Chapter 7 Emergency Warning and Response

7.1 Introduction

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.

Hazards Addressed
➢ **Flood**
➢ **Tornado**
➢ **Winter Storms**
➢ **Thunderstorms**
➢ **Earthquake**
➢ **Wildfires**

In Illinois all counties and those communities with populations greater than 10,000 are required by law to have a state-accredited emergency services and disaster program. Jersey County has adopted the National Incident Management System (NIMS). At the state level, programs are coordinated by the Illinois Emergency Management Agency (IEMA). Jersey County emergency services are coordinated through the county's ESDA coordinator.

An emergency operations plan (EOP) ensures that all response needs are addressed and that all response activities are appropriate for the expected threat. EOPs should be reviewed annually to keep contact names and telephone numbers current and to make sure that supplies and equipment that will be needed are still available. EOPs should be critiqued and revised after disaster and exercises to take advantage of the lessons learned and changing conditions. The end result is a coordinated effort implemented by people who have experienced working together so that available resources will be used in the most efficient manner.

This chapter reviews emergency services measures following a chronological order of responding to an emergency. It starts with identifying an oncoming problem (threat recognition) and goes through post-disaster activities.

7.2 Threat Recognition and Warning

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

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.

On largest rivers, including the Mississippi, the measuring and calculating is done by the U.S. Corps of Engineers or the National Weather Service which is in the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Support in NOAA's efforts is provided by cooperating partners from state and local agencies.

Forecasts of expected river stages are made through the Advanced Hydrologic Prediction Service (AHPS) of the National Weather Service. Flood threat predictions are disseminated on the NOAA Weather Wire or NOAA Weather Radio. NOAA Weather Radio is considered by the federal government as the official source for weather information.

On smaller rivers, locally established rainfall and river gages are needed to establish a flood threat recognition system. The National Weather Service may issue a "flash flood watch." This means the amount of rain expected will cause standing water and other flooding on small streams and depressions. These events are so localized and so rapid that a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available.

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.

Jersey County uses real time flood gauges at Hardin and Grafton IL to determine what properties are in a flood situation. We have all 1100+ structures lowest floor determinations so when the river gage mark is at the 433 elevation we will know every residence that is flooded.

Tornadoes and Thunderstorms: The National Weather Service is the prime agency for detecting meteorological threats, such as tornadoes and thunderstorms. Severe weather warnings are transmitted through the Illinois State Police's Law Enforcement Agencies Data System (LEADS) and through the NOAA Weather Radio System.[1] As with floods, 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.[2]

Winter Storms: The National Weather Service is again the prime agency for predicting winter storms. Severe snow storms can often be forecasted days in advance of the expected event, which allows time for warning and preparation. Though more difficult, the National Weather Service can also forecast ice storms.

Local implementation: Jersey County uses GIS to over lay flood data as well as storm data. This capability allows the identification of properties that will flood, which roads will be under water, and which critical facility will be affected for a given prediction. With this information, an advance plan can be prepared that shows problem sites and determines what resources will be needed to respond to the predicted flood level. The local news stations also send out reports via radio and television. Jersey County Governments' web site also has direct links to numerous sites including NOAA, U.S. Army Corps of Engineers and the National Weather Service's hydrologic map for the Jersey County area. The Jersey County Sheriff Department receives notification from the Illinois State Police, the notification is then passed to emergency managers and first responders.

The City of Jerseyville uses sirens that will repeat the warning message that is typed in depending on the type of emergency.

The City of Grafton has the capability of monitoring the river stage on the "Grafton Gauge". It is located at mile 218. The US Army Corps of Engineers web site also provides up-to-the-minute river stage advisories. The City of Grafton has a river stage forecast schedule that defines at what river level the floodwaters will inundate a particular intersection. Grafton also uses the "Voice Shot" system which is an automated telephone notification. When an impending emergency is predicted the Chief of Police will record an emergency message that is in turn phoned to all of the citizens. The Chamber of Commerce provides the same service for the business owners.

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[1] www.ptb.state.il.us

[2] www.fema.gov/national-incident-management-system

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CRS credit: Credit can be received for utilizing the gauges listed on the previous page. The actual points are based on how much of the community's floodplain is subject to flooding by the gauged stream.

Other weather hazards: The Jersey County Sheriff Department's dispatch center receives other severe weather alerts from the LEADS system. These alerts are issued by the Illinois State Police who monitor NOAA Weather Wire, or through their monitoring of NOAA weather radios.

7.3 General Information

Hazards Addressed
➢ **Flood**
➢ **Tornado**
➢ **Winter Storms**
➢ **Thunderstorms**
➢ **Earthquake**
➢ **Wildfires**
➢ **Drought**

After the threat recognition system tells the Emergency Management Agency (EMA) and municipalities that a flood, tornado, thunderstorm, winter storm or other hazard is coming, the next step is to notify the public and staff of other agencies and critical facilities. The earlier a greater number of people can implement protections measures if the warning is more specific.

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

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

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

Advisory: issues special weather statements

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
- E-mail notifications

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 phones 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 (e.g., flooding along the Fox River), 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).

Storm ready: The National Weather Service established the Storm Ready program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public.[3] To be officially Storm Ready, a community must:

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

Being designated as a Storm Ready community by the Weather Service is a good measure of a community's emergency warning program for weather hazards. It is also credited by the Community Rating System.

NOAA Weather Radios: NOAA Weather Radio is a nationwide network of radio stations that broadcasts warnings, watches, forecasts and other hazard information 24 hours a day. For Jersey County, information comes from the National Weather Service office in St. Louis, MO.

NOAA weather radios can be very effective for notifying people, businesses, schools, care facilities, etc., of weather threats. They have a monitoring feature that issues an alarm when activated by the Weather Service.

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[3] www.stormready.noaa.gov

Local Implementation: The Jersey County Emergency Services and Disaster Agency is the lead agency in the county for organizing emergency warning and information. The basic structure of ESDA's activity is the "Warning/Emergency Information Annex" of Jersey County's Emergency Operations Plan, approved by the County Board July 2003. The annex describes the warning systems in place in the jurisdiction and the procedures of initiating their use. The most frequent use of a warning system is the activation of the warning siren for the City of Jerseyville during the tornado season. The ESDA Coordinator has conducted a Hazard Identification Risk Analysis (HIRA) as required by the state in addition to the biennial update and rewrite of the EOP which was submitted to IEMA in 2015 and subsequently approved.

CRS credit: Community Rating System points are based on the number and types of warning media that can reach the community's flood prone population. Depending on the location, communities can receive up to 25 points for the sirens and the County's Emergency Alert Radio System and more points if there are additional measures, such as telephone trees. Being designated as a Storm Ready community can provide 25 more points.

7.4 Emergency Response

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 (ESDA, Sheriff and local police)
- Closing streets or bridges (police, IL Dept. of Transportation, public works)
- Shutting of power to threatened areas (utility companies)
- Passing out sand and bags (public works, ESDA)
- Ordering an evacuations (chief elected officer)
- Holding children at school/releasing children from school (school administrator)
- Opening evacuation shelters (Red Cross)
- Monitoring water levels (ESDA, Certified Floodplain Manager)
- Security and other protection measures (local law enforcement agencies)

Once the threat is recognized, the first priority is to alert others through the warning system. The second priority is to respond with actions that can prevent or reduce damage or injury. When resources at the local and state level are insufficient to deal with a large scale flood emergency or other natural hazard the federal government can provide assistance.

Response plans ensure that all response activities are appropriate for the expected hazard. The EOP is supported by annexes, standard operating procedures and other guidance documents that cover the details of various aspects of emergency response, such as communication, evacuation, sheltering, damage assessment, and severe weather.

Earthquake Response Plan: Earthquakes can cause the most extensive damage without much warning, unlike riverine flood and tornadoes. Therefore, the Jersey County Emergency Services and Disaster Agency devoted a specific annex to the county's Emergency Operations Plan to earthquake preparedness and response. The only other "hazard specific" annex pertains to responses to terrorism. The EOP was approved by the County Board in July 2003. The Earthquake Annex discusses the nature of the earthquake hazard and provides pre- and post-earthquake checklists for each segment of the emergency response community, including law enforcement, communications, medical and mortuary services, damage assessment, public health, public information, fire services, search and rescue, and emergency operations. Jersey County is one of the counties in Illinois that is required to have a specific Earthquake Annex in the EOP plain due to our exposure. The Annex was updated and approved by IEMA in 2015.[4]

Special Needs Residents: This jurisdiction acknowledges that there are populations with special requirements that must be considered in disaster response. These include the mobility impaired, hearing impaired, blind or visually handicapped, developmentally disabled and the elderly.

The Jersey County Health Department has been assigned the responsibility for identifying this segment of the population, and insuring that disaster services will be available for these individuals. Coordination has been made with the facilities where large numbers of these citizens live to insure that adequate procedures have been developed. Every attempt will be made to find these residents an equivalent facility or to provide the support they require.

 The County Health Department will maintain the lists of special needs residents.
The school district has coordinated with agencies that own vehicles that can safely transport these residents for use in the event of an evacuation. The Health Department has arranged for appropriate medical care.

Local Implementation: Municipalities are responsible for warnings in their incorporated areas, and the fire protection districts for their areas of service. Grafton's Chief of Police and the Mayor of Grafton would be the emergency coordinators. Elsah's President along with the County ESDA Coordinator would implement their plan. The City of Jerseyville's Mayor, Police Chief and Fire Chief would be responsible for their emergency plan. If the severity of any emergency were to exceed any municipalities' capability, the County emergency management will provide additional assistance.

 CRS Credit: CRS credits are given for the effectiveness use of GIS mapping in the development of response plans. In its current state the Jersey County Emergency Operations Plan and the annex receives minimal points.

7.5 Critical Facilities Protection

Protecting critical facilities during a disaster is the responsibility of the facility owner or operator. However, if they are not prepared for an emergency, the rest of the community could be impacted. If a critical facility is damaged, workers and resources may be unnecessarily drawn

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[4] Larry Meade ESDA Coordinator; e-mail 2015

away from other disaster response efforts. If such a facility is adequately prepared by the owner or operator, it will be better able to support the community's emergency response efforts.

Most critical facilities have full-time professional managers or staff who is responsible for the facility during a disaster. Some have their own emergency response plans. Illinois state law requires hospitals, nursing homes, and other public health facilities to develop such plans. Many facilities would benefit from early warning, response planning, and coordination with community response efforts.

Local implementation: The EOP identifies emergency operations centers, local government – owned buildings, schools, nursing homes, and other public and private health facilities and hospitals. However, the plan should focus on coordinating with the facilities' managers and forms of better communication methods.

CRS credit: The Community Rating System gives the same weight to critical facility protection as it does to the rest of the community's flood response plan. CRS credit focuses on coordinating the community's efforts with the facilities' managers and helping them develop their own flood-specific emergency plans. The County and the municipalities would receive 10 points for maintaining a current contact list. An additional 40 points are available if all the flood prone facilities developed their own flood response plans and coordinated them with government response efforts.

7.6 Post-Disaster Recovery and Mitigation

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. Throughout the recovery phase, everyone wants to get "back to normal." The problem is, "normal" means the way they were before the disaster, exposed to repeated damage from future disasters

Appropriate measures include the following:

Recovery actions

- Patrolling evacuated areas to prevent looting
- Providing safe drinking water
- Monitoring for diseases
- Vaccinating residents for tetanus
- Clearing streets
- Cleaning up debris and garbage
- Regulating reconstruction to ensure that it meets all code requirements

Mitigation actions

- Conducting a public information effort to advise residents about mitigation measures they can incorporate into their reconstruction work
- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs
- Acquiring substantially or repeatedly damaged properties from willing sellers
- Planning for long term mitigation activities
- Applying for post-disaster mitigation funds

Monitoring for diseases:
- Vaccinating residents for tetanus
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7.7 Recommendations

1. Jersey County and local municipalities join together to establish a county-wide hazard warning system (in particular, tornado warning).

2. Appropriate Jersey County organizations develop and engage in public education programs regarding potential natural hazards.

3. The City of Grafton should review the existing outdated emergency response pamphlets/mitigation plans. They should be updated and combined into one useful reference manual.

4. An annual review of response plans and procedures should be conducted. Incorporate post-disaster procedures for public information, reconstruction regulations and mitigation project identification.

5. The City of Grafton should have formalized Agreements with public facilitators such as schools and churches for use of these buildings as temporary shelters and storage facilities during emergencies, i.e. flooding, tornadoes, winter storm power outages, etc.

6. The City of Grafton needs to initiate a community wide warning system. Educate the public on what the sirens and warnings mean and what steps they should take to protect themselves.

7.8 References

www.ptb.state.il.us

www.fema.gov/national-incident-management-system

www.stormready.noaa.gov

Larry Meade Jersey County ESDA Coordinator; e-mail 2015