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. Because the Regional Commission is not a response agency, but rather a planning agency, it is appropriate that we focus attention on the mitigation phase and lessening the risks our residents will face through building communities that are resistant to disasters. This is also proper planning, as we should attempt to eliminate or minimize the effects of disaster first. However, we are also connected somewhat to the preparedness, response and recovery phases.

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 includes emergency personnel acquiring suitable equipment, creating response plans and conducting training and exercises. Preparedness is also a responsibility of residents, business and government. 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.

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. Who would not rather that a disaster be avoided, than responded to? 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.

To begin this process, the region originally developed a Pre-Disaster Mitigation (PDM) Plan for the TRORC area, and annexes for each town. This plan has since expired and 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) Station serve eastern central Vermont, and the force from the Bradford Station serves eight of the region's municipalities located in the northern part of Orange County. Pittsfield is served from the Rutland Station; Hancock and Granville are served from the Middlebury Station. 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.

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, sometime 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.

Photo 1: Tunbridge Fire Department
Photo Source: Kevin Geiger

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. 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 provide back-up assistance from neighboring fire companies 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 and vehicle costs are large. However, the greatest difficulty facing departments tends to be attracting enough volunteers, and in having members that are in town during the day for daytime calls.

Ambulance and Rescue

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

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 and ambulances can treat and transport. Nearly all of the nineteen EMS services in the region are in Districts #8 and #9. FAST s quads are largely volunteer-based and serve a single town, while ambulance services have at least some paid staff and serve a few to several towns. 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. 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 contract ambulance for several towns. Air ambulance is provided to the region through Dartmouth Hitchcock Advanced Response Team (DHART) and their two helicopters.

In addition to the usual three emergency services, it should be remembered that town road crews are a critical part of the response system, often needed so that responders can simply get to the scene in times of winter weather, downed trees or washed out roads. Response operations also rely on specialized teams, such as local Swift Water Rescue or Urban Search and Rescue 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.

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 serve 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 in which, like floods, the fire department's response role may be limited and that additional people are needed in local emergency response that do not already have operational roles. Most towns had no emergency plans until the last decade, and now many towns have plans and have designated an Emergency Management Coordinator or Director to help get local planning done and coordinate the many 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 or taking part in emergency exercises.

Local Emergency Planning Committees (LEPCs)

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 good venue for cross-discipline dialog, various trainings, and a chance for different agencies to meet before having to work together in an emergency.

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

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 is usually done through a 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 more.
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.

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.

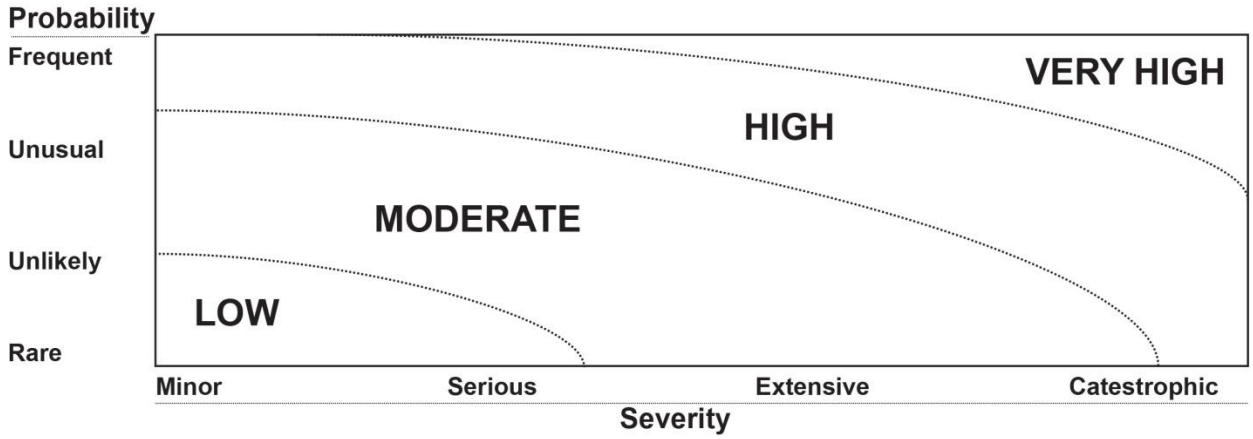

Figure 1: Level of Risk

Discussion by Hazard Type

Fifteen types of hazard were reviewed and ranked by risk to the region through a HIRA process. This information is summarized below and can be found in more detail in the Regional Pre-Disaster Mitigation Plan. Copious Internet links about each hazard can also be found at the Emergency Management section of the Commission's website, 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.

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. Less frequent than individual fires are the major downtown fires that can destroy town centers. have

or require fire suppression systems (sprinklers) in older buildings. A fire in an unprotected downtown can be devastating.

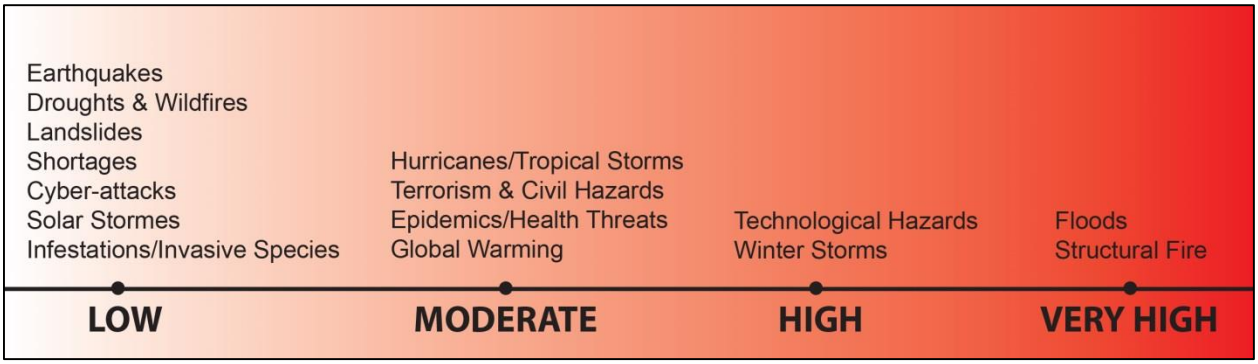

Figure 2: Summary of Hazards and Their Risks

"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, and ice storms hit southeast Vermont in 2008 and northwest Vermont in 2013.

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. 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 is a current 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 nowand 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 as Vermont's climate shifts closer to something like Tennessee's.

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 slides have threatened roads and buildings or caused huge sedimentation issues in rivers.

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. Goal

1. Reduce the loss of life, physical and emotional injury, financial loss, and property damage resulting from all hazards.

E. Policies

1. Response plans 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. Emergency responders in the region must be properly trained and equipped to respond to anticipated disasters.

4. Information on expected disasters should be as accurate and up-to-date as possible in order to properly gage hazards.

5. Agencies or organizations expected to respond in a unified manner should train together.

6. Efforts to educate individuals and families to prepare disaster kit and disaster plans are encouraged.

7. Exercises must be conducted to ensure that response plans are workable.

F. Recommendations for Action

1. Public and private critical facilities must be built and/or located to be disaster resistant and able to continue to function during disasters. This includes emergency service buildings, substations, medical facilities, town offices, and town and state garages.

2. Planned telecommunications towers must be built to allow collocation of emergency communications systems (and vice versa) in order to increase radio or other coverage while lessening the need for more towers.

3. New or rebuilt development should incorporate disaster resistant design in its infrastructure. Development that would be at risk, or puts others at increased risk, of flooding, fire, or other hazards should mitigate this risk as much as practical. 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.

4. Continued funding and operation of warning systems, including the National Weather Service's Emergency Alert System, NOAA weather radio and USGS river and precipitation gages, are encouraged at the state and federal levels.

5. 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.

6. All communities should have an up-to-date Local Emergency Operations Plan on file with DEMHS.

7. TRORC will continue to work cooperatively with local emergency response organizations, DEMHS, LEPC #12 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 incorporate flood frequency predictions into new maps.

10. 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.

Photo 5: Hurricane Katrina relief supplies being gathered at Hartford's Emergency Services Building – *Photo Source: Kevin Geiger*