Chapter 4 – Mitigation Strategy

This section describes the mitigation strategy process and mitigation action plan for the Chippewa County Multi-Hazard Mitigation Plan. This section describes how the County accomplished Phase 3 of FEMA’s 4-phase guidance – Develop the Mitigation Plan – and includes the following from the 10-step planning process:

- Planning Step 6: Set Goals
- Planning Step 7: Review Possible Activities
- Planning Step 8: Draft an Action Plan

Foundation

The foundation of this plan includes ensuring sustainability and encouraging partnerships between County and local governments, businesses, and community service providers. These concepts permeate throughout the plan and are integrated into the goals, policies, and objectives in the next section.

Sustainability

Sustainability is defined as “Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.” This encompasses economic, social, and environmental systems. Sustainability is trying to achieve balance between these three systems for the long term.

Natural disasters and their direct/indirect impacts (i.e. power outages) reveal that the systems that we have come to depend upon are vulnerable to disturbances of all kinds. Alternative energy sources through sun or wind could enhance the County’s ability to provide power during these times. Adoption of policies that take into consideration the vulnerabilities and risk to natural hazards and incorporating these policies into community comprehensive, master and land use plans can reduce and possibly eliminate those risks. Identifying and limiting development in flood zones or managing storm water run-off rates are examples of policies that could be developed to address the flooding hazard. Adjusting human development to fit the environment is a wiser choice than adjusting the environment to fit human development.

Disruption of economic activity is prolonged when ecological and social systems are in disarray. When natural hazards occur, businesses suffer consequences in lost sales or even loss of business entirely. Businesses need support and business people need training in how to prepare for and cope with disasters. Sustainability means making smart policy choices about how to protect people and property that do not compromise the integrity of social, economic, or environmental systems.
Partnerships

There are many stakeholders when it comes to planning for and responding to natural disasters. Governments, businesses, community service agencies, and all residents have a stake in reducing the County’s vulnerabilities to natural hazards. It is important that relationships and partnerships between public and private entities are built and maintained.

To be successful in the effort to implement a hazard mitigation strategy these public and private entities must work together to achieve the goals set forth in the plan. The County government may not own or regulate the critical infrastructure that is most vulnerable. As a result, individuals, businesses, and other levels of government must take many of the needed actions. Many of these projects are outside of the County’s direct influence. Working partnerships with builders, architects, insurance companies, business organizations, community service groups, local governments, and others are necessary to ensure that mitigation programs are well-designed, broadly supported, and implemented.

Goals

In the two previous chapters, the County’s resources, capabilities and vulnerabilities to natural hazards were documented. At this point, the Chippewa County Hazard Mitigation Taskforce team reviewed the goals set forth in the 2005 Plan. The goals and objectives were developed to reflect the priorities of Chippewa County with consideration of the impact of each natural hazard that can affect the County.

In 2005, protection of life was considered the top priority for the County. Not only those that live in the County but also tourists or other visitors. Secondary to protection of life was to protect property or the key facilities and infrastructure that are vital in emergencies. The third goal was to identify projects or areas that need improvement or that would mitigate damage before it occurs. The final goal was to encourage and educate people on self-help and protection measures. The Taskforce team agreed that these goals are still appropriate for the 2014 Hazard Mitigation Plan. Specifically, these goals are:

1. Protect lives, health, and safety of the citizens and visitors of Chippewa County from the effects of potential hazards.
   a. Provide adequate early warning
   b. Maintain essential, trained emergency services
   c. Provide emergency shelters
   d. Identify vulnerable population areas

2. Protect critical facilities, key resources, and public infrastructure.
   a. Minimize damage to public and private property
   b. Provide alternative electrical and communication sources
   c. Identify, evaluate, maintain, and upgrade infrastructure
   d. Employ hazard specific preventative measures
3. Identify specific projects to mitigate damage that are cost-effective and affordable.
   a. Adopt and enforce appropriate policies/zoning/building codes
   b. Utilize natural and man-made barriers/open spaces in prevention efforts
   c. Develop specific site emergency plans as appropriate
   d. Utilize proven strategies that prevent loss of life and property

4. Encourage self-help and self-protection measures to mitigate the effects of hazards on public and private property.
   a. Provide community with preventative information
   b. Increase public awareness
   c. Encourage participation in mitigation and preparedness efforts

The goals of this plan focus on health and safety issues associated with natural hazards and the importance of people being able to protect themselves and their property from damage.

These goals and objectives are based on the community’s hazard analysis, as well as input from the citizens, home and business owners, public and private agencies and other interested entities.

Chippewa County recognizes the importance of the availability of flood insurance to citizens. The County will make every effort to remain in good standing with National Flood Insurance Program (NFIP). The County will continue to comply with the NFIP’s standards for updating and adopting floodplain maps and maintaining the floodplain zoning ordinance. The County will also continue to provide assistance to local units as needed to assure continued local compliance with NFIP standards.

Hazard Mitigation Actions – Identification & Analysis

This chapter is rooted in FEMA’s requirement that every mitigation strategy from the 2005 plan must be re-evaluated and have its current status reported in an updated plan. The CCHMPC thus described, for each action item listed in the 2005 plan, what achievements or progress had been made toward hazard mitigation within Chippewa County and its communities. Refinement of this list was considered necessary for the updated plan to better focus upon higher-priority actions, and upon activities that were more clearly a kind of hazard mitigation.

Flowing from this process over subsequent months was a consideration of past accomplishments and obstacles, the consideration and evaluation of mitigation alternatives, and the development of a new listing of prioritized hazard mitigation actions as well as lists specific to participating local communities’ individual feedback.
Eligible Action Items for FEMA funding:

**Action Item 1: Warning Sensors for Rivers**

**Description:** Review the gauging network to determine if additional rain and stream gauges are necessary. Seek funding to purchase the best equipment available.

**Past Accomplishments:** Adjustments were made to sensor on Pine River to reflect appropriate water levels in new flood stage parameters.

**Obstacles:** Additional stream gauges are needed, but additional recommendations are needed from the NOAA Hydrologist. Lack of funding has also been an issue.

**Status:** Continue, plus work closely with other relevant agencies, to identify possible solutions to river flooding issues and the development of river/watershed management plans where needed.

**Action Item 2: Snow Fences for State/County Roads**

**Description:** Utilizing natural resources to create barriers that have proven to reduce blowing snow and “white-out conditions” on major highways resulting in fewer accidents.

**Past Accomplishments:** Since 2006, Chippewa County OEM working with the Chippewa, Luce, Mackinac Conservation District has conducted Operation Windbreak – planting 1500 trees every year in identified areas.

**Obstacles:** Lack of volunteers for planting; drought conditions has led to some trees dying.

**Status:** Continue to identify areas for planting, work with Conservation District and seek and recruit volunteer/volunteer groups, publicize the program with local news releases.

**Action Item 3: Lightning Protection**

**Description:** Identify and modify critical facilities that need lightning protection.

**Past Accomplishments:** County facilities were updated with surge protection measures.

**Obstacles:** Lack of funding

**Status:** Completed; Create public information pamphlets to distribute at public events.

**Action Item 4: Backflow Prevention Valves**

**Description:** Identify and modify critical facilities that may need backflow prevention.

**Past Accomplishments:** Have identified areas that would be improved with modification. Provide public education information.

**Obstacles:** Lack of funding

**Status:** On-going; Work with City of SSM Engineering Department on identifying specific areas that could feasibly be modified in conjunction with scheduled improvements.

**Action Item 5: Bury Utility Lines**

**Description:** Encourage local utility providers to bury utility lines where feasible.

**Past Accomplishments:** None

**Obstacles:** Deemed not to be a priority for local utility companies due to the cost of repair, etc.

**Status:** Remove from action list. Create informational pamphlets to hand out at public events and for a website, about what homeowners can do to mitigate power outages. Continue to encourage alternative energy sources and back-up systems.
Action Item 6: Storm Water Detention Basin
Description: Identify areas where additional storm water detention basins are needed or improvements need to be made.
Past Accomplishments: None, not an issue with drought conditions during the last few years. Areas have been identified in the update of this plan where improvements can be made.
Obstacles: Property ownership - not willing to sell, lack of funding, not as high a priority.
Status: On-going, seek funding for property acquisition to create a water detention basin in identified areas should those owners be willing to sell. Continue to work with local road commission and drain commissioner to identify, and record in GIS database, areas for mitigation.

Action Item 7: Culvert Replacement
Description: Identify culverts that are too small for water flow and upsize.
Past Accomplishments: Culverts have been replaced in Rudyard addressing some flooding issues and also on W. 6 Mile.
Obstacles: High cost of replacement, lack of funding.
Status: On-going, seek funding in conjunction with road projects to replace/modify culverts and bridges as identified. Continue to work with the local road commission and other transportation agencies in creating a GIS inventory of culverts, and their condition, in the County.

Action Item 8: Retrofit City Buildings & Response Facilities
Description: Identify mitigation actions to be done at critical facilities throughout the County.
Past Accomplishments: Generators purchased and placed in township facilities – Bruce, Rudyard, and Whitefish. City offices relocated to a historic building on Portage Avenue allowing County offices to expand. Both places received renovations.
Obstacles: Lack of funding.
Status: On-going: Continue to identify additional needs and assist local units of government.

Action Item 9: Acquire Flood-prone NFIP properties
Description: Identify areas that are flood prone and feasible to acquire to mitigate repetitive damages.
Past Accomplishments: None.
Obstacles: Lack of funding; have not had major repetitive flooding, not a priority.
Status: On-going: Continue to work with local road commission and drain commissioner in identification of flood prone properties that would be beneficial for mitigation of infrastructure issues.

Action Item 10: Insulate Municipal Water Lines
Description: Identify areas that are prone to freezing and identify mitigating strategies to apply for improvement.
Past Accomplishments: “Let-run” Program offered by the City of SSM to allow residents discount on water bill to prevent water lines from freezing.
Obstacles: Funding; Reaction-based on incident strategy
Status: On-going: Identify mitigation action strategies and continue to work with communities with public water lines to identify potential funding sources. Create informational pamphlets to hand out at public events and to put up on website, for homeowners and what they can do themselves.

Action Item 11: Construct Storm Shelter “Safe Rooms” for Critical Facilities
Past Accomplishments: None, no interest.
Obstacles: Deemed not to be a priority; no funding.
Status: Continue to be available to assist agencies who do decide a safe room or facility is needed.

Non-Eligible FEMA Funded Action Items
Action Item 1: Improve EAS System
Past Accomplishments: Office of Emergency Management has latest up-to-date software and uses a satellite based EAS system with Integrated Public Alert System (IPAS).
Obstacles: Keeping up with technology; lack of funding.
Status: On-going: Deemed a high priority to alert the public in a timely manner of any type of situation. Continue to maintain software and hardware as technology changes.

Action Item 2: Improve GIS capabilities with up-to-date equipment and software
Past Accomplishments: Partnering with agencies has allowed for purchase of hardware and software needed to begin to develop and use the GIS mapping inventory. Partnering with Mackinac County in the development of a Regional GIS Department with EUP Regional Planning Commission administering. Both Chippewa and Mackinac are developing map datasets for public information and use.
Obstacles: Staff; lack of number of people with program knowledge; lack of interdepartmental cooperation and data sharing.
Status: On-going: Continue to develop Regional GIS Department with map development and upkeep. Establish partnerships with local University GIS department to work on projects. Continue to have GIS related conferences to build networks between departments and agencies.

Action Item 3: Develop priority routes for snow removal on major arteries during extreme snow storms
Past Accomplishments: Priority routes have been established.
Obstacles: Budget for snow maintenance.
Status: Completed. Maintain in GIS database, provide maps as needed.

Action Item 4: Get involved and assessed as a Storm Ready Community
Past Accomplishments: Obtained the Storm Ready designation and have since renewed twice. Weather spotters trainings are held twice a year.
Obstacles: Staff/Volunteers to implement programs; lack of website and local information.
Status: Ongoing: will continue to renew program and create informational pamphlets and website to get local information out to the public.

Action Item 5: Work with local DNR office and adopt Firewise Strategies
Past Accomplishments: Applied for and received funding for a Community Wildfire Protection Plan for Whitefish Township.
Obstacles: Lack of volunteers and funding to implement actions.
Status: Ongoing: Continue to work with local communities in the development of protection plans and programs where County is vulnerable to wildfire. Partner with DNR and Hiawatha Forest Service and other relevant stakeholders to identify mitigation strategies to implement to reduce loss of structures.

Action Item 6: Encourage local community emergency planning to coordinate with County OES Department
Past Accomplishments: County OES currently works with schools in planning emergency drills. Worked with Tendercare Long Term Care to create an emergency plan.
Obstacles: Lack of staff and funding.
Status: Ongoing: Continue to be available to assist in emergency planning. Provide information on a website.

Action Item 7: Purchase and Stockpile Supplies for Emergency Needs
Past Accomplishments: Worked with local units of government to identify and purchase needed items.
Obstacles: Funding challenges.
Status: Ongoing: Continue to seek partnerships and identifying supplies and storing facilities as needed.

Action Item 8: Building Code Improvements
Past Accomplishments: County continues to use Building Codes set by the State of Michigan.
Obstacles: Staff time.
Status: Ongoing: Research and keep up-to-date on current building codes related to natural hazards. Develop sample code language that could be offered for information. Provide assistance where needed. Consider code revision if deemed necessary by appropriate departments/local planning commissions.

Action Item 9: Improved Code Enforcement
Past Accomplishments: Larger units of government such as Sault Ste. Marie have more resources for code enforcement.
Obstacles: Staff and funding.
Status: Ongoing: continue to assist where necessary.
**Action Item 10: Improved Address Ordinance Compliance**

**Past Accomplishments:** Improvement with keeping information up-to-date in the GIS system and sharing between departments.

**Obstacles:** Staff and funding.

**Status:** Ongoing: Encourage incentive programs to comply as opposed to enforcement. Provide local information through pamphlets and website.

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**Administrative Action Items**

**Action Item 1: Plan Adoption**

**Past Accomplishments:** Initial Hazard Plan adopted by all local units of governments within the County. Full participation in current hazard planning process.

**Obstacles:** Smaller units of government may not meet as much in winter, make take more time for the local adoption process.

**Status:** Ongoing: provide draft plan for review, hold a public hearing, provide sample resolutions of adoption, and information on benefits. Continue to network and form relationships with local planning commission members and township/city/village officials.

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**Action Item 2: Hazard Analysis Committee**

**Past Accomplishments:** Annual review meetings. Current Plan update process.

**Obstacles:** Time

**Status:** Ongoing: Continue to meet at a minimum annually for a review or more if deemed necessary.

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**Action Item 3: Review of Plans and Development Regulations**

**Past Accomplishments:** EUP Regional Planning and Development Commission has assisted Bay Mills, Pickford and other EUP regional townships in the update of master plans and zoning ordinances.

**Obstacles:** Not having the GIS data to visually represent current land use and vulnerable areas.

**Status:** Ongoing: EUPRP&DC staff to maintain training on current State and local regulations and provide assistance where needed. Develop relationships with local University GIS department to provide mutually beneficial services using GIS students.

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**Action Item 4: Continue in providing an opportunity for public participation**

**Past Accomplishments:** Maintain webpage on EUPRP&DC’s site with information on the Plan and the planning process.

**Obstacles:** Staff time.

**Status:** Ongoing: Improve public relations aspect with more local informational pamphlets and website information, recruit local university students to volunteer to maintain a presence in the social media such as facebook and twitter.
Prioritization Methodology

The objectives recommended in 2005 were initially prioritized by the planning team and by County staff in accordance with input that has been received throughout the planning process. Hazard characteristics, the vulnerability analysis, the hazard ranking, and personal experience as well as several other criteria guided the prioritization of the objectives.

During the 2014 update the HMPC utilized the STAPLEE approach recommended by FEMA. STAPLEE is an acronym representing the following elements that should be considered when evaluating project feasibility:

- Social: Does the measure treat people fairly?
- Technical: Will it work? (Does it solve the problem? Is it feasible?)
- Administrative: Is there capacity to implement and manage the project?
- Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support the project?
- Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?
- Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development? Does it reduce direct property losses or indirect economic losses?
- Environmental: Does it comply with environmental regulations or have adverse environmental impacts?

Other criteria considered by the HMPC to recommend what actions might be more important, more effective, or more likely to be implemented than another included:

- Does the action protect lives?
- Does the action address hazards or areas with the highest risk?
- Does the action protect critical facilities, infrastructure or community assets?
- Does the action meet multiple objectives (Multiple Objective Management)?

This provides a framework, in the form of objectives, for implementing the various recommendations. In that sense, each of these recommendations is a point for further study and planning. This also is a function of the County-wide scale of plan.

In accordance with the DMA requirements, the HMPC was asked to place an emphasis on the importance of a benefit-cost analysis in determining project priority (the ‘economic’ factor of STAPLEE). The objective identification and prioritization process is the first step in laying-out, in broad terms, what needs to be done to minimize the occurrence and impact of natural hazards in the County. Costs identified with each objective are preliminary, or generalized, to give an indication if the objective can be accomplished with in-house resources, such as staff time, or will need outside funding sources and partners to implement. The detailed engineering studies, implementation costs, and benefit-cost analysis of specific projects will come at future points in the process.
This section outlines the development of the final mitigation action plan. The action plan consists of the specific objectives designed to meet the plan’s goals. Over time the implementation of these projects will be tracked as a measure of demonstrated progress on meeting the plan’s goals.

The Table below provides a summary of each objective and includes the primary goals addressed, the hazards mitigated, and the relative priority. Detail on each objective is in Appendix G for County objectives. Refer to the respective jurisdictional annexes for related objective detail. This table is Chippewa County’s action plan for achieving the goals and recommendations of the CCHMP. This table represents a comprehensive range of specific mitigation objectives recommended to reduce the impacts of the hazards identified in this plan. There are objectives that address loss reduction to existing buildings and infrastructure (e.g. stormwater and drainage improvements) as well as reducing losses to new buildings and infrastructure (e.g. continued participation in the NFIP), per the requirements of the DMA.

A note on the general timeline rules the County has applied to the mitigation objectives: high priority objectives are to be accomplished within one to two years; moderate priority objectives are to be accomplished within three to four years; and low priority objectives are to be accomplished within five to seven years. This plan offers a guide for near, mid, long term priorities, the County and other stakeholders should actively seek out opportunities to coordinate implementation with private development and larger public projects. Implementing agencies should remain aware of these kinds of opportunities and seek to coordinate the implementation of this plan with parallel county, local and regional efforts.

<table>
<thead>
<tr>
<th>Action Item #</th>
<th>Action Item Description</th>
<th>Goals Met</th>
<th>Hazards Covered</th>
<th>Priority Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.</td>
<td>Road drainage infrastructure and reconstruction upgrades in Odenaang Housing Development and East Streets to handle water issues and prevent road washout.</td>
<td>2, 3</td>
<td>Flooding, Infrastructure Failure, Subsidence</td>
<td>33</td>
</tr>
<tr>
<td>54.</td>
<td>GIS Layer development - public utility lines: water, sewer, electric, fiber optics, etc.</td>
<td>1, 2, 4</td>
<td>Extreme Temperatures, Infrastructure Failure, Severe Winter Weather, Tornados, Thunderstorm/High Wind</td>
<td>30</td>
</tr>
<tr>
<td>46.</td>
<td>3 Mile Road - erosion/ditching to prevent road collapse</td>
<td>2, 3</td>
<td>Flooding, Infrastructure Failure, Subsidence</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Continue Snow Fence Tree planting program</strong></td>
<td>2, 3</td>
<td><strong>Severe Winter Weather, Transportation Accidents, Hazardous Materials Transportation Accidents</strong></td>
<td>27</td>
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<tr>
<td>21.</td>
<td><strong>Continue Storm Ready Designation and program development</strong></td>
<td>1, 4</td>
<td><strong>Severe Weather, Tornados, Thunderstorms/High Wind Events</strong></td>
<td>27</td>
</tr>
<tr>
<td>22.</td>
<td><strong>Continue to participate in multi-county, interagency and with local units of government to adopt Firewise strategies and developing community wildfire protection plans</strong></td>
<td>1, 4</td>
<td><strong>Wildfires, Structural Fires</strong></td>
<td>27</td>
</tr>
<tr>
<td>55.</td>
<td><strong>Geographic Information Systems (GIS) training/education events and meetings: overview and familiarization, local partnership development, local data development as it relates to Hazard Mitigation</strong></td>
<td>1, 4</td>
<td><strong>All Hazards</strong></td>
<td>27</td>
</tr>
<tr>
<td>57.</td>
<td><strong>Communication Towers - Sugar Island &amp; Sault Ste. Marie set up committee to discuss coverage issues and potential solutions</strong></td>
<td>1, 2</td>
<td><strong>All Hazards</strong></td>
<td>27</td>
</tr>
<tr>
<td>43.</td>
<td><strong>Alford Park – sinkhole</strong></td>
<td>2, 3</td>
<td><strong>Subsidence</strong></td>
<td>26</td>
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<tr>
<td>44.</td>
<td><strong>Carbide Dock – sinkhole</strong></td>
<td>2, 3</td>
<td><strong>Subsidence</strong></td>
<td>26</td>
</tr>
<tr>
<td>1.</td>
<td><strong>Promote Completion of Site Emergency Plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate Sites</strong></td>
<td>1, 3, 4</td>
<td><strong>Severe Winter Weather, Thunderstorms, Tornados, Flooding, Civil Disturbance, Structural Fire</strong></td>
<td>25</td>
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<tr>
<td></td>
<td>Description</td>
<td>Issues/Conditions</td>
<td>Page</td>
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<tr>
<td>8</td>
<td>Clean river debris for better water/ice flow - Pine River/Prairie Rd</td>
<td>2, 3, 4, Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>25</td>
<td></td>
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<tr>
<td>9</td>
<td>Modify bridge structure support - Pine River/Mackinac Trail</td>
<td>2, 3, 4, Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>25</td>
<td></td>
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<tr>
<td>23</td>
<td>Continue to encourage local community emergency planning to coordinate with County OES department and continue open communication and collaboration with neighboring communities</td>
<td>1, 4, All Hazards</td>
<td>24</td>
<td></td>
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<td>5</td>
<td>Develop local inland river flood GIS information</td>
<td>1, 2, 4, Flooding</td>
<td>23</td>
<td></td>
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<tr>
<td>14</td>
<td>Drainage improvements - Main Street Rudyard</td>
<td>2, 3, 4, Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>23</td>
<td></td>
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<tr>
<td>41</td>
<td>Replace/upsise culvert - E. 9th Ave.</td>
<td>2, 3, Flooding, Infrastructure Failure, Subsidence</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Replace/upsise culvert - E. 10th Ave.</td>
<td>2, 3, Flooding, Infrastructure Failure, Subsidence</td>
<td>23</td>
<td></td>
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<tr>
<td>45</td>
<td>Eureka/Peck - water drainage improvements/reconstruction</td>
<td>2, 3, Flooding, Infrastructure Failure, Subsidence</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>W. 4th Ave. - drainage issues, culvert replacement, ditching improvements</td>
<td>2, 3, Flooding, Infrastructure Failure, Subsidence</td>
<td>23</td>
<td></td>
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<tr>
<td>48</td>
<td>E. Spruce Street - damaged sewer system replacement</td>
<td>2, 3, Flooding, Infrastructure Failure, Subsidence</td>
<td>23</td>
<td></td>
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<tr>
<td>51</td>
<td>Sims Street - improve drainage for flooding issues</td>
<td>2, 3, Flooding</td>
<td>23</td>
<td></td>
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<tr>
<td></td>
<td>Description</td>
<td>Risks/Concerns</td>
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<tr>
<td>7</td>
<td>Storm Water Retention Basin/Wastewater system - Kinross Township street flooding</td>
<td>Thunderstorms/Heavy Rains; Flooding; Subsidence; Environmental Contamination, Infrastructure Failure</td>
<td>22</td>
<td></td>
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<tr>
<td>25</td>
<td>CCHMP Ad Hoc Committee to meet annual or more as needed</td>
<td>All Hazards</td>
<td>21</td>
<td></td>
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<tr>
<td>28</td>
<td>Continue with Weather spotters training sessions</td>
<td>Severe Weather, Thunderstorms, Tornados</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Improve EAS system</td>
<td>Severe Weather, Flooding, Wildfire, Public Health Emergencies, Civil Disturbances, Hazardous Materials Incidents</td>
<td>20</td>
<td></td>
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<tr>
<td>3</td>
<td>Assist local units of government in developing plans (possibly through a model ordinance) for managing trees, before, during, and after natural hazard events including, flooding, tornadoes, drought, wildfires, and ice storms.</td>
<td>Severe Winter Weather, Thunderstorms, Tornados, Drought, Wildfires</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Upsize culvert, erosion protection - Waishkey River/Bound Rd.</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>19</td>
<td></td>
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<td>11</td>
<td>Upsize Culvert - Charlotte River/W. 12 Mile Rd.</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>19</td>
<td></td>
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<tr>
<td>32</td>
<td>Address wildfire vulnerabilities through ordinance study zoning recommendations</td>
<td>Wildfire</td>
<td>19</td>
<td></td>
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<tr>
<td>36</td>
<td>Identify and inventory every culvert in the County and digitize into GIS system</td>
<td>Flooding, Infrastructure Failure, Subsidence</td>
<td>19</td>
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<td>Action</td>
<td>Layers</td>
<td>Hazards</td>
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<tr>
<td>37.</td>
<td>Using current aerial ortho photos update current land cover layer and digitize into the GIS system</td>
<td>2, 3</td>
<td>All Hazards</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>Sherman Park - shoreline erosion protection</td>
<td>2, 3</td>
<td>Subsidence</td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>I-500 - erosion/earth stabilization</td>
<td>2, 3</td>
<td>Subsidence</td>
<td></td>
</tr>
<tr>
<td>52.</td>
<td>3047 W. 10 MILE RD/CHUMS CREEK Branch of Waishkey River; Culvert too small for driveway; floods every year</td>
<td>2, 3</td>
<td>Heavy Rain, Flooding</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Utilize DFIRMs, when completed, in conjunction with other layers to develop a flood risk map based on hydric soils, wetlands, and areas of past damage. Use the map as an educational tool, and also share with real estate agents and local units of government.</td>
<td>1, 2, 4</td>
<td>Flooding, Drought, Thunderstorms, Tornados</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>Organize outreach to vulnerable populations during periods of extreme temperatures</td>
<td>1, 4</td>
<td>Extreme Temperatures, Severe Winter Weather</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>E. Easterday Ave. sewer line</td>
<td>2, 3</td>
<td>Thunderstorms – Heavy Rains, Flooding, Infrastructure Failure</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Compile and disseminate mitigation information. Create public education and awareness pamphlets to hand out at public events about natural hazards and local information; develop interactive website.</td>
<td>1, 3, 4</td>
<td>Severe Winter Weather, Thunderstorms, Tornados, Flooding, Drought, Wildfires, Extreme Temperatures, Subsidence</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Maintain and develop GIS capabilities with up-to-date equipment, software, and upkeep/development of local information.</td>
<td>1, 2, 3, 4</td>
<td>All Hazards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Hazards</td>
<td>Recommendation</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------</td>
<td>---</td>
</tr>
<tr>
<td>12</td>
<td>Upsize culvert - Waishkey River/10 Mile Rd.</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>2, 3, 4</td>
<td>15</td>
</tr>
<tr>
<td>13</td>
<td>Upsize culvert - Waishkey River/Maple Rd.</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>2, 3, 4</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>Upsize culvert - Carp River outlet/Huckleberry Rd.</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>2, 3, 4</td>
<td>15</td>
</tr>
<tr>
<td>29</td>
<td>Assist LUG in the development of debris management/tree trimming and maintenance programs</td>
<td>Thunderstorms, High Wind Events, Tornados, Severe Winter Weather</td>
<td>2, 3, 4</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>Improve address signage and compliance with local Address Ordinance with incentive programs</td>
<td>All Hazards</td>
<td>1, 4</td>
<td>13</td>
</tr>
<tr>
<td>18</td>
<td>Identify areas and Retrofit Critical Facilities for flooding, lightning, high wind, tornados, etc.</td>
<td>Thunderstorms, Infrastructure Failures</td>
<td>2, 3, 4</td>
<td>12</td>
</tr>
<tr>
<td>26</td>
<td>Continue to assist local units of government with incorporating hazard planning into local comprehensive planning and zoning development by identifying and recognizing vulnerable areas</td>
<td>All Hazards</td>
<td>1, 3, 4</td>
<td>12</td>
</tr>
<tr>
<td>30</td>
<td>Ensure building code standards for structural bracing/wind engineering in new structures</td>
<td>Thunderstorms, High Wind Events, Tornados, Severe Winter Weather</td>
<td>3, 4</td>
<td>12</td>
</tr>
<tr>
<td>33</td>
<td>Provide wildfire hazard assessments to community and property owners</td>
<td>Wildfire</td>
<td>2, 3, 4</td>
<td>12</td>
</tr>
<tr>
<td>34.</td>
<td>Work with LUG and agencies to develop accurate identification and mapping of flood-prone areas</td>
<td>2, 3, 4</td>
<td>Flooding</td>
<td>12</td>
</tr>
<tr>
<td>35.</td>
<td>Create flood plain management - planning acceptable uses for areas prone to flooding</td>
<td>3, 4</td>
<td>Flooding</td>
<td>12</td>
</tr>
<tr>
<td>53.</td>
<td>Waishkey River – bank stabilization; river debris clean up; dredging where land slide blocked river</td>
<td>3, 4</td>
<td>Flooding, Subsidence</td>
<td>12</td>
</tr>
<tr>
<td>38.</td>
<td>Identify and inventory every dam listed by DNR in the County and digitize into GIS system</td>
<td>2</td>
<td>Flooding</td>
<td>12</td>
</tr>
<tr>
<td>16.</td>
<td>Upsize culvert - School Creek/18 Mile</td>
<td>2, 3, 4</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>11</td>
</tr>
<tr>
<td>17.</td>
<td>Upsize culvert - Desormeaux Creek/E. 20 Mile</td>
<td>2, 3, 4</td>
<td>Flooding, Environmental Contamination, Infrastructure Failure, Subsidence, Thunderstorms/Heavy Rains</td>
<td>11</td>
</tr>
<tr>
<td>50.</td>
<td>Land Acquisition for water retention basin</td>
<td>3</td>
<td>Flooding, Infrastructure Failure</td>
<td>11</td>
</tr>
<tr>
<td>27.</td>
<td>Continue to provide the opportunity for public involvement and participation with website, more publicity, and informational pamphlets</td>
<td>1, 4</td>
<td>All Hazards</td>
<td>10</td>
</tr>
</tbody>
</table>