicles and other large capital costs, as well as coordinate and share services to achieve overall efficiencies.
3. Towns should encourage sprinkler systems in residential structures to reduce loss from fire.
4. TRORC will continue to work with all communities to annually update Local Emergency Operations Plans, ensuring that these plans take into account the varied needs of people with disabilities, pets, and those without access to transportation.
5. TRORC will continue to work with all communities on hazard mitigation efforts, including updating mitigation plans, enhancing road and bridge standards for resiliency, and addressing flood resilience in Town Plans.

Goals, policies, and recommendations continued on next page

Goal, Policies, and Recommendations: **Emergency Management**

Recommendations (continued)

6. TRORC will continue to work cooperatively with local emergency response organizations, VEM, LEPC #12, social service agencies, long-term recovery organizations, community resilience organizations, and others to help improve emergency planning, response, and recovery.
7. The federal and state governments should increase funding for preparedness and mitigation planning and actions at the local level in order to reduce escalating response and recovery costs.
8. FEMA should modernize flood maps, especially in Orange County and in unnumbered A zones, and incorporate newer flood frequency predictions into maps.
9. TRORC should assist towns and VT ANR in refining river corridor maps.
10. TRORC should work to ensure that new hazard assessment data from the state and federal levels is disseminated to the public and local officials so that capacity is risk based.
11. Communities should work to ensure that important local facilities that provide emergency services, water, food, and gas or that act as emergency shelters are able to function during power outages.
12. TRORC should work with towns and other organizations to coordinate land use, transportation, and energy policies and actions to result in more resilient communities.
13. TRORC should assist towns in response and recovery stages through damage documentation assistance and navigating federal and state grants.
14. TRORC will continue to do outreach on preparedness by individuals and continuity planning for businesses so they are better prepared for expected incidents.
15. Vermont should look into statewide building codes for residential wood heating systems.

Emergency Management Endnotes

1. Huanping Huang, Jonathan M. Winter, Erich C. Osterberg, Radley M. Horton, and Brian Beckage, “Total and Extreme Precipitation over the Northeastern United States,” *Journal of Hydrometeorology* 18, no. 6 (June 2017), <https://doi.org/10.1175/JHM-D-16-0195.1>.
2. U.S. Department of Health and Human Services, *Pandemic Influenza Plan: 2017 Update*, 2017, <https://www.cdc.gov/flu/pandemic-resources/pdf/pan-flu-report-2017v2.pdf>.



Willard Bridge, Pomfret | © John Knox