

Emergency Management, Natural Disasters, & the Transportation System Chapter

The FAST Act 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, rail roads, 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.

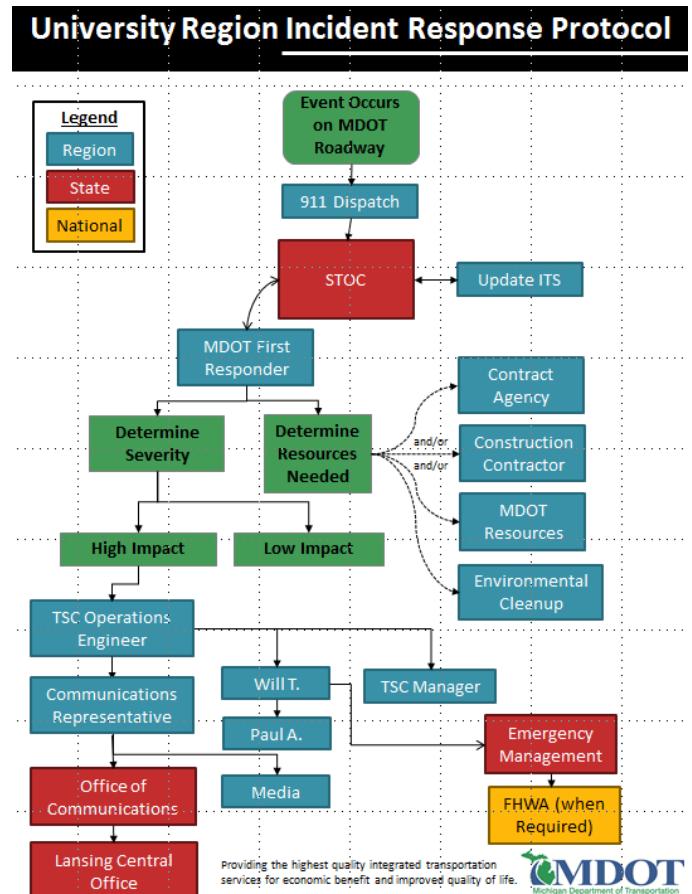
Existing Services

Michigan Department of Transportation

MDOT has protocols to address incidents that affect the state transportation system, which including 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



Providing the highest quality integrated transportation services for economic benefit and improved quality of life.



- 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

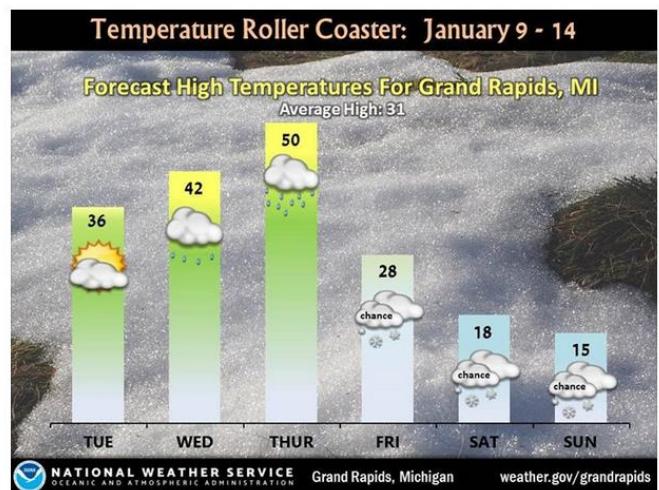
JCDOT is well connected and resourced to communicate with the public and its partnering agencies to address issues related to natural disasters. Using social media, the department pushes information about construction sites, hazardous weather alerts, and weather-related traffic events, detours, delays, and accidents. 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's Road Commission 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.



Good morning Jackson County,

It looks like things will be warming up a little over the next couple of days, but that also means more moisture in the air. Our road crews have been out since 3:30 this morning salting as needed due to frost on the roads and freezing rain. Please continue to be cautious during your daily commute and travel safely.



Jackson Area Transportation Authority



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JATA also 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.

Emergency Snow Routes

What are Emergency Snow Routes (ESRs)?

The snow routes will allow riders to catch the bus in an area where riders can board and exit safely during or after a snow storm.

Existing Plans

Jackson County Hazard Mitigation Plan 2011

The 2011 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 Sheriff Emergency Management Division.

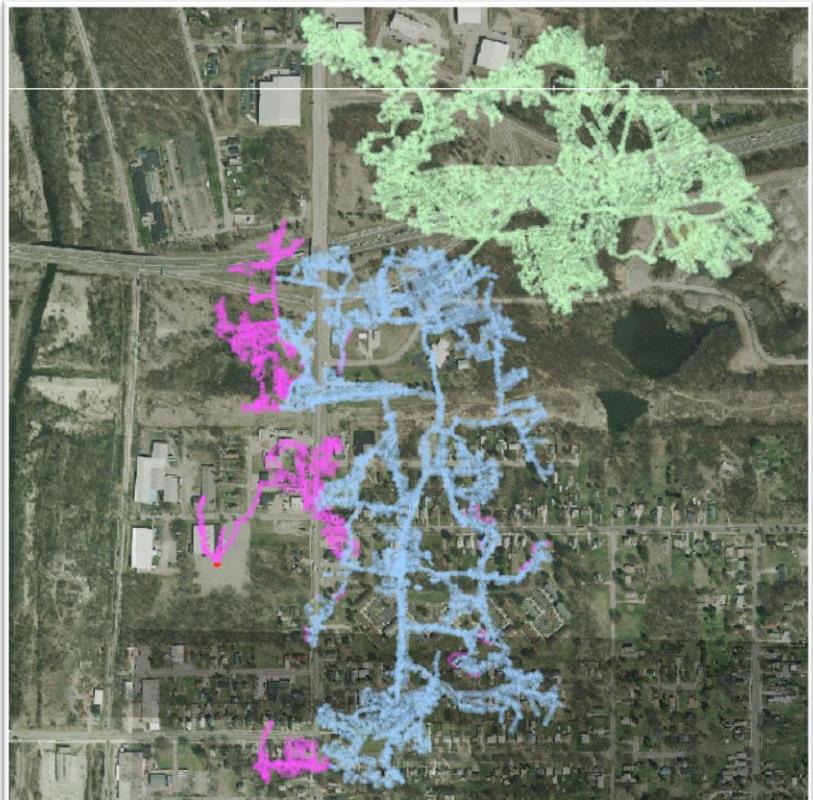
The JCHMP includes a list of natural disasters that are known or have the potential to occur within the Jackson area. They include:

- Earthquakes
- Subsidence
- Wildfires
- Riverine Flooding
- Drought
- Extreme Temperatures
- Hail
- Lightning
- Severe Wind Events/Tornadoes
- Snowstorms
- Ice/Sleet Storms

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:

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 an occurrence of a regional event, temporary street, non-motorized facilities, and/or rail line closures to clean up debris displaced by 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** future subsidence events 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.



Maps of the known coal mining shafts overlayed on I-94 at the Cooper St exit.

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. **Impacts to the transportation system could include** disruption like 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.

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, areas in Summit Township, Village of Brooklyn and areas within the Kalamazoo River Watershed. **Impacts to the transportation system could include** long and short term road, non-motorized facilities, and rail line closures due to a flooding event and cleanup or traffic and transit disruptions as vehicles are routed around flooded areas. Each community that has 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.

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 or transit disruption as vehicles are routed around affected areas.



Snowstorms: Jackson County averages more than 3 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.

Ice Storms: In recent history, Jackson County has experienced an ice 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.

The following JCHMP goals and objectives address or relate to hazard mitigation planning for the transportation system:

- Goal 1. Guide future growth and development to assure a high quality, safe environment.
 - Objective. Development should occur in a manner consistent with existing local community masters. The plans must be reviewed when land use decisions and governmental expenditures are considered, and such decisions and expenditures should be consistent with the plans at the time of their implementation.
 - Objective. 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.
 - Objective. As components of the natural system, wetlands, rivers and floodplains, and wooded areas should be used to define development and channel growth into appropriate areas, and maintain natural systems for flood prevention.

- Goal 2. Improve the transportation system to promote safety and efficiency.
 - Objective. Transportation improvements should promote safety and ease of movement of people and freight.
- Goal 3. Protect Jackson County's natural environment
 - Objective. Development should be strongly discouraged in floodplains.
 - Objective. Jackson communities should preserve their wetlands.
 - Objective Best management practices should be applied for storm water management throughout the County.
- Goal 4. Strengthen and diversify Jackson's economy safely and efficiently.
 - Objective. New industrial parks should be located in areas which are accessible to I-94 and major state arterial routes to promote Jackson's economic growth, and promote safety in the production and movement of goods.
- Goal 5. Maintain a safe community and protect property.
 - Objective. Hazard mitigation planning should be incorporated as a fundamental element in local planning processes.

To address the natural hazards identified and the outlined goals, a set of mitigation strategies were developed. Those relevant to the transportation system are as follows:

- 1. Implement an enhanced public information and education program, aimed at Jackson County citizens, regarding potential emergencies and how to prepare and respond.** As result of the preparation of this plan, and the comprehensive view of hazards facing the community, it was determined that there is a need to develop an enhanced public information and education program to inform citizens about the potential hazards facing the Jackson Community. A knowledgeable citizen base can do much to minimize the potential for damage and threat to human life.
- 2. Incorporate hazard mitigation planning in community master planning.** As a means of mitigating the hazards facing Jackson communities, there is a need to incorporate hazard mitigation planning into the community master planning process. The protection of the public, health, safety and welfare is central to governmental planning. The incorporation of hazard mitigation planning as an elemental part of the community planning process will assure a review of the hazard mitigation plan at least once every five years when the Community Master Plan is reviewed and updated.
- 3. Update the hazard mitigation plan every five years, or as deemed necessary.** An update of the hazard mitigation plan every five years will offer an opportunity to reassess the hazards facing the community and adjust mitigation strategies as necessary. This review and adjustment will result in a maximization of the use of limited resources, and a reduction of the impacts of the hazards.

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.