
IX. Implementation of All-Hazard Mitigation

This Plan is intended to encourage cooperation between intra-county agencies as well as cooperation between county agencies and those of neighboring jurisdictions. County and local jurisdictions will have the opportunity to implement recommended action items through existing programs and procedures that are deemed appropriate. The St. Clair County Office of Emergency Management serves to maintain coordination among law enforcement, communications and warning systems, fire and rescue, public works, damage assessment, health and medical agencies, reception and care, and emergency management agencies..

As mentioned in Chapter 9, Integrating All-Hazard Planning Into Policy and Regulatory Framework, hazard mitigation actions can be integrated into planning mechanisms such as the comprehensive plan, the zoning ordinance, the capital improvement program, and other codes and ordinances.

This chapter presents community-specific hazard mitigation prioritization and lends insight as to the types of mitigation projects that can be integrated into community planning. Priorities are based on local government surveys, the Community Profile of this Plan, the Vulnerability Assessment, and the planning objectives of each community.

In order to lay a framework for mitigation project prioritization, it is important to clearly understand the existing planning objectives of each community in relation to hazard mitigation. As such, the Metropolitan Planning Commission thoroughly reviewed the Master Plan for all of the communities within the county to discern any goals and objectives or capital improvement projects that were directly tied into planning for safety or mitigating the impacts of the hazards identified in this Plan.

Local Master Plan Evaluations

Berlin Township

- Provide for the reasonable protection, preservation and enhancement of fragile environmental areas, together with other important natural assets and features.
- Provide for the preservation and protection of fragile and other environmentally sensitive features and coordination of these areas into developments which accomplish these goals.
- Coordinate non-residential development with County Drain Commission to avoid unacceptable increases in storm water runoff.

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- Seek to work with any industrial activity utilizing dangerous elements to eliminate or avoid hazardous environmental conditions.
 - Regulate and/or isolate industrial uses with potentially annoying and/or adverse operational features to areas which do not conflict with adjacent and neighboring uses.
 - Coordinate on-site sewage treatment with adequate backup areas. Coordinate storm water runoff with Drain Commission to avoid unacceptable increases in volumes.
 - Preservation and protection of wetlands in a coordinated enforcement program with the Michigan Department of Natural Resources and/or other technically competent agencies.
 - Establish review conditions and development requirements regarding changes in the character and quality of water runoff from urbanized improvements to wetland areas, and the latter's ability to naturally and properly filter or otherwise combat adverse effects of such runoff.
 - Institute an ongoing program of public information regarding the short and long-term effects of fertilizers, pesticides, engine oils, fuels, road salts/de-icers, grass clippings, leaves, etc., on wetlands, water bodies and aquifers.
 - Develop a more comprehensive understanding and public awareness regarding onsite sewage disposal and proper site disposal needs.
 - Develop information and refine requirements for well-head protection to minimize risks of contaminating sub-surface water supplies.
 - Seek to eliminate hazardous intersections and other problem areas before traffic grows any heavier.
 - Evaluate future public service needs relative to fire and police services.

Brockway Township

- Encourage the conservation of existing vegetation, topography, and other natural features in the design of all new residential developments.
- Promote concentrated code enforcement to help maintain the quality of residential areas, through the use of zoning and building codes to preserve the quality of housing in the Township, and to prevent blighted areas.
- Discourage industrial development in wetland, steep slope, and other environmentally sensitive areas.
- Establish and enforce industrial performance standards.
- Ensure proper management of storm water runoff through

measures which protect natural vegetation along slopes and waterways to prevent soil erosion and sedimentation of water courses.

Burtchville Township

- Strengthening site plan review and code enforcement.
- Conduct a Sewage Disposal Study to examine alternative methods of sewage disposal, including a community lagoon, land application, and municipal sewage treatment facilities.
- Formulate an industrial development plan indicating where various industrial uses should be located.
- Cluster development to preserve open spaces and minimize impacts on neighbors, infrastructure systems, and the environment.
- Encourage only development that can be well assimilated by the community.
- Strengthen zoning regulations to better achieve Township goals.
- Prohibit intensive residential development in areas with poor soil absorption capabilities.
- Plan development in a manner that best utilizes the Township's utility system.
- Recognize that drainage can be a problem and that a variety of solutions are available for correcting drainage problems (retention, pumping, gravity design, and drain deepening).
- Adopt ordinance provisions that prohibit blocking and filling of drains.
- Provide a transportation system that furnishes the maximum in convenient, safe, and economic movement of people and goods.
- Eliminate conflict points between automobile and truck traffic.

Village of Capac

- Develop bumpouts at the corners of Main Street and Mill Streets to narrow the intersection crossing to create a better sense of downtown and increase the safety for pedestrians.
- Encourage the regular maintenance of buildings.
- Require building materials to be high quality and durable.
- Site lighting should be the minimum amount necessary to provide safe passage while avoiding negative off-site glare.
- Install more crosswalks and traffic signals to increase pedes-

trian safety.

- Vacant land/structures north of Downey Road (M-21) should be targeted for redevelopment.

Casco Township

- Protect surface and groundwater through standards for fertilizers, pesticides, septic-system location, and filtration of storm water runoff.
- Monitor engineering and drainage issues for new residential developments to ensure that they do not negatively impact existing development.
- Concentrate development where soils are adequate for septic tank systems.
- Review and enhance the Zoning Ordinance performance standards for all uses relating to hazardous materials and other negative environmental impacts.
- Review existing code enforcement efforts to ensure adequacy of violation response.
- Support the efforts of the St. Clair County Brownfield Redevelopment Authority.
- Identify and prioritize road areas in need of drainage improvements and ditch maintenance.
- Limit the number of driveways and curbcuts to the minimum necessary to provide for safe ingress and egress, particularly on Marine City Highway.
- Identify and initiate appropriate traffic calming measures on Fred Moore Highway, Marine City Highway, Gratiot Avenue, County Line Road, Division Road, and Palms Road.

China Township

- Protect natural resources from intrusion by industry, business and residences so as not to jeopardize their delicate balance.
- Protect the water quality and scenic aspects of the Belle River and the Pine River by regulating the type, location and density of development along the banks, floodways and floodplains of those rivers that would detract from their natural beauty or their use as a community resource.
- Protect the Township's air, water, soil, forest, geological and wildlife resources so that future generations may enjoy them in the same or better state than they now exist.
- Favor industrial uses that do not pollute the air, soil, and water or offend because of noise or visual characteristics.
- Correct hazardous and unsafe areas by improving street alignments where possible.

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- Encourage the County Road Commission to install proper control devices to prevent accidents.
 - Require traffic impact studies in accordance with County Road Commission Policy.
 - Do not allow sewer and water facilities to intrude upon or preempt major features of the natural environment.
 - Provide police, fire, and emergency services on a contract basis, or in cooperation with other communities, until population levels and fiscal capability make township-sponsored departments feasible.
 - Promote the establishment of medical resources, such as clinics and ambulance service, to serve Township residents.
 - Plan the acquisition of emergency service facilities site(s) well in advance of need.
 - Promote a sound street name and numbering system to facilitate recognition and easy location for emergency services.
 - Acquire site(s) along the Belle River for the development of parks.

Clay Township

- Encourage the removal of conflicting or undesirable land uses from residential areas.
- Promote preservation and code enforcement to maintain substantial residential areas.
- Encourage the use of landscaping, setbacks, and marginal access drives to promote aesthetics and safety.
- Recognize that drainage can be a problem and that a variety of solutions are available for correcting drainage problems (retention, pumping, gravity design, and drain deepening).
- Limit points of ingress/egress on major roads.
- Increase pedestrian safety by providing opportunities for pedestrian circulation along existing and planned road systems.
- Encourage an adequate ferry loading and stacking lane area on both the Island and the Mainland.

Clyde Township

- Protect and enhance the natural features of Clyde Township as the community continues to grow and develop.
- Establish appropriate buffer zones around wetlands, lakes, and river edges.
- Develop utility systems as deemed appropriate to provide needed services and to protect the health, safety and general

welfare of the Township's residents.

- Review roadway conditions and traffic volumes in order to target areas that should be considered for road improvements.
- Establish emergency access points along the Township's bike path system and to the Wadhams-to-Avoca Trail.
- Design residential development standards to be directly related to the natural capacity of the land.
- Update existing park facilities to meet barrier-free access requirements.
- Develop Zoning Ordinance performance standards to address issues such as noise, dust, smoke, open storage and fire and explosive hazards associated with development.
- Amend Zoning Ordinance to include a wetlands and watercourse setback requirement.
- Consider the establishment of a Truck Route Ordinance to regulate heavy truck traffic and prohibit such traffic on certain roads for safety and road maintenance purposes.

Cottrellville Township

- Strengthen enforcement of Township ordinances, particularly the Blight Ordinance.
- Strengthen relationship with County Sheriff Department to improve police protection throughout the Township.
- Update zoning ordinance to protect wetlands and woodlands.
- Establish appropriate buffer zones around wetlands, lakes, and river edges.
- Target areas with sensitive environmental features as first priority to receive water and sewer services.
- Explore alternatives for additional police and fire protection to keep pace with increases in Cottrellville's population.
- Explore methods to increase community awareness of Township services, programs, and facilities, such as through the development of a Township website and/or newsletter.
- Encourage higher density residential development within the St. Clair River Corridor and at other locations where sanitary sewer and/or municipal water service is located.
- More aggressive code enforcement to improve housing conditions and eliminate blight.
- Take advantage of opportunities for public-private partnerships.

East China Township

- Promote flood plain management through implementation of
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“sound land use” within flood plain areas.

- Efforts should be made to maintain floodways in their natural state to assure preservation of natural features and to limit damage to personal property.
- Adequate storm drainage and centralized sewer systems are essential where poorly and very poorly drained soils are evident.

Emmett Township

- Attention should be paid to protecting adjacent residential properties from any adverse impacts of industrial uses.
- Guide new development in a manner that conserves natural features and environmentally sensitive areas (such as wetlands, woodlands, and drainageways) and meets the long-term needs of the community.
- Conserve natural features and protect residents and property from natural hazards (such as flooding, soil erosion) associated with development that infringes on natural systems.
- Promote the use of grassed swales, natural on-site retention, vegetative preservation, and pathways made with natural materials instead of curb and gutter, concrete walkways and other typically suburban elements within rural residential areas.
- Establish enforceable performance standards for all industrial uses, and coordinate the standards and enforcement with county standards.
- Support the development and maintenance of a transportation system that safely and efficiently moves motor vehicles, bicycles and pedestrians.
- Encourage the underground placement of utilities.

Fort Gratiot Township

- Prohibit intensive residential development in areas with poor soil absorption capabilities.
- Discourage the development of heavy industrial uses, since the Township is not served by rail or direct interstate highway access, and favor uses that do not result in nuisances or negative environmental impacts.
- Buffer industrial uses from less intensive land uses through the use of appropriate setback standards, landscaping, and by locating industrial uses adjacent to other intensive land uses.
- Cooperate with the Michigan Department of Transportation, the St. Clair County Road Commission and the St. Clair County Transportation Study to ensure that a proper relationship exists between planned road improvements and the

Township's desired future land use pattern.

Greenwood Township

- Design the road system so that various modes of traffic flow most directly to their destination.
- Correct hazardous and unsafe areas by improving street alignments where possible.
- Encourage county and state departments to install proper control devices to prevent accidents.
- Provide police, fire, and emergency services on a contract basis, or in cooperation with other communities, until population levels and fiscal capability make township-sponsored departments feasible.
- Promote the establishment of medical resources, such as clinics and ambulance service, to serve Township residents.
- Plan the acquisition of public safety (police, fire, and ambulance) facility site(s) well in advance of need.

Ira Township

- Limit development in environmentally sensitive areas.
- Establish procedures and requirements that are intended to input environmental considerations into the land development process.
- Provide traffic signals along M-29 to slow down traffic as it passes through the Township.
- Plan road improvements to coincide with development.
- Limit the number of driveways allowed for commercial development and consolidate access whenever possible.
- Correct hazardous and unsafe areas by improving street alignments where possible.
- Install sewer and water facilities only where planning and zoning will not be compromised by their use.
- Promote the establishment of medical facilities to serve Township residents.
- Encourage cooperative service agreements with neighboring communities, where appropriate.
- Adopt service areas and distance standards for the location of emergency and protective services.
- Promote a street name and numbering system to facilitate recognition and easy access for emergency vehicles.
- If the Township continues to grow as previous projections would indicate, there may be a need to consider some expansion of police services.

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- Purchase of a new rescue truck which has an estimated cost of between \$65,000 and \$70,000 and a new computer.

Kenockee Township

- Encourage all new development to include open space features.
- Protect and enhance the Township's environmental assets, including clean air, water, and soils, as well as the woodlands, wetlands, and abundance of wildlife.
- Obtain air quality improvements through restrictions on burning.
- Establish setbacks or buffer zones around wetlands and creek edges.
- Enforce blight ordinance to insure that all home-owners perform the proper upkeep on their homes.
- Improve drainage facilities.
- Establish a program of regular inspection, repair, maintenance and improvement of road drainage facilities.
- Provide police, fire protection, and emergency medical services that adequately meet the Township's current and future needs.
- Investigate contractual arrangements with the County Sheriff for future increases in police protection.
- Approval of new development should not occur until after the County Health Department has approved the proposed water supply and method of sewage disposal.

Lynn Township

- Avoid the creation of pollution problems and extensive sewer programs by concentrating development where soils are adequate for septic tank systems or where sewers are most likely to occur first.
- Correct hazardous and unsafe areas by improving street alignments where possible.
- Encourage county and state departments to install proper control devices to prevent accidents.
- Provide police, fire, and emergency services on a contract basis, or in cooperation with other communities, until population levels and fiscal capability make township sponsored departments feasible.
- Promote the establishment of medical resources, such as clinics and ambulance service, to serve Township residents.
- Plan the acquisition of public safety (police, fire, ambulance)

facility site(s) well in advance of need.

- Promote a sound street name and numbering system to facilitate recognition and easy location for emergency service.

City of Marine City

- Ensure that future industrial development does not emit excessive amounts of noise, fumes, smoke, vibrations, or other pollutants.
- Encourage the proper redevelopment/rehabilitation of abandoned industrial sites, so as to limit/mitigate the negative impacts on neighboring lands and assist in actively marketing these sites for reuse.
- Provide a transportation system that recognizes the need for both auto and truck traffic and eliminates as many points of conflict between the two as possible.
- Replace the aging and undersized water mains throughout the City with new 12-inch lines that meet the water flow requirements of the Fire Department. Many of the existing water mains cannot provide sufficient water flow to fire hydrants, which hampers the ability of the Fire Department to fight fires effectively.

City of Marysville

- Assure that all new commercial uses have circulation systems that provide for the safety of their patrons.
- Protect residential uses from intrusion of non-residential uses.
- Limit the number of drives onto major thoroughfares.

City of Memphis

- Many parcels are designated as flood prone areas and would not be advisable sites for development. Placing recreation land on these areas allows the city to increase open space, without removing suitable land for development from its tax roll.
- The flood prone areas can be utilized as passive linear parks or in suitable areas ball fields.
- Zone all sensitive or flood prone areas within the city as open space or recreation land.
- Reorganize and revise the City Zoning Ordinance.
- Evaluate space needs for City Hall, Fire and Police functions.

Mussey Township

- Review and enhance the zoning ordinance performance standards for all uses relating to hazardous materials and other

negative environmental impacts.

- Review existing code enforcement efforts to insure adequacy of violation response.
- Concentrate industrial uses on roads with adequate existing design and construction to accommodate such uses.
- Consider zoning ordinance groundwater protection standards for land uses which could impact groundwater either due to design or the characteristics of the use.
- Continue current police services with St. Clair County Sheriff and State Police.
- Continue current fire protection services provided by the Mussey Township Fire Department.

City of Port Huron

- Evaluate traffic speeds and patterns in residential areas and address problems where needed.
- The City should review its building and environmental codes and ordinances and correct any regulatory deficiencies.
- It is imperative that surface infrastructure (broken sidewalks, streets with potholes and broken curbing, and unkempt street terraces) be regularly inspected and improved as necessary.
- Continued interaction between representatives of the City's protective services and neighborhood residents, including the initiation of neighborhood crime watch programs and similar efforts oriented to educating residents on crime prevention and public safety.
- Implement traffic calming measures in City neighborhoods.
- Continued maintenance of key community facilities.
- Greater emphasis should be placed on the use and long term maintenance of land use buffers.
- Control truck routes to industrial areas, through traffic in the City and at the border to offer a direct route for businesses and at the same time protect residential and other development areas of the City.
- Apply access management (driveway) standards to improve safety and efficiency of the road network.
- Expand budgets for public safety (e.g. more manpower, equipment).
- Increase visibility of public safety through beat cops/bike cops and neighborhood patrolling.
- Develop a geographical information system for all aspects of the City including individual property information, utilities, and transportation networks.

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- Eliminate spot zoning, sporadic, and incompatible land use patterns.
 - Promote site design that is safe for on-site pedestrian circulation and access.

Riley Township

- Consider the limitations of septic field installations on additional residential growth.
- Implement policies to improve on and sustain the integrity of the Belle River corridor.
- Protect woodlands, wetlands, open space and other natural features through the institution of sound policies and regulations.
- Eliminate open storage in non-residential districts.

City of St. Clair

- Improve and enforce City-wide code enforcement. Regulate blighted housing and exterior maintenance codes.
- Police and control excessive truck traffic and truck weight violations.
- Regulate development in terms of floodplain, conservation and scenic controls.
- Paving gravel streets.
- Institute a hard surface street crack sealing program.
- A number of City water mains are in need of upgrade. Some areas could also benefit from enlarged service laterals and water main loops to aid in flow capacity and fire protection.
- Sanitary sewer system flow monitoring.
- Separation of sanitary and storm sewers.

St. Clair Township

- Establish residential land use policies that are compatible with environmentally sensitive areas.
- Encourage the use of landscaping, setbacks, and marginal access drives to promote aesthetics and safety.
- Preserve and rehabilitate appropriate industrial areas by removing incompatible uses, consolidating land, and removing vacant and substandard buildings, as well as giving particular attention to landscaping, buffer strips, off-street parking, and other design matters.
- Incorporate a series of comprehensive performance standards governing industrial uses.

Wales Township

- Avoid the creation of pollution problems and extensive sewer programs by concentrating development where soils are adequate for septic tank systems or where sewers are most likely to occur first.
- Require residential developments to preserve the natural features of each site, such as woods, topography, natural drainage and retention areas.
- Promote a strong site plan review process for industrial uses.
- Favor industrial uses that do not pollute the air, soil, water or offend because of noise or visual characteristics.
- Encourage the use of the Pine River and its banks, floodway and floodplain for passive recreational facilities.
- Propose sewer and water facilities only where planning and zoning will not be compromised.
- Recognize that drainage can be a problem and that a variety of solutions is available for correcting drainage problems (retention, pumping, gravity design, and drain deepening).
- Plan and arrange emergency service contracts with providers so as to minimize response times and maximize the health, safety and welfare of the residents of the Township.
- Cooperate with the development of a county-wide emergency alert system.
- Cooperate with St. Clair County Emergency Management in responding to hazardous cargo accidents on I-69 and the Grand Trunk Western Railroad.
- Provide adequate fire and police protection to service the existing and planned population.
- Promote the establishment of medical resources, such as clinics and ambulance service, to serve Township residents.
- Plan the acquisition of emergency service facility sites well in advance of need.
- Locate fire station sites, when needed, where access to major thoroughfares is good and in a manner that lessens the effect of natural or man-made barriers to fire department access.
- Provide police, fire, and emergency services on a contract basis, or in cooperation with other communities, until population levels and fiscal capability make Township or regionally sponsored departments feasible.
- Limit points of ingress/egress on major roads.
- Encourage County and State transportation departments to install proper signage and control devices, particularly at railroad crossings, to prevent accidents and improve the flow of

traffic.

- Correct hazardous and unsafe areas by improving road alignments where possible.
- Encourage the improvement and replacement of inadequate bridges and culverts throughout the Township.
- Encourage the provision of proper road drainage through joint cooperation of the Township, the County Road Commission and property owners.

City of Yale

- Evaluate possible access alternatives for existing industrial uses whose traffic must travel through residential neighborhoods.
- Enact hazardous materials regulations that address proper site design and containment and disposal of hazardous materials in a manner that protects natural features including, but not limited to, ground and surface water, soils, air quality and wetlands.
- Work to eliminate the external impacts of industrial uses on residential areas through code enforcement and improved screening.
- Provide police, fire protection, emergency medical services and other public facilities and services that adequately meet the community's current and future needs.
- Monitor fire and rescue service to ensure that these services keep pace with demand.
- Strive to minimize through-traffic disruptions on thoroughfares, while keeping traffic off the local residential streets.
- Improve access and emergency service by maintaining site plan review standards that ensure smooth ingress and egress by emergency vehicles.

Community-Specific Mitigation Priorities

The following lists of hazard concerns and mitigation priorities are based on a variety of sources, including a survey of local government officials, community master plans, the Community Profile of this Plan, the Risk and Vulnerability Assessment of this Plan, and on past occurrences of each particular hazard. The prioritization lists are not meant to be exhaustive, but rather are intended to help communities focus on more immediate concerns or issues.

City of Algonac

Top 5 Hazard Concerns:

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1. Flooding
 2. Public Health Emergency
 3. Infrastructure Failure
 4. Transportation Disruption
 5. Structure Fire/Wildfire

Mitigation Priorities:

- Promote flood plain management through implementation of “sound land use” within flood plain areas. Also, develop capacity study of existing storm sewer.
- Public education and outreach on preparedness.
- Ensure that critical facilities have access to an auxiliary power supply.
- Expand emergency warning notification systems.
- Water pressure is inadequate, increase elevated storage capacity.

Berlin Township

Top 5 Hazard Concerns:

1. Tornado
2. Hazardous Material Transportation Incident
3. Snow Storm
4. Ice Storm
5. Drought

Mitigation Priorities:

- Provide for the reasonable protection, preservation and enhancement of fragile environmental areas, together with other important natural assets and features.
- Enhance emergency shelters and advance warning sirens for public facilities and manufactured home parks.
- Preservation and protection of wetlands in a coordinated enforcement program with the Michigan Department of Natural Resources and/or other technically competent agencies.
- Institute an ongoing program of public information regarding the short and long-term effects of fertilizers, pesticides, engine oils, fuels, road salts/de-icers, grass clippings, leaves, etc., on wetlands, water bodies and aquifers.

Brockway Township

Top 5 Hazard Concerns:

1. Tornado

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2. Ice Storm
 3. Snow Storm
 4. Structure Fire
 5. Agricultural Pests/Invasive Species

Mitigation Priorities:

- Encourage the conservation of existing vegetation, topography, and other natural features in the design of all new residential developments.
- Installation of emergency warning systems for severe weather, fires, and other hazard events.
- Public education and outreach on preparedness.
- Ensure proper management of storm water runoff through measures which protect natural vegetation along slopes and waterways to prevent soil erosion and sedimentation of water courses.

Burtchville Township

Top 5 Hazard Concerns:

1. Tornado
2. Ice Storm
3. Public Health Emergency
4. Hazardous Materials Transportation Incident
5. Snow Storm

Mitigation Priorities:

- Enhance emergency shelters for public facilities and manufactured home parks.
- Conduct a Sewage Disposal Study to examine alternative methods of sewage disposal, including a community lagoon, land application, and municipal sewage treatment facilities.
- Adopt ordinance provisions that prohibit blocking and filling of drains.
- Eliminate conflict points between automobile and truck traffic.

Village of Capac

Top 5 Hazard Concerns:

- Transportation Disruption/Accident
- Infrastructure Failure
- Snow Storm
- Hazardous Materials Transportation Incident

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- Tornado

Mitigation Priorities:

- Public education and outreach on preparedness.
- Install more crosswalks and traffic signals to increase pedestrian safety.
- Installation of emergency warning systems for severe weather, fires, and hazardous materials events along the CN rail corridor and I 69 events.
- Encourage the regular maintenance of buildings.

Casco Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Transportation Structure Failure
3. Tornado
4. Snow Storm
5. Hazardous Materials Facility Incident

Mitigation Priorities:

- Public education and outreach on preparedness.
- Review and enhance the Zoning Ordinance performance standards for all uses relating to hazardous materials and other negative environmental impacts.
- Protect surface and groundwater through standards for fertilizers, pesticides, septic-system location, and filtration of storm water runoff.
- Enhance emergency warning system to notify residents of a hazard event.

China Township

Top 5 Hazard Concerns:

1. Terrorism
2. Flooding
3. Public Health Emergency
4. Transportation Structure Failure
5. Hazardous Materials Transportation Incident

Mitigation Priorities:

- Implement more restrictive land use planning regulations in floodplain areas.
- Implement an effective stormwater management program.

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- Educate residents and local officials regarding flood mitigation tools and techniques.
 - Protect natural resources from intrusion by industry, business and residences so as not to jeopardize their delicate balance.

Clay Township

Top 5 Hazard Concerns:

1. Tornado
2. Flooding
3. Agricultural Pest/Invasive Species
4. Public Health Emergency
5. Hazardous Materials Transportation Incident

Mitigation Priorities:

- Public education and awareness about agricultural pests and invasive species.
- Natural resources protection, particularly the protection of water resources.
- Enhanced emergency services, including capabilities to respond to hazardous materials incidents and chemical spills.
- Enhanced warning systems to notify residents.

Clyde Township

Top 5 Hazard Concerns:

1. Wildfire
2. Agricultural Pests/Invasive Species
3. Drought
4. Ice Storm
5. Tornado

Mitigation Priorities:

- Public education and awareness on wildfire prevention.
- Installation of warning system for Township.
- Develop Zoning Ordinance performance standards to address issues such as noise, dust, smoke, open storage and fire and explosive hazards associated with development.
- Preparation of a drought contingency plan.

Columbus Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
 2. Tornado
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3. Flooding
 4. Hazardous Materials Facility Incident
 5. Snow Storm

Mitigation Priorities:

- Implement land use planning regulations in floodplain areas.
- Protection of gas and electric transmission lines.
- Enhancement of warning siren system for Township residents.
- Construct storm shelters in public facilities and manufactured home parks.

Cottrellville Township

Top 5 Hazard Concerns:

1. Flooding
2. Public Health Emergency
3. Transportation Disruption
4. Hazardous Materials Facility Incident
5. Hazardous Materials Transportation Incident

Mitigation Priorities:

- Public education to inform citizens about hazards and the techniques they can use to protect themselves and their property.
- Explore methods to increase community awareness of Township services, programs, and facilities, such as through the development of a Township website and/or newsletter.
- Update zoning ordinance to protect wetlands and woodlands.
- Increased coverage and use of NOAA Weather Radio.

East China Township

Top 5 Hazard Concerns:

1. Flooding
2. Public Health Emergency
3. Ice Storm
4. Hazardous Materials Facility Incident
5. Infrastructure Failure

Mitigation Priorities:

- Promote flood plain management through implementation of “sound land use” within flood plain areas.
- Efforts should be made to maintain floodways in their natural state to assure preservation of natural features and to limit

damage to personal property.

- Implement effective stormwater management.
- Stronger protection of riparian corridors.

Emmett Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Transportation Structure Failure
3. Hazardous Materials Facility Incident
4. Radiological Accident
5. Public Health Emergency

Mitigation Priorities:

- Enhanced emergency communications system.
- Locating schools, nursing homes, and other special facilities away from major hazardous material transportation routes.
- Proper separation and buffering between industrial areas and other land uses.
- Conserve natural features and protect residents and property from natural hazards (such as flooding, soil erosion) associated with development that infringes on natural systems.

Fort Gratiot Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Hazardous Materials Facility Incident
3. Transportation Disruption/Accident
4. Tornado
5. Flooding

Mitigation Priorities:

- Implement local program to handle hazardous materials situations such as transportation, facility, or radiological incidents.
- Enhance early warning systems for floods, tornadoes, and other natural disasters.
- Discourage the development of heavy industrial uses, since the Township is not served by rail or direct interstate highway access, and favor uses that do not result in nuisances or negative environmental impacts.
- Ensure that critical facilities have access to an auxiliary power supply.

Grant Township

Top 5 Hazard Concerns:

1. Tornado
2. Snow Storm
3. Ice Storm
4. Public Health Emergency
5. Hazardous Materials Facility Incident

Mitigation Priorities:

- Cooperate with the development of a county-wide emergency communications and alert system.
- Ensure that critical facilities have access to an auxiliary power supply.
- Identify appropriate shelters for citizens and visitors during an emergency.
- Public education to inform citizens about hazards and the techniques they can use to protect themselves and their property.

Greenwood Township

Top 5 Hazard Concerns:

1. Hazardous Materials Facility Incident
2. Tornado
3. Structure Fire
4. Public Health Emergency
5. Hazardous Materials Transportation Incident

Mitigation Priorities:

- Installation of emergency warning systems for spills, fires, and tornadoes.
- Cooperate with the development of a county-wide emergency communications and alert system.
- Identify appropriate shelters for citizens and visitors during an emergency.
- Ensuring proper separation and buffering between the Detroit Edison plant and other land uses.

Ira Township

Top 5 Hazard Concerns:

1. Structure Fire
2. Wildfire
3. Thunderstorm

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4. Tornado
 5. Snow Storm

Mitigation Priorities:

- Public education to inform citizens about hazards and the techniques they can use to protect themselves and their property.
- Installation of emergency warning systems for fires, tornadoes, and other severe weather.
- Encourage underground utility lines.
- Enhance emergency shelters for public facilities and manufactured home parks.

Kenockee Township

Top 5 Hazard Concerns:

1. Tornado
2. Drought
3. Ice Storm
4. Agricultural Pests/Invasive Species
5. Flooding

Mitigation Priorities:

- Protect and enhance the Township's environmental assets, including clean air, water, and soils, as well as the woodlands, wetlands, and abundance of wildlife.
- Establish setbacks or buffer zones around wetlands and creek edges.
- Enhance emergency shelters for public facilities and manufactured home parks.
- Public education and outreach to inform landowners on what they can do to protect forests and farmland from pests or invasive species.

Kimball Township

Top 5 Hazard Concerns:

1. Infrastructure Failure
2. Hazardous Materials Transportation Incident
3. Terrorism
4. Tornado
5. Hazardous Materials Facility Incident

Mitigation Priorities:

- Public education and outreach programs.

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- Actively support St. Clair County HazMat Team.
 - Increased coverage and use of NOAA Weather Radio.
 - Locating schools, nursing homes, and other special facilities away from major hazardous material transportation routes.

Lynn Township

Top 5 Hazard Concerns:

1. Agricultural Pests/Invasive Species
2. Wildfire
3. Drought
4. Tornado
5. Ice Storm

Mitigation Priorities:

- Enhance the capacity for emergency services within the Township.
- Work closely with Michigan State University Extension regarding agriculture drought predictions.
- Public education and outreach on preparedness.
- Preparation of a drought contingency plan.

Marine City

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Public Health Emergency
3. Infrastructure Failure
4. Flooding
5. Terrorism

Mitigation Priorities:

- Enhance or replace aging critical infrastructures.
- Improved design, routing, and traffic control and problem roadway areas.
- Public education and outreach on preparedness.
- Continued support for enhanced emergency services.

Marysville

Top 5 Hazard Concerns:

1. Hazardous Materials Facility Incident
2. Hazardous Materials Transportation Incident
3. Terrorism

4. Infrastructure Failure

5. Flooding

Mitigation Priorities:

- Public education and outreach on preparedness.
- Promote flood plain management through implementation of “sound land use” within flood plain areas.
- Inter- and intra-agency coordination on potential terrorist activity.
- Actively support the St. Clair River water-quality monitoring system.

Memphis

Top 5 Hazard Concerns:

1. Thunderstorm
2. Structure Fire
3. Snow Storm
4. Tornado
5. Ice Storm

Mitigation Priorities:

- Ensure that critical facilities have access to an auxiliary power supply.
- Identify appropriate shelters for citizens and visitors during an emergency.
- Encourage the burying of power and other utility lines.
- Public education to inform citizens about hazards and the techniques they can use to protect themselves and their property.

Mussey Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Tornado
3. Public Health Emergency
4. Hazardous Materials Facility Incident
5. Snow Storm

Mitigation Priorities:

- Concentrate industrial uses on roads with adequate existing design and construction to accommodate such uses.
- Continue current police services with St. Clair County Sheriff and State Police.

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- Public education and outreach on preparedness.
 - Installation of emergency warning systems for severe weather, fires, and other hazard events.

City of Port Huron

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Hazardous Materials Facility Incident
3. Public Health Emergency
4. Terrorism
5. Infrastructure Failure

Mitigation Priorities:

- Ensure that critical facilities have access to an auxiliary power supply.
- Control truck routes to industrial areas, through traffic in the City and at the border to offer a direct route for businesses and at the same time protect residential and other development areas of the City.
- Encourage the burying of utility lines.
- Inter- and intra-agency coordination on potential terrorist activity.

Port Huron Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
2. Structure Fire
3. Hazardous Materials Facility Incident
4. Public Health Emergency
5. Infrastructure Failure

Mitigation Priorities:

- Correct hazardous and unsafe areas and improve street alignments where needed.
- Staff and equip the entire Fire Department to handle all anticipated needs in areas of disaster and emergency medical services.
- Implement the Township's storm drainage plan to solve existing problems, in anticipation of future surface drainage needs.
- Public education to inform citizens about hazards and the

techniques they can use to protect themselves and their property.

Riley Township

Top 5 Hazard Concerns:

1. Tornado
2. Flooding
3. Hazardous Materials Transportation Incident
4. Public Health Emergency
5. Ice Storm

Mitigation Priorities:

- Implement policies to improve on and sustain the integrity of the Belle River corridor.
- Promote flood plain management through implementation of “sound land use” within flood plain areas.
- Public awareness campaigns to inform residents on hazard events.
- Utilization and wide-scale coverage of NOAA Weather Radio.

St. Clair

Top 5 Hazard Concerns:

1. Public Health Emergency
2. Flooding
3. Hazardous Materials Transportation Incident
4. Hazardous Materials Facility Incident
5. Infrastructure Failure

Mitigation Priorities:

- Police and control excessive truck traffic and truck weight violations.
- Promote flood plain management through implementation of “sound land use” within flood plain areas.
- A number of City water mains are in need of upgrade. Some areas could also benefit from enlarged service laterals and water main loops to aid in flow capacity and fire protection.
- Ensure that critical facilities have access to an auxiliary power supply.

St. Clair Township

Top 5 Hazard Concerns:

1. Hazardous Materials Transportation Incident
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2. Flooding
 3. Hazardous Materials Facility Incident
 4. Public Health Emergency
 5. Infrastructure Failure

Mitigation Priorities:

- Establish residential land use policies that are compatible with environmentally sensitive areas.
- Incorporate a series of comprehensive performance standards governing industrial uses and chemical storage facilities.
- Promote flood plain management through implementation of “sound land use” within flood plain areas.
- Actively support the St. Clair River water-quality monitoring system.
- Evaluate current water pressure and develop an program for addressing concerns.

Wales Township

Top 5 Hazard Concerns:

1. Tornado
2. Hazardous Materials Transportation Incident
3. Flooding
4. Public Health Emergency
5. Scrap Tire Fire

Mitigation Priorities:

- Cleaning and retrofitting county drains and road ditches.
- Cooperate with the development of a county-wide emergency alert system.
- Construct storm shelters in public facilities and manufactured home parks.
- Public education and awareness to inform citizens about hazards associated with scrap tires and other hazardous materials.

Yale

Top 5 Hazard Concerns:

1. Tornado
2. Ice Storm
3. Infrastructure Failure
4. Hazardous Materials Transportation Incident
5. Snow Storm

Mitigation Priorities:

- Ensure that critical facilities have access to an auxiliary power supply.
- Secure all well sites.
- Evaluate possible access alternatives for existing industrial uses whose traffic must travel through residential neighborhoods.
- Enact hazardous materials regulations that address proper site design and containment and disposal of hazardous materials in a manner that protects natural features including, but not limited to, ground and surface water, soils, air quality and wetlands.