

Chapter 4

Goal 1: Protection of lives and property from potential hazards

Emergency services measures protect people during and after a disaster. A good emergency management program addresses all hazards, and it involves all municipal and/or county departments.

At the state level, programs are coordinated by the Michigan State Police Emergency Management Division. Mackinac County emergency services are coordinated through the Mackinac County Office of Emergency Services in St. Ignace. The fire and ambulance departments of the municipalities in the County are the first-responders, and local leaders (township supervisors, etc.) are designated as the official emergency contact.

Objective: Provide early adequate warning

Threat recognition is most important. The first step in responding to a severe winter storm, thunderstorm, tornado, flood, or other natural hazard is knowing when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated.

Severe Winter Storms: The National Weather Service (NWS) is the prime agency for predicting winter storms. Though more difficult, the NWS can also forecast ice storms. They have completed a major modernization program designed to improve the quality and reliability of weather forecasting. The keystone of this improvement is Doppler Weather Surveillance Radar, which can more easily detect severe weather events that threaten life and property – including severe winter weather events such as snowstorms. Most important, the lead time and specificity of warnings for severe weather have improved significantly. Severe snow storms can often be forecasted days in advance of the expected event, which allows time for warning and preparation.

The State and local government agencies are warned via the Law Enforcement Information Network (LEIN), National Oceanic and Atmospheric Administration (NOAA) weather radio, and the Emergency Managers Weather Information Network (EMWIN). Public warning is provided through the Emergency Alert System (EAS). The National Weather Service stations in Michigan transmit information directly to radio and television stations, which in turn pass the warning on to the public.

Tornadoes and Thunderstorms: The National Weather Service again, is the prime agency for detecting meteorological threats, such as tornadoes and thunderstorms. Severe weather warnings are transmitted through the Michigan State Police's Law Enforcement Information Network (LEIN) and through the NOAA Weather Radio System. The Federal agency can only look at the large scale, e.g., whether conditions are appropriate for formation of a tornado. For tornadoes and thunderstorms, local emergency managers can provide more site-specific and timely

recognition by sending out National Weather Service trained spotters to watch the skies when the Weather Service issues a watch or warning.

Wildfires: The MDNR Forest Management Division directs and coordinates wildfire prevention, containment and suppression activities on all non-federal lands in the state, as well as Indian Reservations (under contract with the U.S. Bureau of Indian Affairs). The MDNR places great emphasis on wildfire prevention and public education, since the vast majority of wildfires in Michigan are caused by human activity. The MDNR Forest Management Division's philosophy is that preventing fires from starting in the first place, and taking precautionary measures around rural homes to stop the spread of wildfires, are the best means of avoiding or minimizing wildfire losses. The Hiawatha National Forest is protected by the US Federal Forest Service. Each agency has mutual aid agreements with local fire departments.

When conditions of extreme fire hazard exist, the MDNR can request the Governor to issue an outdoor burning ban to mitigate the potential for wildfire in all or part of the state. Such a ban restricts smoking, fireworks, and outdoor burning activities to approved locations. Crews will be sent out for an aerial survey of the areas with high potential for wildfire.

As state in Chapter 1, 80 percent of Mackinac County is covered by forest land and many of those acres are owned by State and Federal government. On **Mackinac Island**, 60 percent of land cover is upland forest. The majority of these upland forests are part of the State Park and are composed of northern hardwoods, pine, aspen and birch. This land, under the jurisdiction of the Mackinac Island State Park Commission, is protected due to the significant historical value, and nature is left alone. When times of dryness occur, wildfire is especially threatening to these areas. The local government then becomes responsible for the safety of the residents as well as the many tourists that may be visiting the Island. The Island communities are more vulnerable as they have to handle an emergency on their own until help from the mainland can arrive.

Public and private property in the urban/wildland interface can be better protected from the risk of damage or destruction by possible wildfires. The scenic and fish and wildlife resources which attract tourists to the area will also be better protected as a result of improved forest management, thereby preventing the loss of important tourism-related income in the local area.

Floods: A flood threat recognition system predicts the time and height of the flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels.

In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

After the threat recognition system tells the OES and municipalities that a winter storm, thunderstorm, tornado, flood, or other hazard is coming, the next step is to notify the public and staff of other agencies and critical facilities. The earlier and the more specific the warning, the greater the number of people who can implement protection measures.

The National Weather Service issues notices to the public using two levels of notification:

Watch: conditions are right for thunderstorms, tornadoes or winter storms, wildfires or flooding.

Warning: a flood, tornado, etc. has started or has been observed.

A more specific warning may be disseminated by the community in a variety of ways. The following are the more common methods:

- Outdoor warning sirens
- Sirens on public safety vehicles
- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Door-to-door contact
- Mobile public address systems

Multiple or redundant systems are most effective – if people do not hear one warning, they may still get the message from another part of the system. Each has advantages and disadvantages:

Radio and television provide a lot of information, but people have to know when to turn them on.

NOAA Weather Radio can provide short messages of any impending weather hazard or emergency and advise people to turn on their radios or televisions, but not everyone has a Weather Radio.

Outdoor warning sirens can reach many people quickly as long as they are outdoors. They do not reach people in tightly-insulated buildings or those around loud noise, such as at a factory, during a thunderstorm, or in air conditioned homes. They do not explain what hazard is coming, but people should know to turn on a radio or television.

Automated telephone notification services are also fast, but can be expensive and do not work when phone lines are down. Nor do they work for unlisted numbers and calling screener services, although individuals can sign up for notifications.

Where a threat has a longer lead time, going door-to-door and manual telephone trees can be effective.

Just as important as issuing a warning is telling people what to do. A warning program should have a public information aspect. People need to know the difference between a tornado

warning (when they should seek shelter in a basement) and a flood warning (when they should stay out of basements).

The Mackinac County OES is responsible for disseminating warning information to the public and notifying response personnel during an emergency. Once a threat is perceived, the County's 911 dispatch center transmits the warnings to these offices, as well as schools, hospitals, government offices, business, and the general public through the following systems:

The Emergency Alert Radio System (EARS) is a tone alert system designed to provide weather watch and warning information to schools, hospitals, government offices, business, and the general public.

The Emergency Alert System (EAS) is a national warning system that utilizes broadcast radio and television stations and local cable televisions systems. In Mackinac County, the EAS works closely with radio stations WSOO/WSUE (AM-1230, FM-101.3) and KNOW/WYSS (AM-1400, FM-99.5) and WIHC (FM 97.9), and WNBY (FM 93.8) and TV stations WWUP 9&10, WGTQ 29&8, WTOM 7&4, WCMU Public, and WGKU FOX.

Municipalities are responsible for the installation and operation of warning sirens. Fire chiefs, township supervisors and police chiefs are authorized to activate these systems. Most of the County does not have warning siren coverage. (See Map 23, Siren Coverage.) The lack of use of sirens and/or using the sirens to announce a non-emergency situation has developed over the years into a lack of public awareness. A public education program would be needed explaining the siren warnings, when they are used and what to do. The County OES holds that the most effective means of warning are radio, television, cable systems (EAS) and NOAA Weather Radios.

Stormready: The National Weather Service established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public. To be officially StormReady, a community must:

1. Establish a 24 hour warning point and an emergency operations center
2. Have more than one way to receive severe weather warnings and forecasts and to alert the public
3. Create a system that monitors weather conditions locally
4. Promote the importance of public readiness through community seminars
5. Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Being designated as a StormReady community by the Weather Service is a good measure of a community's emergency warning program for weather hazards.

Mitigation actions

- Making sure warning systems are adequate for area coverage.
- Identify areas that may need better coverage.
- Increase public awareness about warning system and what it means
- Develop call-out systems

Objective: To maintain essential, trained emergency services

The protection of life and property is the foremost important task of emergency responders. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency management)
- Closing streets or bridges (police or public works)
- Shutting off power to damaged areas (utility company)
- Passing out sand and sandbags (public works)
- Ordering an evacuation (mayor, township supervisors)
- Holding children at school/releasing children from school (school district)
- Opening shelters (Red Cross)
- Security and other protection measures (police)

An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans should be developed in coordination with the agencies or offices that are given various responsibilities.

Emergency action plans should be updated annually to keep contact names and telephone numbers current and to make sure that supplies and equipment that will be needed are still available. They should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner.

The Mackinac County Emergency Action Guidelines (EAG) is designed to present a common platform for coordination of major response activities for all types of natural and technological hazards. It establishes the responsibilities during a disaster, such as communications, evacuation and public health. Implementation of these Guidelines relies on the combined effort of Mackinac County departments and municipal or township emergency departments.

The EAG provides the standard operating procedures and other guidance documents that cover the details of various aspects of emergency response, such as communications, evacuation, sheltering, damage assessment, and severe weather. It also has a Pre-Emergency Operations Checklist with to-do items that pertain to specific and various hazards.

The City of St. Ignace, the City of Mackinac Island, and Bois Blanc Island Township maintain EAG Support Plans to coordinate with the County's emergency services. The remaining municipalities in the County rely on direction and assistance from the Mackinac County Office of Emergency Services. If the severity or extent of an emergency were to exceed any municipality's capability, the County is able to provide additional resources.

The City of St. Ignace and Mackinac Island are the only municipalities with a law enforcement agency in the County. The remainder of the County is serviced by the Mackinac County Sheriff's Department (main office in St. Ignace) and supplemented by the Michigan State Police, with the St. Ignace Post and Mackinac Island Post.

The City of St. Ignace has the only part-paid fire department in the County. The remainder of the county is served by volunteer departments, mostly at the Township level. The U.S. Forest Service is responsible for fire protection in the Hiawatha National Forest and the Department of Natural Resources (DNR) is responsible for fire protection on state forested land. Both agencies work closely with local fire fighting groups whenever the danger of woodland and urban fires is elevated. In addition, all fire departments have mutual aid assistance agreements with one another.

Mitigation actions:

- Recruiting new volunteers
- Providing opportunities for training of volunteers
- Practicing response drills
- Encouraging community emergency planning efforts
- Cost-sharing/cooperation between local units of governments, law enforcement agencies, emergency services, state and federal departments

Objective: Provide emergency shelters

During and after a disaster, communities should undertake activities to protect public health and safety, facilitate recovery, and help prepare people and property for the next disaster. By providing emergency shelters with appropriate supplies, the County helps to ensure the safety of public during a disaster.

Appropriate measures include the following:

- Providing for the mass care and sheltering of residents left without heat or electricity
- Mobilizing sufficient resources to clear blocked roads of debris or snow for transportation safety
- Providing safe drinking water and food
- Patrolling evacuated areas to prevent looting
- Monitoring for diseases

Vaccinating residents for tetanus
Cleaning up debris and garbage

Mitigation actions

Identify mass care facilities and necessary resources such as cots, blankets, food supplies and generators, as well as snow clearance and removal equipment and services.

Once identified, care facilities should be assessed for resistance to potential damage from hazards (snow loads on roof, wind protections, etc...). If areas are found that can or should be upgraded, every effort should be made to make the care facility disaster resistant.

Construct new shelter(s) or safe rooms in needed area(s).

Communities should develop debris management procedures (to include the identification of multiple debris storage, processing and disposal sites) so that the tree and other storm-related debris can be handled in the most expedient, efficient, and environmentally safe manner possible.

Information about shelters should be made known for the citizens and the visitors who are traveling through the area.

Objective: Identify vulnerable population areas

Identification of the vulnerable population areas will help to ensure the safety of the people and visitors of the area. For example, the County has many campgrounds throughout the interior and along the shoreline areas. Campers may not have TV or radio to receive early warning. The tents or camper trailers would be vulnerable to the elements in severe weather. Many citizens of the County are elderly and may also have special needs. By identifying these vulnerable areas the County can be better prepared during an emergency situation.

The Mackinac County Office of Emergency Services provides emergency and disaster early warning information on a request basis to special needs populations.

The Mackinac County OES makes sure that federal, state and county regulations are implemented for health and safety. This includes the County Health Department testing water supplies and food services that were affected (Public Health Chapter of the Mackinac County EAG).

The Damage Assessment Chapter of the County's Emergency Action Guidelines, provides procedures for developing an inspection team and inspecting damaged structures and facilities. The Guidelines highlight the need for municipalities to enforce their building codes.

Mitigation actions:

Upgrading and maintaining County Geographic Information System with information on vulnerable areas

Once identified, assess vulnerable areas for mitigative measures that can be taken to make them less vulnerable.

Conclusions

1. The threat recognition system for severe weather hazards (thunderstorms, winter storms and tornadoes) is as effective as the County can have for the cost.
2. The procedures and media that the County and municipalities use to disseminate warnings are inadequate for the area, and additional improvements to the EAS system would improve the likelihood that people will receive warning in time.
3. Additional siren coverage is needed for areas lacking this warning.
4. Information regarding siren warnings is needed.
5. The Mackinac County Emergency Action Guidelines have overall guidance on responding to many different kinds of hazards. More specific guidance for responding to individual natural hazards is inadequate.

Recommendations

1. Each township/community should recognize that the chief elected official is responsible for emergency management functions to ensure smooth communications before, during and after warnings and emergencies.
2. The County and the individual municipalities should consider the existing siren warning system and upgrade to cover all necessary areas.
3. Each township and municipality should work with County to identify and prioritize specific roads and routes to plow to optimize travel conditions in severe winter weather.
4. StormReady community planning efforts should be made within the County.
5. Additional warning media are needed to advise people in the rural areas in a timely manner such as a call-out system.
6. The public should be educated on what the sirens and warnings mean and what steps they should take to protect themselves.

7. Encourage communities and private agencies to develop emergency plans to coordinate with County efforts.
8. The County should review its emergency response plans and programs and:
 - a. Identify where additional activities are needed to respond to natural hazards.
 - b. Ensure they have access to information on all critical facilities and update that information annually.
 - c. Incorporate post-disaster procedures for public information, reconstruction regulation and mitigation project identification.
 - d. Conduct a tabletop exercise at least once a year (as required by State law).

