X. EMERGENCY MANAGEMENT

A. Background

The impact of expected, but unpredictable natural and human-caused events to the region can be reduced through proper emergency management. Emergency management is generally broken down into four areas - preparedness, response, recovery and mitigation – but also actually includes anticipation and education. These two areas create the context of what emergencies we will face and disseminate this information out so that the other phases are grounded in the rational risks of the area. The Regional Commission's strengths are in planning and administration, and therefore it is appropriate that attention is focused on understanding the emergency context and assisting towns and the state in preparing to meet these challenges. We can also best assist our towns post-disaster through mitigation efforts to lessen the risks residents face by eliminating or minimizing the effects of subsequent disaster, as well as through 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. The more prepared we all are, at all levels, for disasters, the less the loss of life and damage to property will be when a disaster occurs, and the quicker our communities will bounce back.

Preparedness generally focuses on emergency personnel acquiring suitable equipment, creating response plans and conducting training and exercises. However, preparedness is a responsibility of residents, business and government as well 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 the loss of life and damage to property will be when a disaster occurs, and the quicker our communities will bounce back. A disaster can affect not just our private lives, but can also ruin businesses and their employees' livelihood. If such a tragedy happens to many businesses or a large and critical one, it can also cripple local economies. While businesses can do their part to support their communities and employees in their own preparedness efforts, businesses can and should take actions that will help them weather the strain a disaster can deliver. The Institute for Business and Home Safety, EDA, and the Small Business Development Centers all have resources that can help businesses prepare and recover.

Response is the immediate effort by emergency response agencies and the general public during and after a disaster to save lives and property. Proper equipment, training and coordination among responder agencies, and a well-educated and resilient general public, will make response activities more effective when they are needed. Besides the neighborly acts of people assisting each other in times of disaster, most response activities are carried out by our local response agencies, then state and federal resources may be called in during severe and extended disasters.

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.

Recovery is the more long-term process of putting 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 a few years, requires many partners, and is hindered if a disaster is severe or widespread. Recovery will be least painful where mitigation and preparedness steps have already reduced the extent of damage and fast response has limited the toll on lives and property. Recovery efforts will also be helped by having well-practiced regional coordination in place prior to the disaster so that towns can help each other and so that the local/state/federal administrative issues are handled smoothly. Thorough and prompt documentation of losses, good media outreach communicating the assistance that is available, and the interim provision of basic services will all enable communities to recover as fast and fully as possible.

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.

The Regional Commission is now working 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.

B. Emergency Services

Police

The primary law enforcement for most of the region is the Vermont State Police. Two State Police regional barracks are located within the region. State Police from the Royalton (formerly Bethel) Barracks serve eastern central Vermont, and the force from the Bradford Barracks serves eight of the region's municipalities located in the northern part of Orange County. Pittsfield is served from the Rutland Barracks and Hancock and Granville are served from the Middlebury Barracks. State Police force 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 abilities to do law enforcement, they have minimal funding outside of town contracts. Many towns in the region contract with their Sheriffs, 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. Most towns do not have any police, but rather constables, who are elected, and 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

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.

Photo 1: Tunbridge Fire Department
Photo Source: Kevin Geiger

All of the region's fire departments are members, formally or informally, of at least one Mutual Aid System, which provide back-up 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. Insurance for firefighters and maintaining equipment are large annual costs, and replacement costs for fire engines can be $300-400,000. These sums require careful budgeting so that they do not come as a shock. However, the greatest difficulty facing departments tends to be attracting enough volunteers, 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 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. Ambulances services can treat and transport, 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 supported by town funding. Air ambulance is provided to the region through Dartmouth Hitchcock Advanced Response Team (DHART) and their two helicopters. Nearly all of the nineteen EMS services in the region are in the state EMS Districts #8 and #9. As with fire departments, lack of volunteers, particularly for daytime coverage, is a pressing problem. The high cost of equipment and the amount of time needed to meet licensing standards has been cited as another problem.

Photo 2: Bradford FAST Squad and Fire Dept.
Photo Source: Kevin Geiger

Related Services

In addition to the usual three emergency disciplines above, town highway crews are a critical part of the local response system, often needed so that responders can simply get to the scene in times of winter weather, downed trees or washed out roads. Town staff rely on state VTrans staff for assistance with road damage. Response operations also rely on specialized teams, such as local Swift Water Rescue or Urban Search and Rescue teams; K-9 teams; the Vermont Hazardous Materials Response Team; 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 E911 for mapping, dispatch centers, 911 PSAPS for call taking, 211 for more general information, RACES ham radio operators for failsafe communications, and VTAlert and the Emergency Alert System. Finally, municipal governments may communicate information using a number of avenues including the municipal website, listservs and social media during an emergency or otherwise. All of these communications systems require power and redundancy so they do not fail during disasters. Radio, cellular coverage, and even high-speed internet remains lacking in some areas, creating dangerous coverage holes in the communications system.

State and Local Emergency Management

Vermont's state emergency management duties are performed by the Division of Emergency Management and Homeland Security (DEMHS) within the Department of Public Safety. DEMHS is a small agency that largely supports state and local emergency planning and coordinates state resources during disasters. DEMHS 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. DEMHS coordinates the several state agencies under the State Emergency Operations Plan, as well as serves as the primary point of public information in a widespread event.

Local emergency management in the region 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.

Most towns had no emergency plans until the last decade, and now all towns have Local Emergency Operations Plans and have designated an Emergency Management Coordinator or Director to help get local planning done and coordinate a number of local players that may be needed in preparedness activities. Selectboards are also increasingly realizing that they have an important role in managing many types of emergencies, and are subsequently 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.

Local Emergency Planning Committees (LEPCs)

Photo 3: Meeting of LEPC #12 at White River Valley Ambulance
Photo Source: Kevin Geiger

LEPC #12, www.LEPC12.org, covers all of the towns in the region except for Hartland; they are part of LEPC#3. LEPCs are organizations whose responsibilities are established by Vermont and federal law to help provide emergency planning for responding to chemical accidents, and to work with local government emergency services, DEMHS, 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. Currently, the LEPC #12 meetings provide a critical venue for cross-discipline dialog, various trainings, and a chance for different agencies to meet before having to work together in an emergency.

C. Hazards Assessment

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?

In conducting the regional hazards assessment, potential hazards were ranked based on available information on their frequency and estimates of potential severity. The frequency at which one can expect a type of disaster to occur affects how much priority is placed on preparing for and mitigating that type of event, 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, has annual probability of 1/25-100.

Unusual Has occurred in the area and has an annual probability of 1/10-25.

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

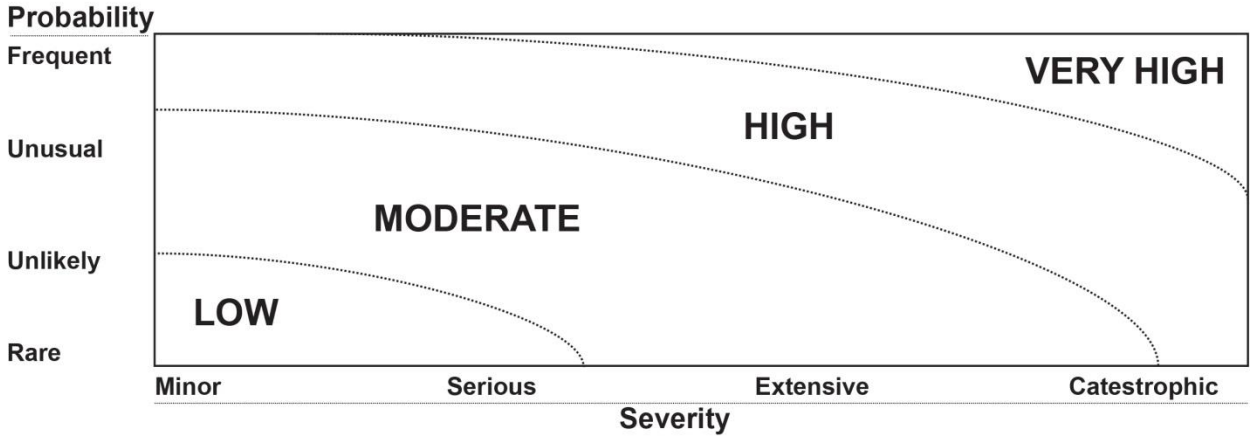

Figure 1: Level of Risk

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

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

Serious Limited major injuries or illness 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 illness, few fatalities, 25-50% of properties damaged, critical facilities shut down for >14 days, state resources activated, federal resources needed.
Catastrophic	Multiple fatalities, widespread injuries, >50% of properties damaged, critical facilities shut down for >30 days, state and federal resources needed.

The product of the combination of hazard frequency and severity creates a risk for each type of hazard. Risk is very important, because it is the sense of risk that motivates people to take action to avoid the risk and prepare for what cannot be feasibly avoided. However, the sense of risk should be an informed one, not 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 only rated 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 less resources. Luckily, we live in state that has no very high risks.

This regional scale analysis can also be augmented at more detailed levels by considering hazards from the point of view of what they affect 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 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. Copious Internet links about each hazard can be found at www.trorc.org

Photo 4: Severely Damaged Culvert, Stockbridge
Photo Source: Chris Sargent

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. Extreme storms have been becoming more frequent and this trend is expected to continue. Flooding is of two types – rain and/or snowmelt events that are more widespread in nature and cause flooding in the major rivers' floodplains, and localized flash flooding caused by unusually large rainstorms over a small area. Both kinds of events can be worsened by ice or debris dams and the failure of undersized infrastructure (especially culverts), private dams and beaver dams. 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 movement of rivers and streams, and this erosion has undermined homes and businesses. (Note: Additional information, policies and actions on floods can be found in the Flood Resilience section of the Regional Plan.)

The second greatest risk to the region is from structural fire. Vermont had one of the highest per capita death rates from fire in the nation, but this has dropped considerably in recent years. 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 all new residential construction. Sprinklers can prevent significant loss of life by increasing the time residents can escape blazes. Less frequent than individual fires are the major downtown fires that can destroy town centers. A fire in an unprotected downtown can be devastating, and such have historically occurred in South Royalton, Bradford, and Randolph.

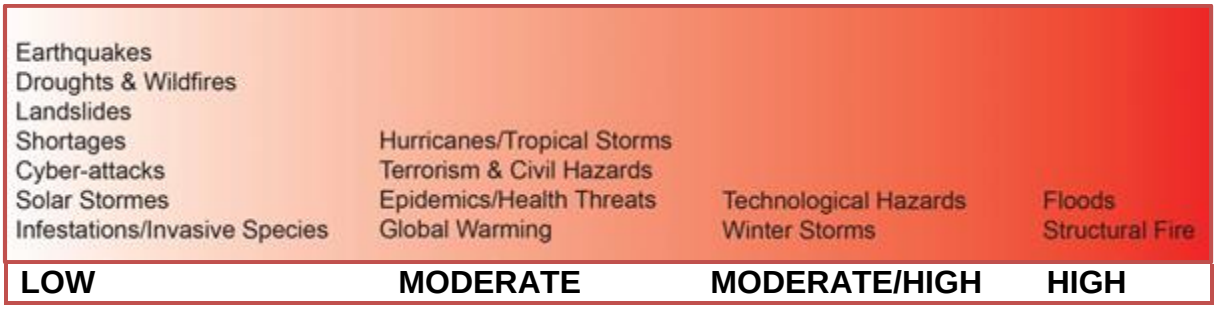

Figure 2: Summary of Hazards and Their Risks

"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, airplane crashes, vehicle crashes, 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 are a regular occurrence in Vermont. However, severe winter storms can cause serious damage, including collapse of buildings due to overloading with snow or ice, brutal wind chills, and power outages due to downed trees and power lines. With the exception of the January 1998 ice storm (which was thought to be a 200-500 year event), Vermont has not experienced a widespread severe winter storm recently, but severe events have and will occur. 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 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 hurricanes/tropical storms, and the more common severe thunderstorms, which can be associated with lightning, high winds, hail and tornadoes. Tropical Storm Irene severely impacted the region in 2011. Storms with such

heavy rainfall have been rare, but are increasing in frequency to only unlikely, and so this hazard may become a higher hazard over time. Hailstorms generally occur about twice a year in Vermont, and a small tornado is almost an annual occurrence. Tornadoes are less common than hail storms and high winds, but they have occurred throughout Vermont.

Lower moderate risks that were evaluated included: terrorism and civil hazards, disease, and global warming. 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 a pandemic, are similar to terrorism and civil hazards, in that they are unlikely but could have very serious results, making them a moderate risk. While Ebola was a recent concern, it is anticipated that a more serious strain of the usual flu will occur some year and that vaccines would not be ready before it arrived in Vermont. Global warming is not a traditional disaster type, as 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, it is occurring now, and the predicted changes are disastrous. If climate change occurs as projected we will see a several fold increase in flooding, a much shorter winter, and an extremely hot summer in the decades ahead. With these changes, this driver of hazards will increase in risk.

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

Surprising as it is to some, Vermont is classified as an area with "moderate" seismic activity. In general, the eastern and western edges of the region have greater risks and would have damage in the millions if such an unlikely quake occurred.

Vermont actually has a relatively high danger due to landslides in some locations. Though this type of disaster rarely results in injury, it can destabilize roads and threaten structures. In the region, several landslides have threatened roads and buildings or caused huge sedimentation issues in rivers. Slides in Stockbridge, Plymouth, Hartford, Barnard and Bethel are impacting roads or properties.

Shortages of power, fuel, food and water are likely to be temporary and the indirect result of a localized disaster creating disruption in transportation and supply systems or of a widespread weather event. Increased sheltering capacity in the region would help address this issue, if needed.

D. Goals, Policies and Recommendations

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 levels.

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 together.

5. Efforts to educate individuals and families to prepare disaster kits and disaster plans are encouraged.

6. Conduct exercises to ensure that response plans are workable.

7. Public and private critical facilities must be built and designed to be able to function during disasters and should be coordinated to reduce unnecessary waste.

8. New or rebuilt development shall not increase disaster risk, and should take reasonable steps to reduce risk.

9. 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 sympathetic to 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.

10. Planned telecommunications towers must be built to allow collocation of emergency communications systems in order to increase radio or other coverage while lessening the need for more towers. (see Chapter #, Utilities, Facilities & Services, section I)

11. 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.

12. Towns should pursue the use of capital programs and reserve accounts to properly budget so that emergency responders in the region are properly trained and equipped to respond to anticipated disasters.

Recommendations for Action

1. State and Federal government 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. Individuals should have disaster kits ready in their homes and vehicles. They should have a plan as to what to do and where to go during foreseeable emergencies and know their local emergency shelter.

3. 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.
4. Towns should encourage sprinkling in residential structures to reduce loss from fire.

5. 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.

6. TRORC will continue to work with all communities on hazard mitigation planning efforts.

7. TRORC will continue to work cooperatively with local emergency response organizations, DEMHS, LEPC #12, social service agencies, long term recovery organizations, community resilience organizations, and others to help improve emergency planning, response, and recovery.

8. 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.

9. FEMA should modernize flood maps, especially in Orange County and unnumbered A zones, and incorporate newer flood frequency predictions into new maps.

10. TRORC should assist towns and ANR in refining river corridor maps.

11. 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.

12. Communities should work to ensure that important local facilities that provide emergency services, water, food, gas or act as an emergency shelter are able to function in power outages.

13. TRORC should work with towns and other organizations to coordinate land use, transportation and energy policies and actions to result in more resilient communities.

14. TRORC should assist towns in response and recovery stages through damage documentation assistance and navigating federal and state grants.