

## Chapter 7. Emergency Management

Emergency management 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 Illinois Emergency Management Agency (IEMA). At the local level, programs are administered by the Kankakee County EMA (Emergency Management Agency), a unit of the County Sheriff's Police Department.

Kankakee County municipalities have emergency management contacts, usually the mayor, police chief, or fire chief. They generally leave emergency operations to the County. The exception to this is the Village of Manteno, which has its own detailed *Emergency Action Plan*, which was adopted in 2002.

This chapter reviews the County's emergency management measures following a chronological order of responding to an emergency. It starts with identifying an on-coming problem (threat recognition) and goes through post-disaster activities.

### 7.1. Threat Recognition

Threat recognition is the key to being able to respond to a threat before it hits. The first step in responding to a flood, tornado, storm 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.

**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 larger rivers, the measuring and calculating is done by the National Weather Service which is in the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Support for 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 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. The Weather Service also posts current and forecasted gage levels on its website, ([http://weather.gov/rivers\\_tab.php](http://weather.gov/rivers_tab.php)) so anyone with access to the Internet can monitor current and potential flooding.

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 ponding 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.

**Ice jams:** Ice jams happen so fast (and often at unpredicted locations) that they are too difficult to forecast. When ice jam conditions exist, as in late winter when frozen rivers break up, the Weather Service may issue advisories, but cannot predict the timing and height of an ice jam as it can predict a flood during free flowing conditions.

Therefore, for ice jams and ungaged 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.

**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.

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 trained spotters to watch the skies when the Weather Service issues a watch or warning.

**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.

**Drought/Extreme Heat:** As with other meteorological hazards, heat waves can be forecast by the Weather Service, giving people days or more to get ready to respond to the threat.

**Wildfire:** The Wildland Fire Assessment System is an internet-based information system administered by the U.S. Forest Service in Idaho. It monitors weather conditions, such as moisture and wind, and provides a national view of weather and fire potential, including national fire danger and weather maps.



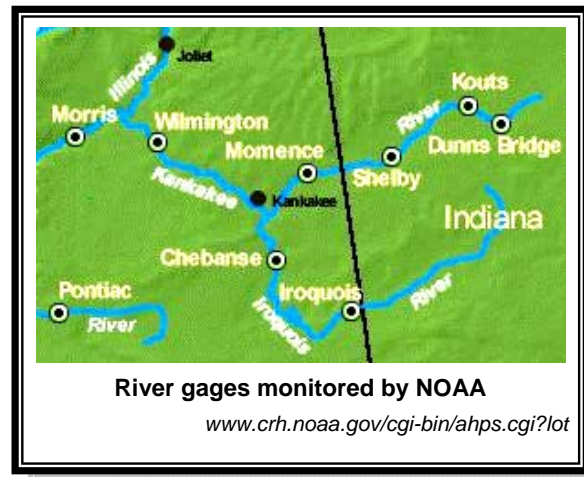
Current conditions and predictions are available at [www.fs.fed.us/land/wfas/map\\_list.htm](http://www.fs.fed.us/land/wfas/map_list.htm). This system predicts conditions favorable for wildfires. There must be a local observation system to identify and report local fires.



**Local implementation:** The Kankakee County communications center (KANCOMM) provides 24-hour dispatch service for the Sheriff’s office, 14 fire departments, 12 police departments, and 2 private ambulance services. Staff at KANCOMM monitor NOAA Weather Radio and LEADS. A policy and procedures manual provides guidance for what conditions warrant KANCOMM to contact the EMA Coordinator and other local officials on their pagers.

Bradley and Bourbonnais have their own dispatch services. Many critical facilities have NOAA Weather Radios and monitor them. For example, one is monitored by the Kankakee Community College Center receptionist desk. All schools and long term care facilities have been given NOAA Weather Radios by EMA.

**Floods:** The NOAA/Weather Service gages that serve the Kankakee and Iroquois Rivers are shown in the map to the right. Real-time stream gage readings for the sites listed to the right can be accessed on the internet at the Weather Service’s website, [http://weather.gov/rivers\\_tab.php](http://weather.gov/rivers_tab.php). This site tells the *current* stream conditions. It should be noted that the gage on the Iroquois River at Chebanse was disabled in May 2013 due to federal budget cuts.



The National Weather Service is able to issue a specific *prediction* of when and how high the river will crest at these gages. It does this for the Wilmington and Momence gages. NWS can also issue more general flood statements on smaller streams throughout the County.

One shortcoming of this system is that there is no gage close to where ice jams have caused the most problems – on the Kankakee River from the Aroma Park area and to Kankakee. The Momence gage is 12 miles upstream and the gage at Chebanse has been disabled. Ice jams can occur so quickly, that a real time reporting gage closer to the problem area would be useful. The US Geological Survey establishes such gages in cooperation with state or local sponsors. It costs \$15,000 to install such a gage and \$12,000 a year to maintain them. Sometimes, some of the costs can be picked up by USGS.

**Other Weather Hazards:** Weather conditions that contribute to ice jams, localized flash flooding, tornadoes, and severe storms are monitored by Sheriff, police and fire staff. EMA has over 80 trained volunteer spotters who have pagers and radios that can monitor conditions from their homes or be dispatched by the EMA Coordinator when conditions are appropriate.



**CRS credit:** Credit of up to 40 points can be received for having a formal flood threat recognition system that relates the flood heights at the river gages

to areas of the community that would be affected. The actual points are based on how much of the community's floodplain is subject to flooding by the gauged stream.

## 7.2. Warning

After the threat recognition system tells the EMA Coordinator 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 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 flooding, thunderstorms, tornadoes or winter storms.

*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
- Mass telephone notification (text alerts)
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Door-to-door contact
- Mobile public address systems
- E-mail notifications

### 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 Kankakee County, information comes from the National Weather Service office in Romeoville, Illinois.

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.

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. Kankakee County now uses a text alert system to warn residents.
- Where a threat has a longer lead time (e.g., flooding along a large river), going door-to-door and radio can be effective.
- IPAWS is a mass public notification warning system. Kankakee County has been approved by FEMA to utilize this system.

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).

**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:

- 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
- 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. It is also credited by the Community Rating System. Kankakee County became a certified StormReady County in June 2007.



**Local implementation:** The Kankakee County EMA Coordinator and municipal governments are responsible for disseminating warning information to the public and notifying response personnel during an emergency. Once the threat is perceived, KANCOMM transmits the warnings to these offices (Bradley and Bourbonnais administer their own programs).

The general public is notified through the following systems:

- Sirens in the affected areas can be triggered. An example of one in Kankakee is shown to the right.
- EMA has given NOAA Weather Radios to all schools, nursing homes, and day care centers, courtesy of a state grant. Some companies have purchased their own. A program sponsored by a state legislator enabled many residents of Pembroke Township to receive NOAA Weather Radios.

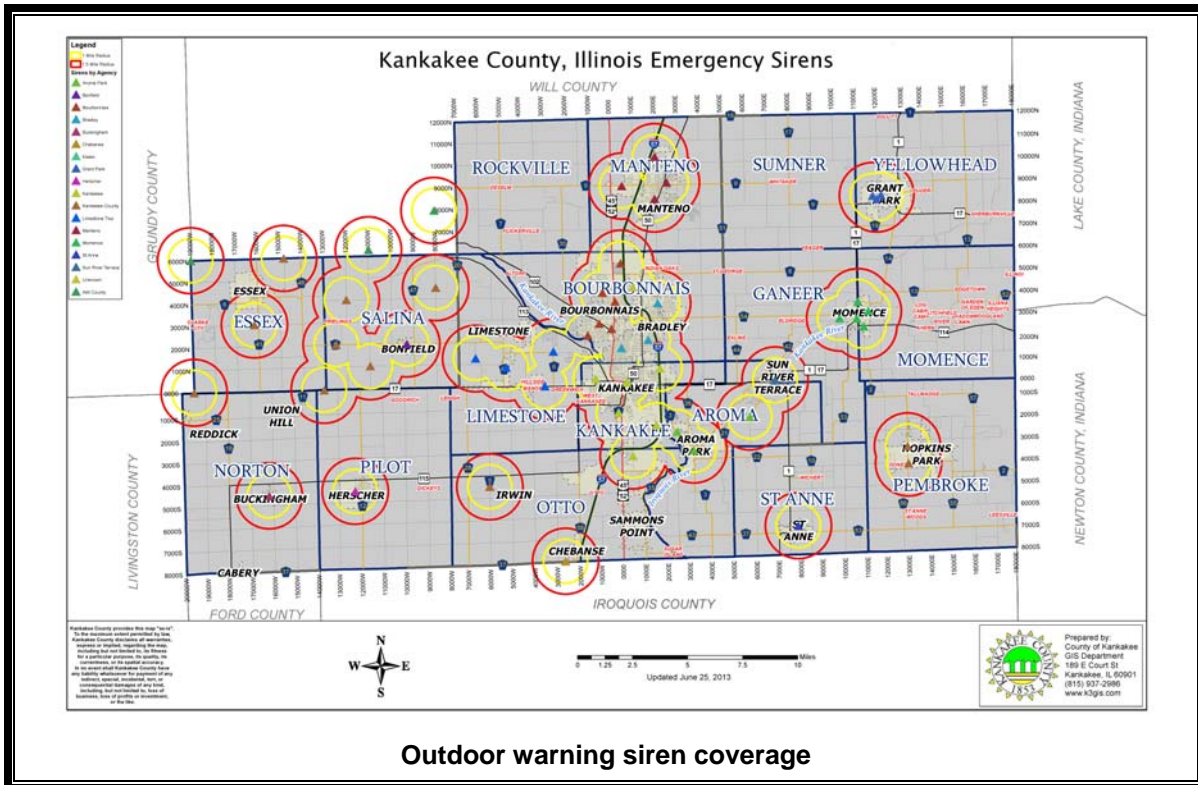
**Siren coverage:** Between the municipalities and the fire districts, there are 51 outdoor warning systems in the County. All of these were upgraded to the current standard, narrowband in 2012 and 2013.

For planning purposes, each siren is expected to reach people outdoors up to a mile away. Their locations and range are plotted on the map below. This map shows that there are many areas that are not reached by a siren. Most of these areas are unincorporated and sparsely populated.



Kankakee city siren

The siren coverage map shows that the Kankakee/Bradley/Bourbonnais/Aroma Park area and most of the smaller municipalities are well covered. So is the northwest corner of the County, the area closest to the Braidwood nuclear power plant.



Some populated areas could use better outdoor warning coverage, especially Cabery and Hopkins Park. The Pembroke Fire District, which covers Hopkins Park and the east part

of the township, uses pagers to call its fire personnel, recently two sirens have been installed in the village.

Although Kankakee County has siren coverage not all areas are covered. One approach to remedy this problem that is being considered is to require subdividers and other large developers to contribute to a fund that will pay for a siren for the newly developed area.

**StormReady:** Kankakee County is a StormReady County but none of its municipalities are in StormReady. Nearby StormReady communities include Will and Kane Counties, Newton County, Indiana, and the cities of LaSalle, Marseilles, Plainfield and Bolingbrook.



**CRS credit:** Community Rating System points are based on the number and types of warning media that can reach the community's floodprone population. Depending on the location, communities can receive 75 points for disseminating flood warnings to the public. Designation as a StormReady community can provide 25 more points.

### 7.3. Response

Concurrent with issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans are developed in coordination with the agencies or offices that are given various responsibilities.

There are a lot of things that can be done and many different agencies and organizations can be involved. Therefore, a list of *typical* actions and responding parties could include:

- Responding to fires (fire department)
- Activating the emergency operations center (emergency manager)
- Ordering an evacuation (mayor/village president/county board chair)
- Holding children at school/releasing children from school (school district)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (see photo) (public works)
- Opening evacuation shelters (Red Cross)
- Monitoring water levels (engineering)
- Securing damaged or evacuated areas (police/sheriff)



Emergency response planning helps ensure that the many different offices and organizations' work is coordinated.

*Lake County Stormwater Management Commission*

Planning is best done with adequate data. One of the best tools for flood planning is a flood stage forecast map that shows what areas would be under water at various flood stages (see example, top of next page). Emergency management staff can identify the number of properties flooded, which roads will be under water, which critical facilities will be affected, etc.

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. An example of this is seen at the bottom of the next page. If the flood stage forecast map is in a geographic information system (GIS) format, emergency responders can display current and predicted areas flooded in real time, which would be more useful during ice jams where advanced planning cannot be so site-specific.

Emergency response 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.



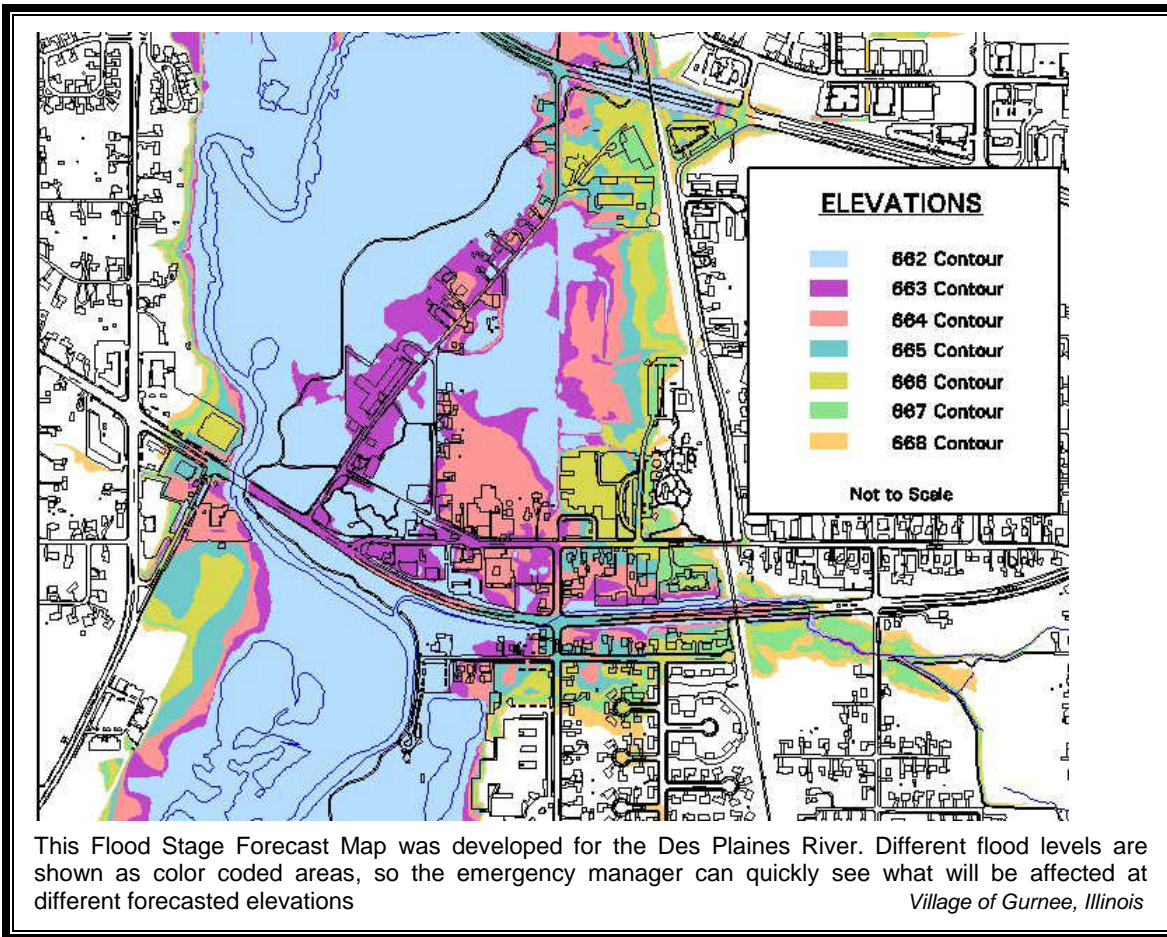
**Local implementation:** Kankakee County's *Emergency Operations Center Plan* was updated in 2012. It is designed to present a common platform for coordination of major response activities for all types of natural and technological hazards. It establishes general procedures applicable to all types of emergencies and assigns responsibilities, such as for communications, evacuation and public health.

Actual emergency response operations and training exercises rely more on IPRA, because most participants are familiar and comfortable with it. IPRA is the *Illinois Plan for Radiological Accidents*. Having three nuclear power plants just west of Kankakee County has provided EMA with extra funds and many training opportunities that can pay off during other types of emergencies.

The *Emergency Operations Center Plan* has an introduction, the "Basic Plan" and 23 annexes that cover the details of various aspects of emergency response, such as communications, public information, evacuation, and mass care. The IPRA plan, in effect, acts as a hazard-specific annex to the overall Emergency Operations Center Plan. The earthquake annex only discusses assumptions, generic procedures, and general concerns about what may happen if an earthquake occurred.







Key Flood Activities That Need to be Monitored	
12 Feet	Close off Edgewater Park
13 Feet	Close Grand Avenue between Alexandria Pike & Broadway
	Notify residents along Short Hazlett, 1 <sup>st</sup> & Madison, 2 <sup>nd</sup> & Sycamore, and Riverside Drive to prepare for sandbag operations and to make preparations for possible evacuation <i>(dependent on forecast and rate of rise)</i>
14 Feet	Manhole at Athletic Park behind pool starts to overflow
	Killbuck Creek begins to overflow into Aqua Gardens / Shadyside Lake – Close off walking paths around lakes

**Flood response plan for Anderson, Indiana, showing specific actions to be implemented at specific flood stage predictions.**

Even though there is much potential to prepare advanced plans for flooding, there is no annex or other written procedures on flood response. Staff relies on past experience and monitors known problem sites when the waters rise. Sandbagging and distribution of

sandbags is a typical response (see photo), but one that would not provide much protection during a large flood or one with short warning time, such as an ice jam.

This approach has worked, in part because historically, the floodplain on the big rivers did not have a great deal of potential exposure to damage. Many of the properties were summer cabins and there was an attitude of acceptance of periodic flooding.

However, more and more of these properties have been converted to year-round residences and there are other risks in the floodplain, such as the Aqua Illinois water treatment plant in Kankakee. EMA staff report that when it was threatened by floodwaters in 2003, it was a “scary 24 hours.”

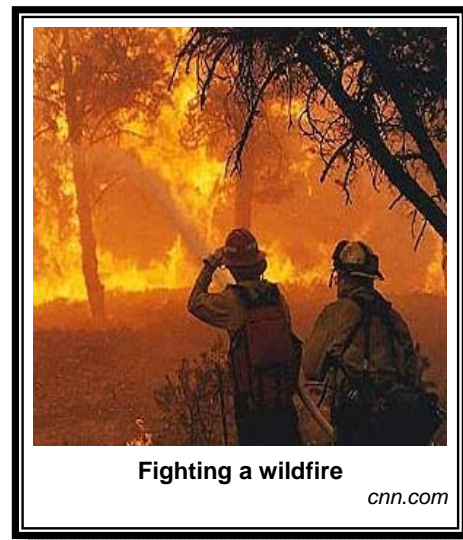
The County EMA office sponsors and trains Community Emergency Response Teams (CERT). These teams are volunteers who have been trained to recognize hazards in their homes, workplaces and neighborhoods. They have some basic equipment and are trained to give first aid to victims, to understand the Incident Command System, and to be able to operate under stressful conditions to help others. CERTS volunteers have participated in exercises and real disasters. There are over 160 CERT volunteers in Kankakee County. Kankakee and Bradley have also trained first responders at some industries.



Manteno’s *Emergency Action Plan* is also designed as general procedures for responding to a variety of hazards. Most of the document assigns duties to Village officers and others, such as the Township Supervisor. This approach works because flooding is not a major problem and there is little warning or advanced preparation time for the major threats listed in the *Plan’s* assumptions: tornadoes, hazardous materials incident, and mass casualty accident.

**Fire response:** One type of emergency response is for the fire department to extinguish fires. In the case of wildfires, a fast and the well managed response can contain and even eliminate the effects of the hazard.

The Insurance Services Office reviews fire departments for fire insurance ratings. Three general areas are scored: the alarm system (10% of the total score), the fire department (50%), and the water supply (40%). The classes and scores for the communities participating in the mitigation planning are shown on the next page. The actual insurance rates for a house are also based on distance from the fire station and from the nearest fire hydrant. When dealing with wildfires in areas beyond the reach of hydrants, the water supply score is not so important.



Fire Department Public Protection Scores					
Community	Fire Department/District	Alarm <sup>1</sup>	Fire <sup>2</sup>	Water <sup>3</sup>	Class
Aroma Park	Aroma FPD	7.34	28.86	20.92	5
Bonfield	Salina Township FPD	Note 4	Note 4	Note 4	9
Bourbonnais	Bourbonnais FPD	3.62	29.62	35.93	4
Bradley	Bradley Fire Dept.	6.77	27.77	35.39	4
Chebance	Otto Township FPD	6.58	19.62	25.91	6
Essex	Essex FPD	Note 4	Note 4	Note 4	9
Grant Park	Grant Park Fire Dept.	7.52	29.22	32.32	4
Herscher	Pilot Township FPD	7.40	25.16	8.54	7
Hopkins Park	Pembroke FPD	Note 4	Note 4	Note 4	9
Kankakee	Kankakee Fire Dept.	8.5	38.28	37.33	2
Manteno	Manteno FPD	7.36	32.85	33.98	3
Momence	Momence FPD	6.83	18.22	22.04	6
Sun River Terrace	Momence FPD	6.83	18.22	22.04	6
Uninc. County	N/A	N/A	N/A	N/A	N/A
K. Com. College	Kankakee Fire Dept.	8.5	38.28	37.33	2

Notes:  
 FPD = fire protection district  
 1. Score for alarm system is out of a max of 10 points  
 2. Score for fire department is out of a max of 50 points  
 3. Score for water supply is out of a max of 40 points  
 4. No details are provided for Class 9 departments

*Insurance Services Office*

The table shows that most fire departments and districts rated well. The rural areas of Essex, Salina, and Pembroke Townships only rated Class 9, one level up from a Class 10, which is given to areas that have no fire protection coverage. This is unfortunate for Hopkins Park and Pembroke Township, the area with the greatest wildfire threat.



**CRS credit:** In its current configuration, the *Emergency Operations Center Plan* and County flood response procedures would not receive CRS credit. Since the County has a flood-specific warning and response plan, it could receive up to 115 points.

## 7.4. Critical Facilities Protection

Critical facilities are discussed in section 1.4. 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 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 staffs who are 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:** EMA is continually compiling and updating its list of critical facilities during emergencies. It has worked closely with critical facilities, such as the 2003 flood threat to the water treatment plant. Many of these facilities have emergency response plans and are members of the LEPC.

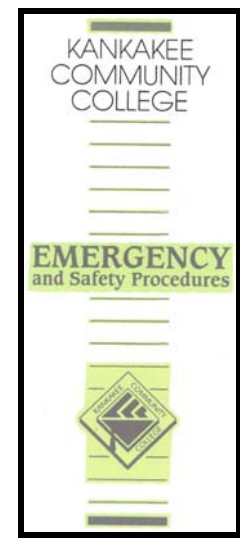


Some facilities have their own general emergency response plans. The Chebanse Elementary School has an 8-page *Crisis Management Plan* which provides procedures for all types of emergencies. The *Plan* includes the following:

- The chain of command and each person’s duties,
- Where to find utility shut offs,
- Telephone numbers for support offices, such as the ambulance service,
- Actions taken at different warning code levels, and
- Templates for signs.

All in all, this *Plan* is simple and straight forward and should be easy for teachers and others to follow during an emergency. It does not have specific instructions for natural hazards, such as tornadoes.

**Kankakee Community College:** The College has developed its own procedures for warning and response to emergencies. A lot of information is spelled out in a brochure, “Emergency and Safety Procedures,” including monitoring weather alerts, snowstorm and evacuation procedures, and where to go for first aid. The College has also organized a Community Emergency Response Team (CERT) with County EMA.



**CRS credit:** The Community Rating System gives 75 points for coordinating flood warning and response activities with operators of critical facilities.

CRS credit focuses on coordinating the community’s efforts with the facilities’ managers and helping them develop their own flood-specific emergency plans.

## 7.5. 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.

*Typical* recovery actions include:

- 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

*Typical* mitigation actions include:

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

**Regulating reconstruction:** Requiring permits for building repairs and conducting inspections are vital activities to ensure that damaged structures are safe for people to re-enter and repair.

There is a special requirement to do this in floodplains, regardless of the type of disaster or cause of damage. The National Flood Insurance Program and the County’s and municipalities’ floodplain development ordinances require that local officials enforce the substantial damage regulations.

These rules require that if the cost to repair a building in the mapped floodplain equals or exceeds 50% of the building's market value, the building must be retrofitted to meet the standards of a new building in the floodplain. In most cases, this means that a substantially damaged building must be elevated above the base flood elevation.

This requirement can be very difficult for understaffed and overworked offices after a disaster. If these activities are not carried out properly, not only does the community miss a tremendous opportunity to redevelop or clear out a hazardous area, it may be violating its obligations to the National Flood Insurance Program.



**Local implementation:** The EMA Coordinator and Kankakee County Health Department conduct recovery operations, such as testing water supplies and food services that were affected. Annex E to the County's *Emergency Operations Center Plan* cover damage assessment. The Annex assigns duties to County Highways, the Assessor's Office, the Health Department, and the Red Cross. Their jobs are to report on damage in their areas of expertise (e.g., Highways collects and collates reports from township road commissioners).

Reconstruction is the job of the County and municipal building and code enforcement offices. There are no special procedures or public information handouts on post-disaster permit requirements or taking advantage of mitigation opportunities.

The Illinois Emergency Management Agency conducts a one day training course on damage assessment procedures. These courses can be taught on site and can involve full time and volunteer (e.g., CERT) emergency responders. Such a class would provide a good venue for the County and the municipalities to coordinate post-disaster recovery and mitigation procedures. Kankakee County has hosted several of these training courses.

## 7.6. Conclusions

1. There is a flood threat recognition system for clear water flooding on the Iroquois and Kankakee Rivers. The system does not cover smaller streams. In those areas, communities must use local river watchers.
2. The threat recognition system for severe weather hazards (tornadoes, winter storms, thunderstorms, and drought/heat) is as effective as the County can have for the cost.
3. There is no effective local threat recognition system for earthquakes and wildfires.

4. The County has not taken advantage of new technology to relate current and predicted river levels to the areas affected, such as using a GIS based flood stage forecast map.
5. The procedures and media used to disseminate warnings are adequate for most urbanized areas, but there are gaps in the areas covered by outdoor sirens and radio and television are not used to their fullest advantage.
6. The County's *Emergency Operations Center Plan* has overall guidance on responding to many different kinds of hazards.
7. The fire protection for most communities is good, based on the Insurance Services Office fire protection grading. Essex, Salina, and Pembroke Townships fire protection districts are only rated as Class 9.
8. Many critical facilities, such as Kankakee Community College, have their own emergency response plans.

### **7.7. Recommendations**

1. The County should explore the costs and benefits of establishing a new real-time river gage on the Kankakee River near Aroma Park.
2. The County should explore options for re-enabling the gage on the Iroquois River near Chebanse.
3. Each community liaison should attend meetings, training, and participate in exercises.
4. County EMA should establish a program to install or upgrade outdoor warning systems.
5. Developers of properties in areas not covered by an outdoor warning system should contribute to a fund that will pay for a siren to cover the area.
6. The County should work with interested municipalities to develop local flood stage forecast maps and detailed flood response procedures.
7. The public should be educated on what the sirens and warnings mean and what steps they should take to protect themselves. The County should continue to educate the public in this regard.
8. Essex, Salina, and Pembroke Township fire protection districts should work to improve their fire protection insurance ratings.
9. Municipal leaders should encourage residents to volunteer for CERT teams so they will have the expertise within their community, should a disaster occur.

10. County and municipal emergency managers should review their emergency management operations and:
  - a. Identify where additional activities are needed to respond to natural hazards.
  - b. Ensure that all relevant offices and agencies are given clear and coordinated instructions. The Manteno *Emergency Action Plan* can be a model for this.
  - c. Ensure they have access to information on all critical facilities and update that information annually.
  - d. Attend training on damage assessment and post-disaster mitigation activities.
  - e. Develop post-disaster procedures for public information, reconstruction regulation and mitigation project identification.
  - f. Develop arrangements to provide and receive aid from other communities' permit departments to assist in post-disaster building inspection.
  - g. Conduct exercises in compliance with HSEEP.

## 7.8. References

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2. *CRS Credit for Flood Warning Programs*, FEMA, 2002
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6. *Flood Fighting*, Illinois Department of Transportation, Division of Water Resources, 1985.
7. *Guide for All-Hazard Emergency Operations Planning*, FEMA SLG-101, 1996
8. *Guidelines on Community Local Flood Warning and Response Systems*, Federal Interagency Advisory Committee on Water Data, 1985
9. Information on fire protection scores from the Insurance Services Office, Chicago.
10. Information on StormReady communities can be found on the National Weather Service website, [www.nws.noaa.gov/stormready/](http://www.nws.noaa.gov/stormready/)
11. Interviews and meetings with County staff
12. National Weather Service river gage website, [http://weather.gov/rivers\\_tab.php](http://weather.gov/rivers_tab.php)
13. *Post-Flood Mitigation Procedures*, Village of South Holland, Illinois, 1997.
14. Wildland Fire Assessment System website, [www.fs.fed.us/land/wfas/map\\_list.htm](http://www.fs.fed.us/land/wfas/map_list.htm)