

# **Chapter 14**

## **Emergency Management & Natural Disasters**

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Current federal legislation requires that the plan must address how agencies are reducing the vulnerability of the transportation infrastructure to natural disasters. Federal, state, and local agencies have been collaborating for years to ensure that impacts to the road network, transit services, railroads, air travel, and non-motorized facilities are reduced when faced with a major event. This chapter addresses how agencies in Jackson have prepared to meet this need.

### **Existing Services**

#### **Michigan Department of Transportation**

MDOT has protocols to address incidents that affect the state transportation system, which include events that would occur as a result of a natural disaster. The MDOT University Region Incident Response protocol outlines the specific response for an event that occurs within the University Region. The process, as outlined by MDOT, includes communication with 911 Dispatch through FHWA, if necessary. MDOT staff is primarily responsible for the steps outlined, however, local and federal level agencies are included on an as needed basis. A variety of MDOT staff at the local Transportation Service Center (TSC) Office and at the Lansing Central Office are also involved. Having the process outlined clearly is helpful if a time of need arises.

MDOT also works with the Michigan State Police (MSP) in coordinating road closures by following the Official Order Number 17, Subject: Traffic Enforcement and Local Ordinances document. Having the two agencies work together closely in a time of need can address public safety and reduce stress on the transportation system for state and local governments as well as the public. The relevant departmental policies and responsibilities found in the document are:

- Procedures for Closures of State Highways
- Traffic Law Enforcement Policy and Procedure
- Speed Limit Enforcement and Policy
- Guidance for Loss of Power to Traffic Signals
- Snowmobiles and Off-Road Recreation Vehicles
- Enforcement Policy for Railroad Law
- Railroad Operating in Michigan and Emergency Contacts
- Enforcement of Local Ordinances

#### **Jackson County Sheriff**

The Jackson County Sheriff is charged with the formal administration of Emergency Management Division for Jackson County. Emergency Management Division coordinates emergency response agencies who work together to protect the lives and property of the

citizens of Jackson County. They administer alerts related to severe weather and administer the county hazard mitigation plan.

### **Jackson County Department of Transportation**

JCDOT is well connected and resourced to communicate with the public and its partnering agencies to address issues related to natural disasters. Using social media, the department pushes information about construction sites, hazardous weather alerts, and weather-related traffic events, detours, delays, and crashes. For example, when snow plows are deployed, the information is posted on the JCDOT Facebook page.

JCDOT has informal and formal agreements with external agencies to provide mutual aid in times of need. There are written, formal agreements with Calhoun County Road Department that specifically address that the road agencies, with the permission of departmental directors, provide help as needed. Informal agreements exist with other nearby counties, and shared resources are also available through the department's participation with the County Road Association of Michigan (CRA). CRA is a member-driving organization that works with the 83 road agencies within the state on matters of common interest. A list of available shared resources at each road commission is available through CRA. JCDOT and MDOT also have a formal contract agreement to help each other out in addressing matters of emergency management and natural disasters, as it relates to the transportation system. For example, MDOT may ask JCDOT to respond to a state matter because they are closer and can provide a more timely response.

### **Jackson Area Transportation Authority**

JATA can also be affected by weather events. The local transit system has emergency snow routes. The snow routes allow riders to catch the bus in an area where riders can board and exit safely during or after a snow storm. The routes take effect when JATA determines that the road conditions are unsafe. JATA has an email emergency notification system that will notify its recipients of any route alterations or delays, including those related to natural disasters like weather events, flooding, the deployment of snow routes, etc. The service is an important way JATA users can stay informed about the transit system in Jackson.

## **Existing Plans**

### **Jackson County Hazard Mitigation Plan 2022**

The 2022 Jackson County Hazard Mitigation Plan (JCHMP) is a community plan that identifies various potential disasters and actions and activities to implement before a disaster happens for all communities in Jackson County. The JCHMP includes developed strategies and actions to implement prior to the occurrence of a disaster to attempt to minimize the negative impacts associated with each disaster. The plan is administered through the Jackson County Office of Emergency Management and Homeland Security.

The JCHMP includes a list of natural disasters that are known or have the potential to occur within the Jackson area. They include:

- Weather Hazards
  - Hail
  - Lightning
  - Ice and Sleet Storms
  - Snowstorms
  - Severe Wind Events
  - Tornadoes
  - Extreme Temperatures
  - Fog
- Hydrological Hazards
  - Flooding
- Dam Failures
- Drought
- Ecological Hazards
  - Wildfires
  - Invasive Species
- Geologic Hazards
  - Earthquakes
  - Subsidence
  - Space Weather
  - Celestial Impacts

Each of the natural disasters listed could affect the transportation system, however, the impact or likelihood of each of the events is different. The impact to the transportation system would depend on the size, location, and duration of each event. The natural disasters most likely to affect the transportation system are explored below:

**Ice and Sleet Storms:** In recent history, Jackson County has experienced an ice or sleet storm almost every year.

Impacts to the transportation system could include short term closure of roads and the airport during the storm event and while facilities are cleared, an increased risk in driving on ice-covered roads, biking and walking on non-motorized facilities, and flying in ice storms.

**Snowstorms:** Jackson County averages more than three snow storms a year. The effects of large snow storms are usually widespread and countywide.

Impacts to the transportation system could include short term closure of roads and the airport during the storm event and while facilities are cleared, an increase in risk in driving on snow-covered roads, biking, and walking on non-motorized facilities. At the airport, impacts could include delays due to the deicing of planes and risks associated with flying in snow storms.

**Severe Wind/Tornadoes:** Jackson has a history of having tornadoes and severe wind impact the area. The County expects several severe thunderstorms that are characterized by strong winds to occur annually.

Impacts to the transportation system could include short term road, non-motorized facilities, airport and rail line closures due to a tornado and cleanup or traffic and transit disruption as vehicles are routed around affected areas.

**Fog:** Fog is a common occurrence in Jackson County, and it could occur at almost any time of the year. While it doesn't do any direct damage to anything, it can be a hazard due to decreased visibility.

Impacts to the transportation system include an increased chance of crashes due to decreased visibility of motorists, especially for pedestrians and cyclists who become

increasingly less visible, and delays or cancellations of flights. The rare occurrence of freezing fog could cause slickness on roadways, walkways, bridges, and highway ramps.

**Riverine Flooding:** With Jackson being the headwater to three major rivers and full of wetlands areas, there is great potential for flooding. A 2009 Flood Insurance Study for Jackson County found that major flooding events have been documented in the area since 1904. Flooding is most likely to occur within the City of Jackson, however, flooding may also occur in areas in Summit Township, the Village of Brooklyn, and areas near the Grand and Kalamazoo Rivers.

Impacts to the transportation system could include long and short term closures of roads, non-motorized facilities, and rail lines due to a flooding event and cleanup or traffic and transit disruptions as vehicles are routed around flooded areas. Each community that has a Flood Insurance Rate Map intends to adopt and enforce the National Flood Insurance Program flood management requirements. Communities where no flooding hazard areas have been identified will monitor conditions and request further analysis as needed.

**Wildfires:** The combination of Jackson County's forest cover and an increase in exurban development has raised the likelihood for potential loss of life and property, especially in the Irish Hills area in Columbia and Norvell townships and the Waterloo Recreation Area in northeastern Jackson County.

Impacts to the transportation system could include disruptions such as traffic congestion in the event evacuations take place or road, non-motorized facilities, rail line and airport closures due to the wildfire location and smoke drifts.

**Earthquakes:** There have been no significant events in Jackson County, however there is a small potential that minor ground disturbances could occur.

Impacts to the transportation system could include energy disruptions or fuel price increases, an increase in traffic to accommodate refugees due to the occurrence of a regional event, and the closures of streets, non-motorized facilities, and rail lines to clean up debris from the event. Air travel at the airport may also be temporarily disrupted.

**Subsidence:** Natural subsidence occurs when the ground collapses into underground cavities produced by the dissolution of limestone or other soluble materials by groundwater. Historical coal mining in the area has left some subsidence vulnerability along parts of I-94 corridor and the local road network. During MDOT pre-construction efforts for the I-94 Modernization Project, professionals found some highway footings were in old coal mining shafts. Since this discovery, MDOT has put significant resources toward addressing the issue.

Impacts to the transportation system could include ground collapses in areas near abandoned coal mines, like along I-94. MDOT has been addressing this issue during the I-94 Modernization Project by procuring special studies, resources, and experts to address the concern for future events.

## **Goals and Objectives**

The following are the goals and objectives for the 2022 JCHMP. While these tend to reference land use planning, they can also be applied to the transportation system.

## **Goal 1: Promote Life Safety**

Minimize disaster-related injuries and loss of life through public education, hazard analysis, and early warning.

- 1.1 Increase public and private sector awareness of hazard related dangers, resiliency principles, and mitigation solutions.
- 1.2 Local units of government should promote high-density compact development which offers an ease in service delivery and the provision of infrastructure and avoids an over-consumption of land.
- 1.3 Promote local early warning systems and capabilities.
- 1.4 Better serve at-risk populations (e.g., the elderly, disabled, limited English)

## **Goal 2: Reduce Property Damage**

Incorporate hazard mitigation considerations into land use planning, resource management, land development processes, and disaster-resistant structures.

- 2.1 Increase knowledge of elected/appointed county/municipal officials and other local leaders about sound land use and development practices that can help reduce long-term hazard risks and vulnerabilities.
- 2.2 Identify appropriate mitigation measures for vulnerable public and private facilities and infrastructure.
- 2.3 Promote and assist with winter weather mitigation projects countywide.
- 2.4 Encourage tree trimming and maintenance in public rights-of-way and utility easements to prevent limb breakage and safeguard utility lines.

## **Goal 3: Provide Leadership**

Provide leadership, direction, coordination, guidance, and advocacy for hazard mitigation.

- 3.1 Educate and inform governmental officials, other local policy-makers, and the public, about resilience and hazard mitigation concepts, programs, and processes.
- 3.2 Promote better information flow/coordination regarding hazard mitigation among units of government, and between public and private entities.
- 3.3 Identify strategies to assist local governments in overcoming obstacles to successfully applying for hazard mitigation grants.
- 3.4 Identify, establish, and promote new partnership opportunities.

## **Goal 4: Secure Funding**

Explore funding options for priority mitigation activities.

- 4.1 Use a cost-benefit review of mitigation activities to evaluate impact feasibility.
- 4.2 Develop public/private partnerships to implement mitigation activities.
- 4.3 Identify preparedness, mitigation, and responses gaps countywide and leverage grant dollars to implement recommendations.

## Transportation Accident Mitigation Strategies

The 2022 JCHMP outlines strategies to mitigate transportation accidents in the county. The plan provides nine mitigation strategies ranked by priority as seen in Table 14-1.

**Table 14-1**  
**Mitigation Strategies – Transportation Accidents**

	Mitigation Strategies	Priority	Time	Funding
1.	Enforce safety regulations.	High	Ongoing	Operating
2.	Improved design, routing, and traffic control at problem transportation areas.	Medium	As needed	Operating, Grants
3.	Develop a nonmotorized network that follows federal and state guidelines that will enhance the development of a resilient and redundant multi-modal transportation system.	Medium	Ongoing	Operating, Grants
4.	Training, planning, and preparedness for mass-casualty incidents involving all modes of the transportation system within the Jackson community.	Medium	Ongoing	Operating
5.	Improvements in driver education, traffic law enforcement, and transportation planning that balance needs of transportation providers with the safety of the general public.	Low	Ongoing	Operating, Grants
6.	Continue railroad inspections and improved designs at problem railway/roadway intersections (at grade crossings, rural signs/signals for RR crossing).	Low	Ongoing, As needed	Operating, Grants
7.	Use of designated truck routes and enforcement of weight and travel restrictions.	Low	Ongoing	Operating
8.	Ensure that there is a realistic, practiced transportation program in place to support the safe movement of vulnerable populations in case of a hazardous event.	Low	Ongoing	Operating
9.	Support the development of a robust, reliable, and resilient transit system and programs that will allow for transportation choice in the event of a hazardous event.	Low	Ongoing	Grants
10.	Support the ongoing need for Jackson County Airport-Reynolds Field maintenance, security, and safety projects and programs.	Low	Ongoing	Operating, Grants
11.	Safety training for transit, airplane, train operators, including simulated response exercises.	Low	Ongoing	Operating, Grants
12.	Using snow fences or "living snow fences" (rows of trees or vegetation) to limit blowing and drifting of snow over critical roadway segments.	Low	As needed	Grants

## Conclusion

The JCHMP identified that Jackson County is particularly vulnerable to ice storms, snow storms, and tornadoes. Communities will likely focus on these issues, but should also proceed on disaster preparedness for all natural disasters. The communities within Jackson County should collaborate to ensure that the public, as well as the transportation system, is prepared to respond in the event of a natural disaster. By highlighting the goals, objectives, and strategies in the JCHMP, the long range transportation plan demonstrates a reduction of vulnerability of the transportation system to natural disasters.