



Saginaw County Hazard Mitigation Plan

Saginaw County Emergency Management Division
and Homeland Security Office
2017- 2021



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Introduction

Saginaw County is vulnerable to a wide range of natural, technological, and human-related hazards. The intent of this hazard mitigation plan is to educate local policy makers and emergency service organizations to the hazards of the area, and provide a comprehensive reference document for planning and mitigation activities. This document will also help identify the vulnerability of Saginaw County to natural, technological, and human related hazards. Managing these varied threats, and protecting life and property, are the challenges faced by emergency management officials at all levels of government.

In order to attain an effective emergency management capability to mitigate, prepare for, respond to, and recover from all types of hazards, an understanding of the multitude of hazards that confront the County must first be obtained. To accomplish this, the hazard mitigation plan was designed to provide an understanding of those threats. It identifies important local features, the hazards affecting the area, and discusses the county's vulnerability to identified hazards. This is created and adopted by the community, describing the ways the community will be protected from the hazards that may affect it. The plan includes strategies to achieve the agreed upon mitigation goals and objectives. When coupled with relevant land use and demographic information, the hazard mitigation plan is a powerful tool that enables emergency management officials to set priorities and goals for resource allocation and mitigation preparedness activities.

In Saginaw County, the Office of Emergency Management is the coordinating agency for all emergency management activities. The office is responsible for continually monitoring and updating the Saginaw County Emergency Action Guidelines, as well as many other disaster related activities. Members of the Emergency Preparedness Council worked in conjunction with Homeland Security, Michigan State Police, and a multi-jurisdictional committee created specifically for the update of this plan to produce the 2016 Hazard Mitigation Plan.

Questions and comments concerning this document should be addressed to the Saginaw County Office of Emergency Management:

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Document Overview

Hazard mitigation planning is any action taken before, during, or after a disaster, to permanently eliminate or reduce the long-term risk to human life, and property from natural and technological hazards. It is a cornerstone element and responsibility of emergency management, along with preparedness, response, and recovery. Therefore, the intent of this planning document is to reduce the impact of hazards on people and property, and through the coordination of resources and authorities contribute to successful mitigation of disasters.

The primary responsibility in the County to formulate and carry out the action items outlined in this plan, falls on the Saginaw County Emergency Management Division. While this is a County office, it is just as important to include the cities, villages, township governments, and state agencies to integrate the hazard information in their individual operation planning. This would include but not be limited to including hazard mitigation planning into their respective comprehensive planning and capital improvements planning activities and adopt zoning regulations that will minimize effects of hazards.

As a result, the County will be better prepared for disasters with quick effective responses when they occur. Transitioning into the recovery process should minimize damages as well as improve preparedness of the community for the next incident. When successful, mitigation lessens the impact of hazards, helping to ensure incidents remain incidents, and do not become disasters.

The intent of the Saginaw County Hazard Mitigation Plan is to protect the safety and economic investment of Saginaw County residents and businesses by reducing the impacts of hazards. Through the initial planning process and implementation strategies the Plan serves as the hub of hazard mitigation activities and actions within the Saginaw County group of agencies.

The Plan itself is fueled by requirements resulting for the Disaster Mitigation Act (DMA) of 2000 for hazard mitigation planning. This plan document is required to become eligible for hazard mitigation grant program funds in the future.

This plan provides an outline towards ongoing and proactive reduction of vulnerability to hazards which results in social, economic, and physical damage. The intent of this document is to be the Saginaw County “playbook” of hazard mitigation strategies and management practices with an emphasis on threats to public health and safety of citizens as well as the economic and physical well-being of Saginaw County. The plan reflects the proactive participation of 27 communities partaking in hazard mitigation planning for the first time.

Construction/Format of the Saginaw County Hazard Mitigation Plan

The Saginaw County Hazard Mitigation Plan includes text, tables, charts, and maps which analyze potential threats to Saginaw County. The document includes a community profile section which describes the current demographic, social, and economic profiles of the County, a hazard assessment/identification section, a risk assessment section which takes into consideration the vulnerability for each jurisdiction. Additionally, the document discusses goals and objectives applying to the hazard mitigation efforts of the County in the future and includes specific hazard mitigation strategies for each jurisdiction that participated in the planning process.

The 2008 Plan served as the basis for developing this 2016 plan. It has been reconstructed so that the information is easier to find and use. Overall the introduction and community profile chapters were completely updated with current information pertinent to the plan which included adding information that was not included from the past plan. The hazard assessment and goals and objectives chapters were reconstructed from the past plan, as explained later in this document the past hazard ranking methodology was used for this update, and the SCEPC decided to keep the same broad goals. However, the text in this plan has been updated to reflect any new information. All of the mapping data in this plan, was updated from the past information, and the vulnerability section of the document was updated on an as needed basis.

Responsible Organization and Committee Formation

The 2016 update of the 2008 Saginaw County Hazard Mitigation Plan was prepared by the Emergency Management Division of the Saginaw County Sheriff's Office under the direction of Lieutenant Mark Przybylski. The Saginaw County Emergency Preparedness Council (SCEPC) served as the Local Hazard Mitigation Planning Committee (LHMPC). The SCEPC is a longstanding Saginaw County Committee that acts as an advisory board to the Saginaw County Office of Emergency Management. The group meets monthly and has three major functions:

- To promote emergency preparedness among community Health Care providers, first responders and any other Saginaw County agency that may be involved in emergency or disaster response
- To promote and evaluate the quality of emergency preparedness plans, and develop programs to respond effectively and efficiently to emergencies that occur and/or potentially could occur in the community.
- To act as a forum for exchange of ideas and information on disaster/emergency preparedness and other safety related issues.

To assist the SCEPC, the Multi-Jurisdictional Committee (MJC) was created to incorporate public participation from each jurisdiction in the County via representatives from those jurisdictions. The MJC is further described in the following below.

Multi-Jurisdictional Committee

Because the Saginaw County Hazard Mitigation Plan Update was to be developed as a multi-jurisdictional plan, the County needed to involve the municipalities in the County in the process. The ad-hoc MJC committee was formed with members of local jurisdictions who would each act as the liaison between the County and the respective municipality for the planning process. Community officials that were contacted were:

- Chief elected officials
- Township, Village and City Managers
- Police and Fire Officials

Other parties who were invited to be part of the MJC meetings were key county officials and county departments such as Public Works, Health Department, and the Road Commission. The local hospitals, universities, MMR, school districts, utility companies, red cross, railroads, and major industries in the County. The local Michigan State Police were invited to participate as well. Spicer Group, the third-party consultant facilitated the MJC meetings and coordinated their activities. Appendix A has a list of all the individuals who participated in the planning effort.

Description of the Planning Process

The initial effort for the plan began with a meeting in October of 2015 between representatives from the County Sheriff's Emergency Management Division and the consultant. The group discussed the project, who to involve in the planning process from the County, and how to involve the other municipal jurisdictions in the County.

On November 5, 2015, the SCEPC and consultant met to discuss the purpose of the hazard mitigation plan, the process for updating and adopting the plan, the role of the SCEPC, the role of the MJC, community input, past rankings, and hazard analysis criteria. The committee also prepared for a November 10, 2015 meeting of the MJC. The committee members were asked to review the past hazard rankings and participate in a public input study which would begin in November.

On November 10, 2015, the MJC met for the first time at the Saginaw Charter Township Fire Hall #2. The invitation letter and sign-in from the meeting is included in Appendix A. At this meeting, the consultant discussed: the purpose of the hazard mitigation plan, the process for updating and adopting the plan, the role of the MJC, community input, past rankings, and hazard analysis criteria.

The consultant then began work to update the text of the 2008 plan, this included an updated community profile section which analyzes the demographic, social, and economic characteristics of the County. They also worked with the SCEPC to determine which hazards would be included in the update of this plan, determined the final evaluation criteria for ranking the hazards, and compiled a community input survey. Finally, the planning consultant continued updating the Risk Assessment section of the plan.

The hazard assessment survey closed in January. (This survey is described more fully in the Hazard Assessment section of this plan.) At the March 3, 2016 meeting of the SCEPC the consultant shared the compiled results of the survey and reviewed the next steps in the planning process. Then the committee members discussed the goals and strategies of the hazard mitigation plan and reviewed the mitigation strategies from the past plan. The committee members were asked to give their opinion on both, the goals and mitigation strategies before the April 28, 2016 meeting of the MJC to give the larger group updated information to review and comment on.

On April 28, 2016, the MJC met at the Thomas Township Public Safety Building. The invitation letter and sign-in sheet for this meeting is included in Appendix A. At the meeting, the consultant gave an overview of the public survey results, asked for input on the goals and objectives for the plan, and reviewed the past mitigation strategies. Finally, the planning consultant handed out "hazard mitigation strategy worksheets" for each jurisdiction to tailor strategies to their own vulnerabilities. A copy of the letter explaining the strategy worksheet, and a copy of the blank worksheet are in Appendix B.

Throughout this process the planning consultant continued updating the text of the document working closely with Lieutenant Przybylski and the SCEPC. During the plan writing process, specific concerns were discussed by jurisdiction, and more specifically each jurisdiction was able to create a list of hazard mitigation strategies that were specific to their locality.

The draft was completed in July of 2017 and it was sent to the County for preliminary review by the SCEPC. Comments and edits were made to the draft based on the recommendation from the SCEPC. Then, the draft was sent to all participating jurisdictions for their review and comments.

After the SCEPC comments, the draft went to the MJC and the following groups for further review:

- All invited and participating members of the MJC.
- MDEQ Floodplain Management Division
- Great Lakes Bay Chapter of the Red Cross
- Bay County Emergency Management
- Midland County Emergency Management
- Gratiot County Emergency Management
- Shiawassee County Emergency Management
- Tuscola County Emergency Management
- County Offices including Public Works Commissioner, County Health Department, County Road Commission, County Planning
- Nexteer Automotive
- Hemlock Semiconductor/ Dow Corning
- Saginaw Valley State University
- Covenant Health Care. St. Mary's of Michigan, and the VA Hospital
- Consumers Energy
- MBS International Airport
- East Central Michigan Regional Planning Commission

The MJC members were asked to facilitate community involvement with the general public by updating local jurisdictions of the process, providing information on adoption, advertising the draft of document, and providing the public an opportunity to comment on the draft. Community members were also given the opportunity to express their opinions on the draft of the Saginaw County Hazard Mitigation Plan. The draft plan was posted on the Saginaw Hazard Mitigation Plan website (saginawhazmit.blogspot.com), posted on the County website, and each jurisdiction that planned to adopt the plan was asked to also put a link on their website for public comment and review. This ensured that the general public was able review the document and provide comments. The open comment period lasted from January to March.

After a review of all the compiled suggestions, the consultant met with Lieutenant Przybylski to discuss necessary revisions to the plan. Changes were made as directed.

After local reviews were complete, the draft was sent to the State Hazard Mitigation Officer for State Review. Any necessary revisions were made. Finally, the draft was sent to FEMA for review, and was approved on September 11, 2017. The document was officially adopted by the County Board of Commissioners on August 15, 2017 and by 30 other participating jurisdictions in Saginaw County. A list of the adopting jurisdictions, the dates they adopted the plan, and copies of each resolution can be found in Appendix C of this document.

The draft of the plan was sent to every jurisdiction in Saginaw County, the planning consultant received comments back from the following communities and organizations:

1. Brant Township
2. Bridgeport Charter Township
3. Buena Vista Township
4. Carrollton Township
5. Chapin Township
6. Chesaning Township
7. City of Frankenmuth
8. City of Saginaw
9. Covenant Healthcare
10. Fremont Township
11. James Township
12. Jonesfield Township
13. Kochville Township
14. Lakefield Township
15. MBS International Airport
16. Saginaw County
17. Spaulding Township
18. Thomas Township
19. Tittabawassee Township
20. Village of Chesaning
21. Village of St. Charles

Overall Community Participation

Hazards and disasters often affect communities on a large scale, therefore the SCEPC thought it was extremely important to include all jurisdictions in Saginaw County in the update of this plan. The 2008 plan only had active participation for five local jurisdictions. For the 2016 Plan Update, the SCEPC and the Consultant directly contacted the 35 Saginaw County local jurisdictions several times during the course of the plan to inform them of progress and to ask for input and participation. This was accomplished via mail, e-mail and at meetings.

The extra reach-out effort worked. Overall, community participation was much broader for this update than for the 2008 plan. During the online survey portion of this plan, the County received responses from at least one individual from 30 of the 35 County jurisdictions. Approximately 12 – 14 jurisdictions attended each of the MJC meetings.

Mitigation Strategies

Twenty-seven communities returned their hazard mitigation plan worksheets. Those 27 are the communities anticipated to adopt the plan for their own purposes. They are listed below:

1. Brant Township
2. Bridgeport Charter Township
3. Buena Vista Charter Township
4. Carrollton Township
5. Chapin Township
6. Chesaning Township
7. City of Frankenmuth
8. City of Saginaw
9. City of Zilwaukee
10. Frankenmuth Township
11. Fremont Township
12. James Township
13. Jonesfield Township
14. Kochville Township
15. Lakefield Township
16. MBS International Airport
17. Richland Township
18. Saginaw County
19. Saginaw Charter Township
20. Spaulding Township
21. St. Charles Township
22. Swan Creek Township
23. Thomas Township
24. Tittabawassee Township
25. Village of Chesaning
26. Village of Merrill
27. Zilwaukee Township

Plan Adoption

As a final tally, there were 31 communities which adopted the Hazard Mitigation Plan at the local level. The resolutions for each community are in Appendix C of the document. They are listed below:

1. Albee Township
2. Blumfield Township
3. Brant Township
4. Bridgeport Charter Township
5. Buena Vista Charter Township
6. Chapin Township
7. Carrollton Township
8. Chesaning Township
9. City of Frankenmuth
10. City of Saginaw
11. City of Zilwaukee
12. Frankenmuth Township
13. Fremont Township
14. James Township
15. Jonesfield Township
16. Kochville Township
17. Lakefield Township
18. Maple Grove Township
19. MBS International Airport
20. Richland Township
21. Saginaw County
22. Saginaw Charter Township
23. Spaulding Township
24. St. Charles Township
25. Swan Creek Township
26. Thomas Township
27. Tittabawassee Township
28. Village of Chesaning
29. Village of Merrill
30. Village of St. Charles
31. Village of Oakley

Incorporation of Plans and Documents

A variety of references were used in the development of the risk assessment, and ultimately in the development of the entire hazard mitigation plan. In addition to the reference material listed here, the SCEPC drew upon their vast years of experience dealing with these issues in Saginaw County and their extensive knowledge of the community and available resources.

Federal Resources

- Census Data on Saginaw County, Michigan and the United States from the United States Census Bureau Community Factfinder. Decennial Census 2000 and 2010
- Federal Emergency Management Agency, Flood Insurance Information
- Federal Emergency Management NFIP Flood Insurance Rate Maps
- Federal Emergency Management Local Mitigation Planning Handbook
- National Climate Data Center

State Resources

- Michigan State Police and Homeland Security- Hazard Mitigation PowerPoint
- Michigan Hazard Analysis, Michigan State Police Emergency Management and Homeland Security Division.
- Michigan Damage Assessment Handbook
- MDEQ - Mining, Pipelines, Wells

Local Resources

- Misteguay Creek Structure No. 4; Emergency Action Plan for Flood Evacuation Standard Operating Procedures (2014)
- Local planning documents including zoning and master plans
- Local City, Village, and Township storm water ordinances
- Saginaw Area Storm Water Authority website, watershed plans, public outreach
- County Emergency Action Guideline

Saginaw County Profile

The boundaries of the County of Saginaw were set by proclamation of Governor Cass on September 10, 1822. These boundaries were subsequently changed by an act of the Legislative Council, approved March 2, 1831. Then, for a period extending over four years between 1831 and 1835, the district known as the County of Saginaw formed a Township attached to Oakland County for judicial purposes. During 1834, the question of conferring on the Township of Saginaw the status of a County was discussed and a resolution of the Council passed to the effect - "That the County of Saginaw shall be organized when this act takes effect." This act of organization was approved January 28, 1835, and put into force the second Monday of February 1835.

The Legislative Council of the Territory ordained that - "all that part of the country lying with the limits of the County of Sagana here fore set off and established as the County of Saginaw, be and the same hereby be set off into a separate Township and the name thereof shall be Sagana. The first Township meeting to be held in such Township shall be held at the Fort of Sagana, on the first Monday in April, which will be in the year 1831." This act was approved July 12, 1830, and came into force in 1831, when Gardner D. Williams was elected supervisor.

The name Saginaw is derived from the language of the Chippewa Indians and means "Land of the Sauks." The warlike Sauks inhabited the entire Saginaw Valley. However, around the year 1520, the Chippewas invaded the territory in great force, and in a series of battles, the Sauks were virtually annihilated. The bloodiest of these battles was fought on what has since been known as Skull Island in the Saginaw River and on a bluff on the Flint River about a mile from the present Village of Flushing.

Community Profile

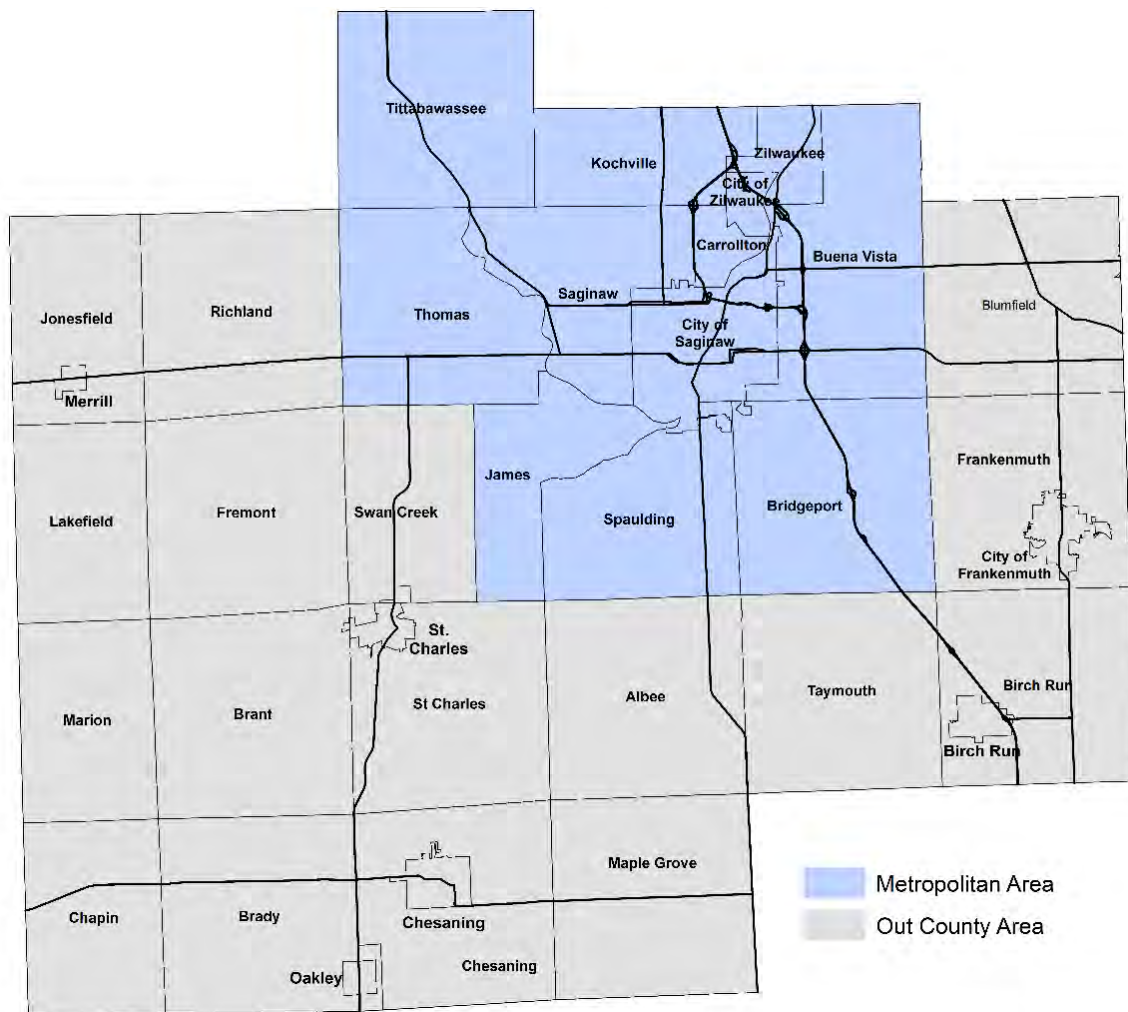
This section of the Hazard Mitigation Plan describes the social and physical factors that shape Saginaw County, and may affect the County's vulnerability to both natural and technological hazards.

Political Jurisdictions and Planning Areas

Saginaw County contains 35 units of local government including: 27 Townships, three cities, and five villages. These jurisdictions each have local decision-making authorities for governmental functions such as: land use planning, zoning, building code, and other factors that could have a major bearing on hazard mitigation efforts and planning.

For the purpose of this plan, Saginaw County has been divided into a Metropolitan Area and an Out-County Area. Map 1 below, indicates each geography. The Metro Area, in blue below, includes: the City of Saginaw, the City of Zilwaukee, Tittabawassee Township, Kochville Township, Zilwaukee Township, Thomas Township, Saginaw Charter Township, Carrollton Township, Buena Vista Township, James Township, Spaulding Township, and Bridgeport Charter Township. The Out-County Area, below in grey, includes all the other cities, villages, and Townships within Saginaw County.

MAP 1 – GEOGRAPHICAL LOCATION



The following are descriptions and graphics representing the social and economic characteristics of Saginaw County. The following data was compiled from the most recent U.S. Census Data (2000 and 2010 U.S. Census data and the 2013 American Community 5-Year Estimates) and historic Census Data.

Population Characteristics

Population characteristics from 1950 - 2010 for Saginaw County, the Metropolitan Area, the City of Saginaw, and the Out-County Area are shown in Table 1 below. From 1950 to 2010, Saginaw County has seen a growth in population by 30%. From 2000 – 2010, at the last Census recording, the County’s population declined by 4.6% from 210,039 residents to 200,169 residents. This follows the trend of decline in population since the 1980s. For comparison, the State of Michigan population has grown by 55% since the 1950s, and in the past ten years saw a decline of 0.55%. Table 1, Figure 1, and Figure 2 depict these population trends in greater detail.

TABLE 1: POPULATION TRENDS IN SAGINAW COUNTY

	1950	1960	1970	1980	1990	2000	2010	% Change 2000 - 2010	% Change 1950 - 2010
Metro Area	126,117	156,317	176,830	176,946	159,539	156,699	150,367	-4.00%	19%
City of Saginaw	92,918	98,265	91,849	77,508	69,512	61,799	51,508	-16.7%	-45%
Out County Area	27,398	34,375	42,913	51,113	52,307	53,340	49,802	-6.6%	81%
Saginaw County	153,515	190,752	219,743	228,059	211,946	210,039	200,169	-4.6%	30%
Michigan	6,372,009	7,823,194	8,881,826	9,262,678	9,295,297	9,938,444	9,883,640	-0.55%	55%

More specifically, the Metro Area has seen a 19% growth from 1950-2010, and the Out-County Area has seen an even greater growth rate of 81% in that same time period. As compared to the past ten years, the Metro Area has seen a 4% loss of population, and the Out-County Area has seen a 6.6 % loss. Much of the population decline in the Metro Area is found in the City of Saginaw. From 2000-2010 the population of the City has decreased by 10,291 people, or 15%. This is the most significant loss in population the City has seen since 1980. Since 1960, Saginaw has lost 47,575 residents, a 48% decline in population. Despite these trends, the City of Saginaw still has the largest population of all the Metro Area jurisdictions, and has a larger population than the Out-County Area as a whole. The City contains 26% of the total population of the County.

In comparison, the Out-County Area has shown the largest amount of growth over the past 60 years. From 1950-2000 the area experienced a growth rate of 95%, meaning that the population nearly doubled within that time frame. Unfortunately, in the past decade, that trend has reversed. From 2000-2010 the Out-County Area population declined 53,340 residents in 2000 to 49,802 residents in 2010, a loss of 6.6%. In total, the Out-County Area represents 25% of the total population in Saginaw County.

FIGURE 1: SAGINAW COUNTY POPULATION TRENDS

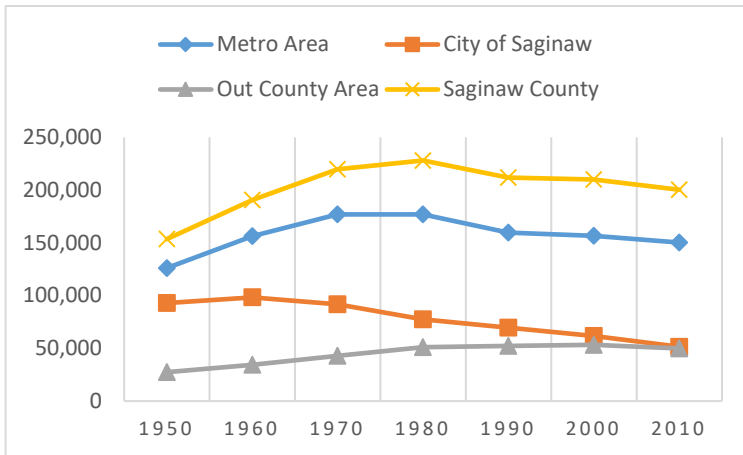
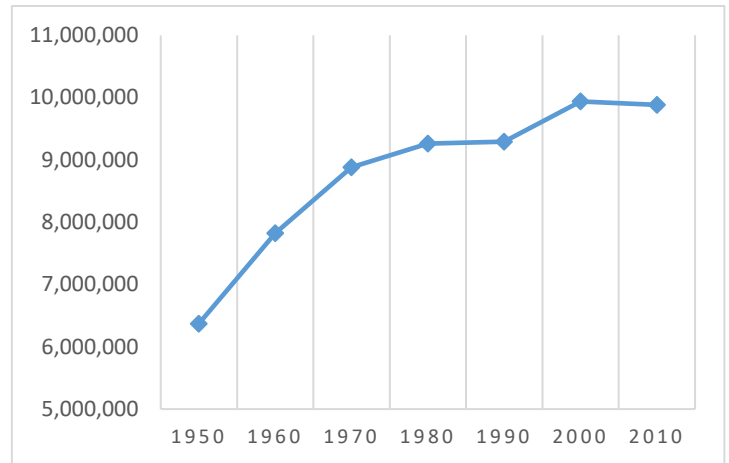


FIGURE 2: MICHIGAN POPULATION TRENDS



Age and Gender Distribution

Over the past 40 years the median age in Saginaw County has increased by almost 12 years, seen in Figure 2 below. According to the Census, in 1980, the median age was 27.6 years, and as of the 2010 Census the median age is 39.5. This is comparable to the general trend of the United States, as the baby boomer population continues to age, and the younger generations have fewer children.

TABLE 2: MEDIAN AGE IN SAGINAW COUNTY

Year	Age
1980	27.6
1990	32.7
2000	36.3
2010	39.5

Figure 3, on the following page, illustrates the age distribution of the population in Saginaw County by percentage. In 2000, 23.24% of individuals were within the 45-64 age group, and 13.49% of the population was within the 65+ age range. Comparatively in 2010, the percentage of individuals within the 45-64 age group was 27.8%, and 15.29% were within the age range of 65+. This is an increase of 4.56% and 1.8%, respectively. This means that a total of 38.53% of the population was over 45 years of age in 2000, and in 2010, 43.09% of the population is over 45 years of age, an increase of 5%.

FIGURE 3: 2010 AGE DISTRIBUTION IN SAGINAW COUNTY

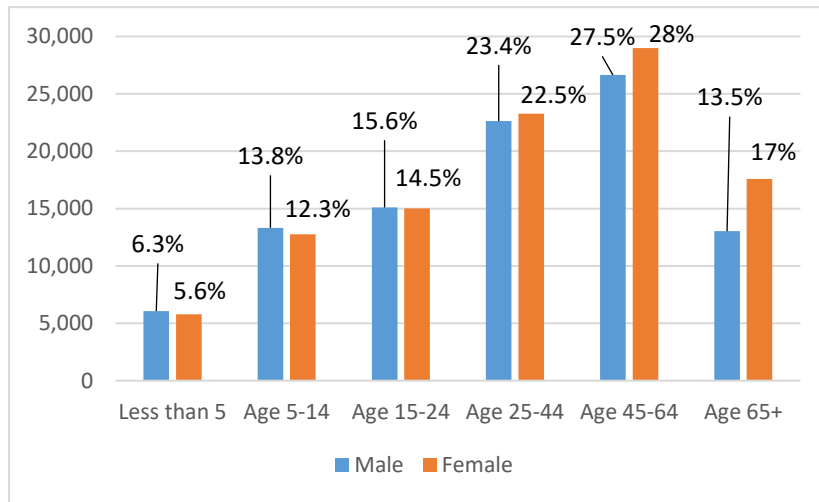
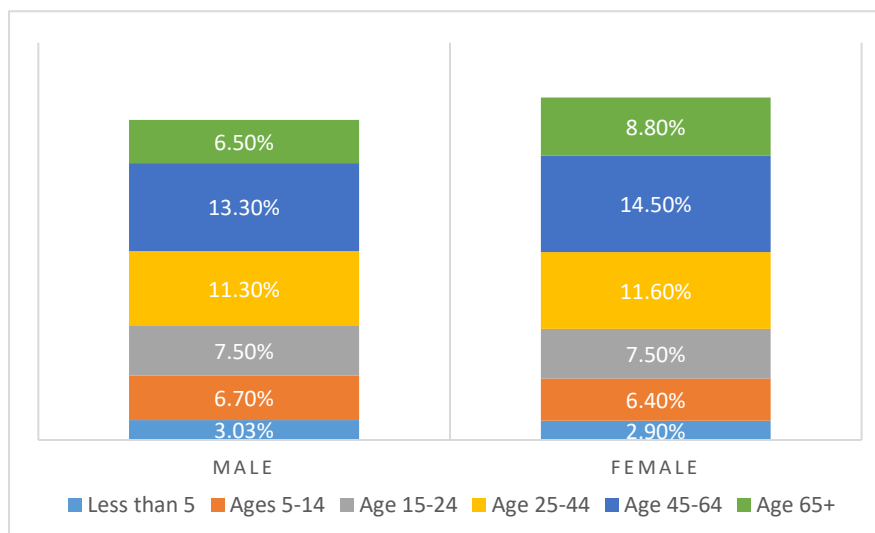


Figure 4 below illustrates the gender distribution by age, within the County for the 2010 census. In 2010 in Saginaw County, the population was 48.34% male (96,771 people), and 51.65% female (103,398 people).

FIGURE 4: 2010 GENDER DISTRIBUTION IN SAGINAW COUNTY

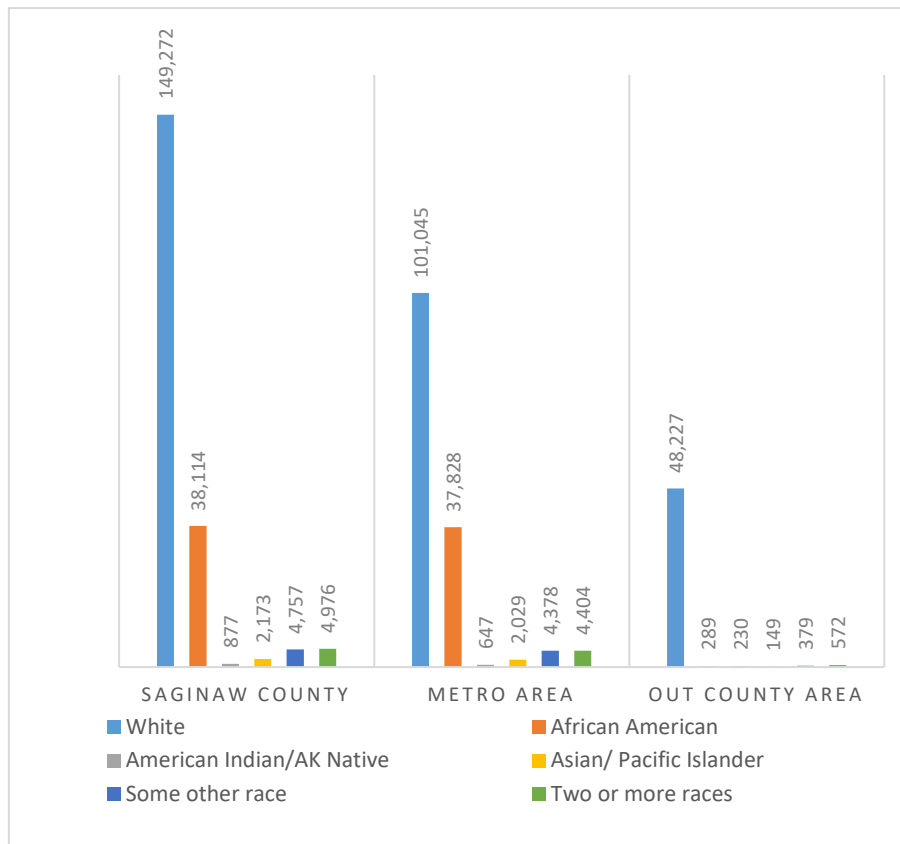


Racial Diversity

The data for this section is representative of the Census data for the entirety of Saginaw County. However, it is important to note, that the Census differentiates between a race and an ethnicity. For the purpose of this data, and that of the Census, all races of people are represented. Hispanic or Latino is considered an ethnicity and is not considered outside of race.

As shown in Figure 5, of the two geographic locations, the Metro Area is the most racially diverse. Within the Metro Area, 25% of the population is African American, and 0.57% of the population is other minorities. Although not represented in Figure 5, 10% of the population in the Metro Area considers themselves to be of a Hispanic or Latino ethnicity. In recent years, more minority families have moved into the suburbs, but there are still very few (3.21%) who reside in the Out-County Area.

FIGURE 5: 2010 RACIAL DIVERSITY IN SAGINAW COUNTY



Persons with Disabilities

According to the 2010 Census, there are 30,121 individuals with a disability within Saginaw County. This equates to a total of 15% of the County population. Table 3 shows the majority of individuals with a disability increases with age, 37% of the population of 65+ has a disability. This information is significant for hazard mitigation planning because these are the individuals who will need extra consideration and special assistance if there were to be a natural or technological hazard. Map 2 at the end of this section, represents the geographical areas in the County which have the largest population of disabled individuals so first responders can have a better idea of the population they serve.

TABLE 3: PERSONS WITH DISABILITIES

	Number of Persons	% of Population
Under 18	2,461	5.40%
18-64	16,440	13.70%
65+	11,220	37.20%
Total	30,121	15.04%

Income

The income and poverty levels for Saginaw County are shown in Table 4 below. The Census defines poverty by determining if a family's total income is less than their threshold. Their threshold is a selected dollar amount determined by the Census Bureau, based on income of family members. If it is less, then every individual of that family is considered to be in poverty.

TABLE 4: LOCAL INCOME AND POVERTY LEVELS

	Media n H ou se h old Inc om e		Media n Fami ly Inc om e		% of All Person s Below P ov erty Le vel	
	2000	2010	2000	2010	2000	2010
Sag in a w C oun ty	\$38,637	\$42,954	\$46,494	\$53,171	13.90%	18.50%
Mich iga n	\$44,667	\$48,432	\$53,457	\$60,341	10.50%	14.80%

Even though the County's Median Household Income continues to rise, it is still \$5,500 less than that of the state, which is an improvement from 2000, when it was \$6,000 less than State averages. Unfortunately, the poverty levels within Saginaw County have increased since the 2000 Census. Within the County, there was an increase of 4%, which is nearly equivalent to the percentage increase throughout the whole State, and the levels within the County are still almost 4% higher than those of Michigan.

Housing

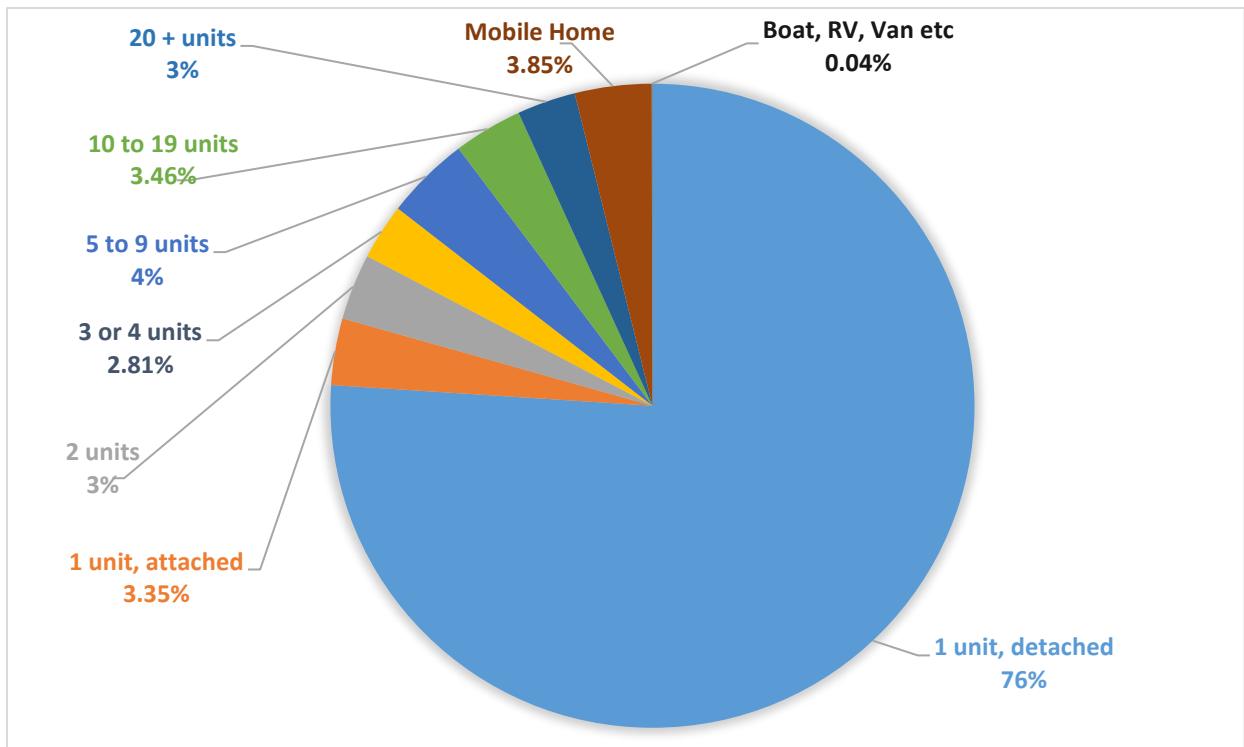
Housing stock is a good measure of the overall conditions in a community. To ensure a community is in sound condition, one characteristic it must possess is an adequate and diverse supply of housing. Information on location and types of housing should receive special consideration for hazard mitigation planning because different types of housing have special implications to consider. Knowledge of the location of high-density housing developments may be important to emergency planning personnel. Mobile home parks may present special challenges to mitigation planning for hazards such as tornadoes or other severe weather events.

TABLE 5: SELECTED HOUSING CHARACTERISTICS

	2010 To tal Hous ing Un its	% Cha n ge in Hous ing Un its (2000-2010)	Media n Va lue of Hous ing	Per ce nt Ow ner- Occ up ied	Va ca nt Un its
Sag in a w C oun ty	87,292	2.09%	\$110,000	72.3%	9%
Mich iga n	4,529,680	6.97%	\$144,200	74.2%	14.56%

Selected housing characteristics for Saginaw County, with comparable figures from the State, can be found in Table 5 above. This information indicates that there has been an increase in housing units in the past ten years although the population has decreased by almost 5%. Of the 87,000 housing units within the County, 72% of the houses are owner-occupied. This is lower than the Statewide percentage by 2%. The County's median housing value is \$110,000 which is a significant increase from 2000. The median housing for the State is, \$144,200, compared to the median housing value of the County which is lower. This could indicate that housing in the Saginaw County is more affordable than that of the rest of the State. Comparatively, there are significantly fewer vacant houses in Saginaw County than the State as well.

FIGURE 6: 2010 STRUCTURAL CHARACTERISTICS OF HOUSING



The structural characteristics of the housing stock in the County can be found in Figure 6 above. As shown in the figure, single family homes (76%), are by far the predominant type of housing within the County. However, there are a total of 17,540 homes (20%) that are multi-family dwelling units. The vast majority of these structures are located within the City of Saginaw, Saginaw Charter Township, and within the urbanized areas of the other Townships.

As indicated by Figure 6, there are a couple categories such as, mobile homes and boats, RV or vans that will require special consideration when working on the Hazard Mitigation Plan. Mobile homes are a noteworthy housing consideration because they represent almost 4% of the housing units within the County. Many of these are located on individual lots in various locations, predominantly in rural areas, throughout the County. There are also several mobile home parks that contain numerous numbers of these homes at high densities. The second category of boats, RVs or vans as dwelling units, presents a new set of considerations for hazard mitigation planning. The mobility and transient nature of these units may lead to the possibility that emergency personnel could not have a concrete location for these individuals and thus, may be unable to locate them should the need arise. These concerns are discussed further in the “critical facilities” portion of this chapter.

Employment

The major employment occupations for Saginaw County residents are shown in Table 6 below. This information indicates that there is diversity in the workforce within the County, because no one category dominates the workforce. The top employment category is management, business, science, and arts with 23,939 (25%) employees. Closely following that category is sales and office occupations with 23%, service occupations at 18%, and production, transportation, and material moving at 12%. Pooled together these categories represent 78% of the 95,875-employed people within the County. Saginaw County’s largest private sector employers are listed in Table 7 on the following page.

TABLE 6: EMPLOYED INDIVIDUALS IN SAGINAW COUNTY, BY OCCUPATION

Occupation Category	Management, Business, Science & Arts	Computer, Engineering, & Science	Education, Legal, Community Service, Arts, & Media	Healthcare Practitioner & Technical Occupation	Service Occupation	Sales & Office Occupation	Natural Resources, Construction, & Maintenance	Production, Transportation, & Material Moving
Number of Employees	29,939	2,843	6,779	5,237	16,925	22,371	6,044	11,738
% of All Employed Persons	24.97%	2.97%	7.07%	5.46%	17.65%	23.33%	6.30%	12.24%

TABLE 7: TOP 40 EMPLOYERS IN THE COUNTY

Rank	Employer Name	Type of Business	Employees
1	Nexteer Automotive	Automotive	4,820
2	Covenant HealthCare	Medical	4,512
3	St. Mary's of Michigan	Medical	1,800
4	Morley Companies, Inc.	Display, Interactive Services, Travel	1,750
5	Meijer	Department Store	1,425
6	Saginaw Valley State University	Education	1,071
7	Hemlock Semiconductor / Dow Corning Corporation	Polycrystalline Silicon, Solar, Medical	1,000
8	Frankenmuth Bavarian Inn Inc.	Restaurant, Hotel	940
9	Aleda E. Lutz Veteran Affairs Medical Center	Medical	904
10	County of Saginaw	Government	676
11	Saginaw Public Schools	Education	657
12	Fashion Square Mall	Retail	650
13	Saginaw Township Community Schools	Education	621
14	Saginaw ISD	Education	613
15	Frankenmuth Insurance	Insurance	604
16	United States Post Office	Mail, Shipping	580
17	HealthSource Saginaw	Medical	562
18	Wal-Mart	Retail	505
19	Zehnder's of Frankenmuth	Restaurant	503
20	General Motors Powertrain - SMCO	Automotive	476
21	Wellspring Lutheran Services	Health Care	469
22	Duro-Last, Inc. / Plastatech Engineering Ltd.	Roofing Systems & Laminated Vinyl	464
23	Merrill Technologies Group	Machining	442
24	Birch Run Prime Outlets	Retail	410
25	Consumers Energy	Energy	407
26	City of Saginaw	Government	405
27	MBS International Airport	Travel, Shipping	325
28	Orchid Bridgeport	Medical Manufacturer	320
29	Saginaw Correctional Facility	Corrections	315
30	Hehr International Inc.	Glass Products	312
31	Bronners CHRISTmas Wonderland	Retail / Tourism	294
32	CMU Healthcare	Medical	289
33	Saginaw Control & Engineering	Electronic Controls	280
34	Saginaw County Community Mental Health Authority	Medical	274
35	Health Delivery Inc.	Medical	256
36	Glastender, Inc.	Metal Fabricator, Manufacturer	202
37	Means Industries	Auto Stampings	199
38	Mobile Medical Response	Emergency Transportation	187
39	Stone Transport LP	Shipping	184
39	Meggitt - Thomson Aerospace & Defense	Manufacturing	184
40	SVRC Industries, Inc.	Job Training	165

Physical Factors

This section provides a profile of Saginaw County's major physical resources. The area's physical factors can have large influences on both, the community's vulnerability to certain hazards and its ability to mitigate disasters that may occur. Physical factors include both, natural features and the built environment, such as the transportation system, public infrastructure, development patterns, topography, soils, and watercourses.

Transportation

Automobiles and trucks are the primary modes of transportation in Saginaw County. The I-75 expressway is the major traffic carrier in the area, linking Saginaw to Detroit and the Mackinaw Bridge. Much of the region's current economic activity and its future prospects are highly dependent on access via I-75 to the rest of North America.

Access to other communities, for both passengers and freight, is mainly provided by the State trunkline (highway) network, which includes two freeways and seven state highways within Saginaw County. These facilities provide good access to the rest of Michigan.

Within the County, the circulation of people and goods is dependent on the local road network. Freeways and state highways are supplemented by a grid of County roads and municipal streets. The local road network is also the basis for public and quasi-public transit systems, which are available in the City of Saginaw and a few of the adjacent Townships. Saginaw Transit Authority and Regional Services (STARS) provides the County with bus service five days a week, and serves over 3,300 people per day. The roadway system also serves commercial vehicles that provide for the local distribution of goods. Maps 3 and 4, at the end of this section, highlights the transportation infrastructure and average daily traffic counts (ADT) for the major roads in the County. The ADT is the average volume of vehicular traffic on a road each day of the year. The ADT counts on Map 4 are from the Saginaw County Road Commission and MDOT.

MBS International Airport, located near Freeland in Tittabawassee Township, is owned and operated through a partnership of The City of Midland, the City of Saginaw, and Bay County. Currently, two passenger airlines serve the airport. MBS also serves as a base for air freight and general aviation with 27 aircraft based at the airport. The Harry W. Browne Airport is located in Buena Vista Township. It primarily serves personal planes and airplane enthusiasts. Elsewhere in the County, general aviation airports are located outside of Frankenmuth and Chesaning.

Several rail carriers operate in the County for the shipment of agricultural products, chemicals, automobile parts, and other materials. Data from the Saginaw County MPO 2040 Long Range Plan states that, within the Saginaw County there is a particularly high transport of chemicals via rail, as compared to the average level of chemical transport across the country. This is important to keep in mind for hazard mitigation planning, particularly for the hazard: Hazardous Material Transportation Incidents. There is also a Lake State Railroad switching yard in the City of Saginaw where three major rail lines intersect.

The Saginaw River is one of Michigan's most important inland waterways. Port facilities on the Saginaw River are used to transport bulk goods such as agricultural commodities, sand, stone, salt, fertilizers, cement, petroleum, and chemicals. There is an industrial shipping port at Carrollton, which serves the stone and gravel industry as well as the agricultural community.

Topography and Surface Features

The physical characteristics of Saginaw County were defined 12,000 years ago, when the last glaciers traversed through the Saginaw Valley. As the glaciers retreated, they helped to define the terrain, the composition of soils, and drainage patterns present today.

The topography of Saginaw County can best be described as flat. There is only about a 150-foot difference between the highest and lowest elevations over its 810 square miles. Generally, the lower elevations exist at the Shiawassee Flats, near the center of the County, and follow the Saginaw River northerly towards the Saginaw Bay. The highest elevations are on a former beach ridge formed by a post-glacial lake in the southwestern corner of the County. Most of the visible relief in Saginaw County's topography is along riverbanks, scattered sand ridges, and low glacial moraines.

Drainage and Water Features

Due to the low elevation within the County, and its location in the heart of the Saginaw Valley, the confluence of the Saginaw River and several of its tributaries are in Saginaw County. The Tittabawassee, Cass, Shiawassee, and Flint Rivers are the most important of the tributaries; branches of the Bad River, Swan Creek, Beaver Creek, Misteguay Creek, and Cheboyganing Creek, are also significant. Numerous small streams and many drains, maintained by the Saginaw County Drain Commissioner, also are located in the County. Map 5, at the end of this section, represents the major waterways and bridges in the County.

Climate

The climate in Saginaw County can be described as continental. This means that local temperatures are subject to greater extremes than coastal locations at similar latitudes. Although the climate is influenced by the Great Lakes, this influence is reduced by the inland location of the County. The most noticeable lake influence occurs when the prevailing westerly winds bring increased cloudiness during the fall and winter months. This moderates temperatures during cold outbreaks.

Day-to-day weather is controlled largely by the movement of pressure systems across the nation. As a result, Saginaw County seldom experiences prolonged periods of hot and humid weather in summer, or extreme cold during the winter. Temperature extremes range from a recorded high of 111°F to a low of 21°F below zero. Summers are dominated by moderately warm temperatures with an average of 11 days exceeding the 90°F mark.

Saginaw County's average annual snowfall is almost forty-two (41.6) inches, representative of most other locations in central lower Michigan. Although it is much lower than the snowbelt areas of western and northern Michigan, the local snow depth usually permits participation in winter sports. Over eighty-five (85%) of the minimum temperatures from November through March are below 32°F.

Soils

Soils in Saginaw County reflect aftermath of the glaciers. The County's soils represent a relatively unconsolidated variety of soil types. Since these soils were either deposited on the bottom of post-glacial lakes, or piled up by wave action at lakeshores, they are generally fine grained and of low permeability. The soil varieties are differentiated by consistency, fertility, moisture content, texture, and color. Saginaw County's soils range from loose sand to heavy clays. Loamy soils occupy thirty-three (33%) percent of the land area, heavier clay soils about fifteen (15%) percent, sandy loam soils about twenty (20%) percent, and light sandy soils cover about thirty-two (32%) percent of the County. Heavier soils tend to be dominant in the north and northeastern portions of the County, while lighter soils are dominant in the south and southwestern areas. Loams and heavier soils are utilized as productive farmland. Most of the lighter soils host wooded, scrubby, or open fields.

Wildlife and Aquatic Biota

The wildlife of Saginaw County occupies forests, farmlands, wetlands, and surface waters. It includes a variety of birds, mammals, reptiles, amphibians, and fish. In terms of the maintenance of natural habitats and native animals, the areas that are of greatest significance are the state and federal regional reserves: the Shiawassee National Wildlife Refuge, the Shiawassee State Game Area, the Crow Island State Game Area, and the Gratiot-Saginaw State Game Area.

Mammals found in Saginaw County include white-tailed deer, red fox, raccoon, opossum, cottontail rabbits, skunk, red squirrel, fox squirrel, and several small rodents. Birds include the common sparrow, starling, cowbirds, robins, hawks, and all other species found in the region. Game birds include ring-neck pheasants, a variety of ducks, Canada geese, swans, ruffed grouse, woodcock, and bob-white quail. Some mammal and bird species are making a comeback in Saginaw County, specifically, river otters and bald eagles.

Due to water pollution problems, local rivers have a heavier concentration of rough fish including carp, suckers, and crappies. However, water quality improvements have enabled many game fish species to expand their populations. These include walleye, smallmouth bass, white bass, several varieties of panfish, pike, perch, and salmon.

Land Use and Development Patterns

The land use pattern in Saginaw County reflects a blending of urban activity in the heart of the Metropolitan Area and agricultural fields, small towns, and undeveloped land on the periphery of Metropolitan Saginaw in the Out-County Area. Map 6, at the end of this section, illustrates the current land use in the County. Suburbanization is continuing to alter the more rural landscape found on the periphery of the Metropolitan Area and beyond. For example, the Village of Birch Run and environs has the potential to become more urban due to the potential expansion of the outlet mall and the other commercial enterprises. In contrast to this phenomenon, just over thirty (30%) percent of the acreage of Saginaw County is now, or once was, enrolled in the Farmland and Open Space Preservation Act (PA 116). Although due to certain changes in the collection of property taxes, the effectiveness of this act is no longer certain, it does convey the interest some Saginaw County residents have for agricultural land preservation.

Public Water and Sewer

In Saginaw County, sewer systems for the collection and treatment of wastewater serve major portions of the Metropolitan Area, particularly the urbanized areas. This includes the Cities of Saginaw and Zilwaukee, and major portions of the Townships of Saginaw, Bridgeport, Buena Vista, Carrollton, James, Kochville, Thomas, Spaulding, and Tittabawassee Townships. In the Out County (rural) areas, sewer service is generally limited to the incorporated municipalities, including the City of Frankenmuth, and the villages of Birch Run, Chesaning, Oakley, St. Charles, and Merrill. The unincorporated place of Hemlock in Richland Township is also served by public sewer.

The City of Saginaw supplies municipal water to communities in the Metropolitan Area and beyond. The City's system functions on a regional basis to provide potable water in the urbanized areas as well as portions of the outlying areas, including Swan Creek, Richland, and Birch Run Townships. The Village of Merrill and Jonesfield Township have completed the development of a water system that would serve the Village and portions of the Township. Map 7, at the end of this section, highlights all the sewage and water treatment facilities in the County.

Critical Facilities, Municipal Services, and Public Safety

There are several medical facilities within Saginaw County. The two major hospitals are St. Mary's Medical Center and Covenant Medical Center, located in Map 8 at the end of this section. These systems have several satellite facilities throughout the County servicing a variety of medical arenas. They are also both Trauma II Centers, meaning they are able to initiate definitive care for all injured patients. A Trauma II Center has 24-hour care coverage by a wide variety of surgeons and tertiary care needs for other surgery that may be referred to a Level I Center. They also have a trauma prevention education program and a comprehensive quality assessment program. In 2014 Covenant Healthcare completed an expansion of their emergency care facility, the addition is over 11,000 square feet and will have the capacity to treat an additional 100,000 patients annually. The chart below depicts the 3 largest medical facilities in the County and the number of beds they have available. In addition to these medical facilities, Saginaw County has an ambulance, Mobile Medical Response (MMR). The MMR facility provides emergency medical transportation to 90% of Saginaw County with an annual transport rate of 41,500. There are also several dozen nursing home facilities, assisted living facilities, and senior centers in the County, Map 9 illustrates the locations of these facilities, at the end of this section. It is important to have an awareness of these facilities because these are populations that will require special care in the case of an emergency.

TABLE 8 – NUMBER OF HOSPITAL BEDS

Hospital	Number of Beds
Covenant Healthcare-(Cooper/Harrison/Michigan)	675
St. Mary's Medical Facility	268
Aleda Eltz Veterans Medical Center	100
Total Beds	1,043

Some information on the number of households receiving water, sewer, and heating gas utility services has already been provided in the section on Population and Housing Characteristics. The following is some more information on other important services provided in the County.

Saginaw County Municipal Services:

Utilities

Consumers Energy
2400 Weiss St
Saginaw, MI 48603

DTE Energy (small areas of eastern Saginaw County)
1 Energy Plaza
Detroit, MI 48226

Telecommunications

AT&T
309 S. Washington Ave
Saginaw, MI 48601

Charter Communications
5815 Bay Rd
Saginaw, MI 48604

Frontier Communications
224 W. Exchange
Owosso, MI 48867

Landfills

Waste Management
4142 East Rathbun Rd
Birch Run, MI 48415

Public Safety

The primary Public Safety Answering Point (PSAP) for emergencies in Saginaw County is Saginaw Central Dispatch. All 911 calls originating from within Saginaw County ring into the centralized 911 facility located in the Saginaw County Sheriff's Office building.

Saginaw 911 provides law enforcement, fire, and other (non-medical) emergency dispatching for Public Safety Agencies in Saginaw County. Medical emergencies that are received by Saginaw 911 are transferred to the Mobile Medical Response (MMR) Dispatch Center who then sends the appropriate medical assistance to the caller. MMR also operates as a secondary PSAP for medical calls within Saginaw County.

All Saginaw County law enforcement and fire resources are connected to Saginaw 911 via radio. In addition, law enforcement and some fire resources are connected to Saginaw 911 via Mobile Data Devices (MDD) providing mapping and Computer Aided Dispatch (CAD). Map 10, at the end of this section, highlights the Emergency Response Facilities.

Emergency Alert System

In the event of a public emergency, such as severe weather, many local municipalities have Warning Siren Systems. These systems are tested on a monthly basis and are activated either locally, by the municipality, or centrally by Saginaw Central Dispatch. Map 11, at the end of this section, highlights the locations of the tornado sires in the County.

In addition to the warning sirens Saginaw County can activate the Emergency Alert System (EAS) through EMNet. The EAS is tested weekly and can be activated through Saginaw Central Dispatch or the Saginaw County Office of Emergency Management. The EAS, when activated, would be broadcast over local radio stations as well as cable and local TV stations.

Saginaw Central Dispatch has mass notification capabilities through NXT/GeoCast. The city of Frankenmuth is also able to create mass notification messages for their area using the Code Red emergency notification system.

Law Enforcement Services

Saginaw County has 24-hour 7-day-a-week law enforcement services provided by the Saginaw County Sheriff's Office. The Sheriff's Office main headquarters is in the City of Saginaw with substations located in strategic locations throughout the County.

The Michigan State Police also provide law enforcement services with personnel stationed at the Tri-City Post located in the southwest portion of Bay County. The Michigan State Police also maintains a satellite detachment in Bridgeport Township where the Michigan State Police Crime Lab is located.



Fifteen municipalities within Saginaw County, including the VA Hospital, provide their own law enforcement protection that is supplemented by the Sheriff's Office and Michigan State Police. Most of these agencies operate on a 24/7 basis. In total, there are approximately 280 police officers in

Saginaw County. Law Enforcement Agencies in Saginaw County have entered into mutual-aid agreements and many local police officers are deputized by the County Sheriff to assist with incidents outside of their own jurisdictions.

Several law enforcement agencies maintain a reserve force of non-certified personnel that can be used to supplement manpower needs during large incidents or respond with aviation, equine or water rescue /recovery assets.

The Saginaw City Police Department maintains a multi-jurisdictional Emergency Services (SWAT) Team that can respond to high-risk or other tactical incidents throughout the County. Through the Sheriff's Office, Michigan State Police and the Saginaw Police Department, Saginaw County has K-9 teams available for explosives detection, tracking and narcotics detection. Map 12, at the end of this section, depicts the location of police stations in the County.

Fire Services

The City of Saginaw and Buena Vista are the only Fire Departments in Saginaw County that have full-time 24-hour staffing (although Buena Vista supplements its full-time staff with paid-on-call firefighters). Additionally, Bridgeport, Thomas, and Kochville Townships all have daytime staffing Monday through Friday. The remaining jurisdictions in



Saginaw County have fire protection provided by completely volunteer or paid-on-call staffing. Some departments cover more than one jurisdiction, but there is a total of 22 fire departments plus MBS Airport Fire with approximately 490 firefighters providing coverage in Saginaw County. Departments within Saginaw County have entered into mutual-aid agreements for response anywhere in Saginaw County. Map 13, at the end of this section, depicts the locations of fire stations, and their coverage areas.

The Tri Twp Fire Department is responsible for fire protection on the Shiawassee National Wildlife Refuge. However, the Department of Natural Resources (DNR) does preform controlled burns in the Wildlife Refuge.

In addition to normal fire suppression capabilities, Saginaw County Fire Agencies have formed a multi-jurisdiction Technical Rescue team that provides haz-mat, high-angle and confined space rescue capabilities. Saginaw County also can request assistance from the Region 3 RRT which is based in Midland County.

Emergency Medical Services

Mobile Medical Response (MMR), a non-profit corporation based in the city of Saginaw, provides Basic (BLS) and Advanced Life Support (ALS) emergency medical services to Saginaw County. Twin-Township Ambulance provides ALS services to an area in the southwest portion of the County.

In addition to the EMS service MMR provides, they offer extensive educational courses. Courses for the general public include Child & Babysitting Safety and CPR/AED/First Aid. MMR offers training

courses for prospective EMS responders to include certification at the Medical First Responder, Emergency Medical Technician, and Paramedic levels.

Saginaw County is served by two separate hospitals. St. Mary's of Michigan is an ACS Level II Trauma Center with campuses on the east side of the Saginaw River in the city of Saginaw and on the west side of the Saginaw River in Saginaw Township. Covenant Hospital is a Level II Adult and Pediatric Trauma Center with one campus located on the west side of the Saginaw River in the city of Saginaw. Both hospitals have numerous satellite facilities throughout Saginaw County and the region. Each hospital also offers air medical services via their rotary wing aviation assets; Covenant with Life Net and St. Mary's with Flight Care.

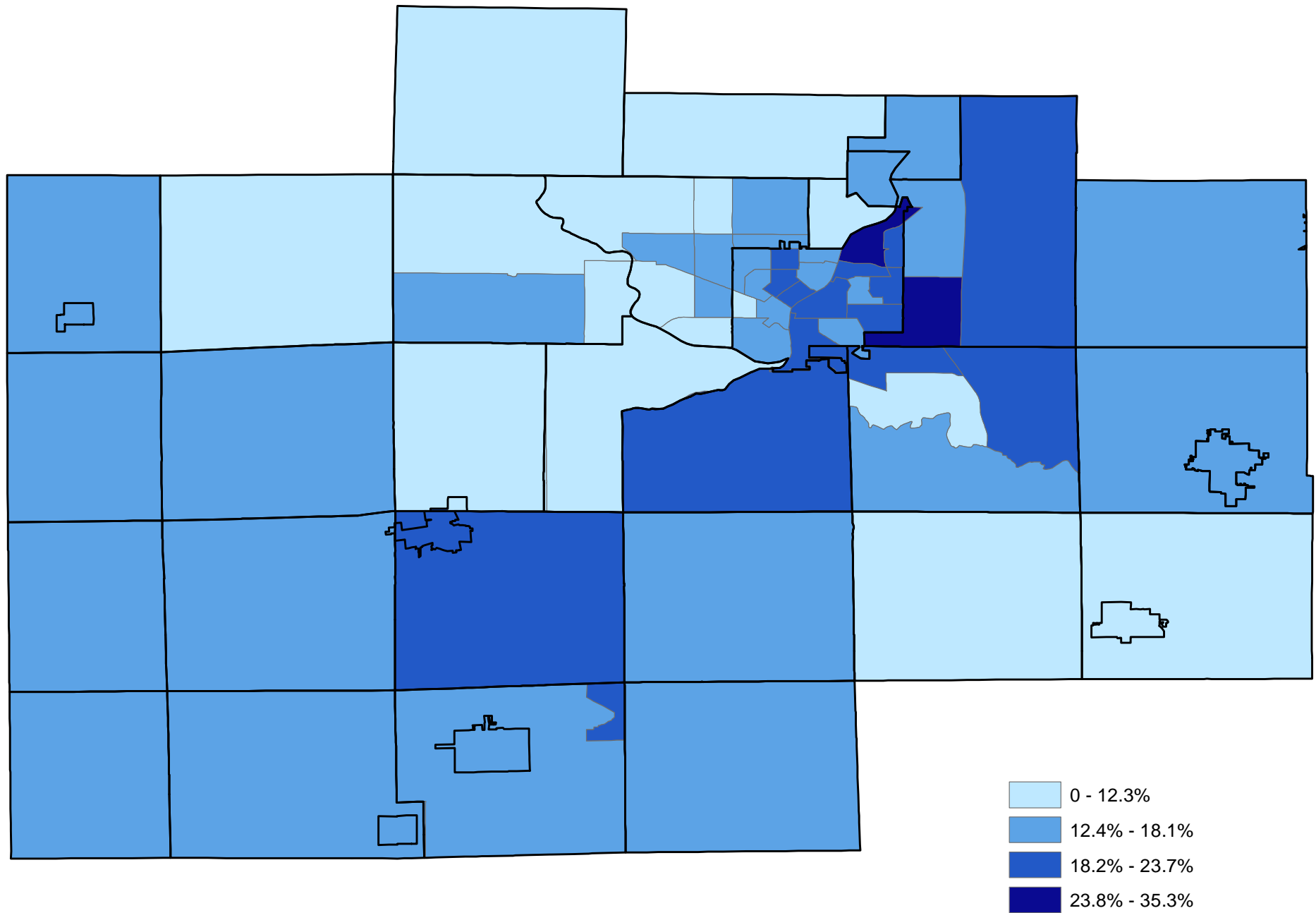


Special Events

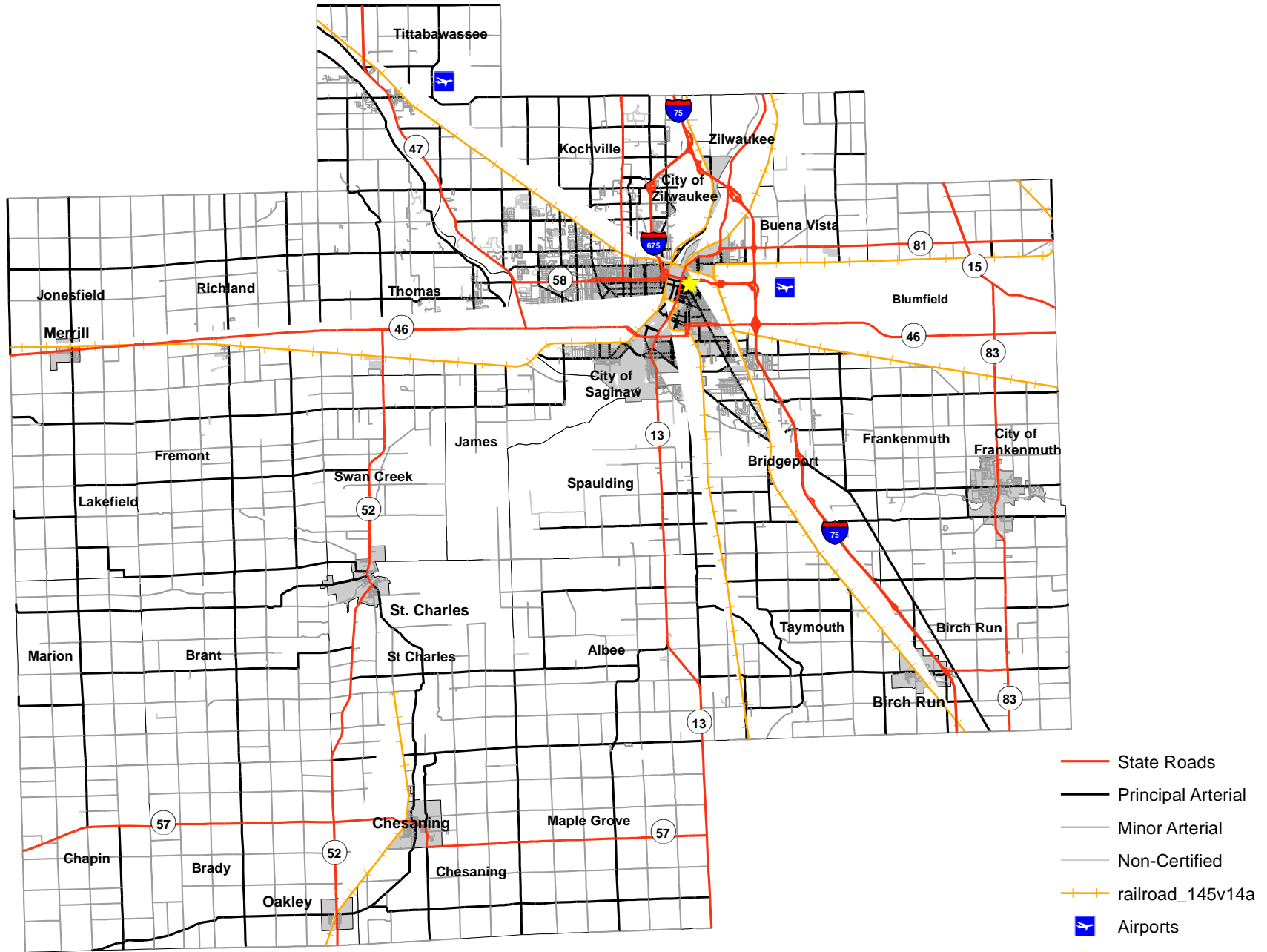
Tourism plays an important role in the economy of Saginaw County. Special events such as the Zehnder's Snowfest (150,000 attendees), Frankenmuth Autofest (80,000 - 100,000 attendees), Frankenmuth Oktoberfest (8,000 – 10,000 attendees), WKCQ Country Music Fest (115,000 attendees), and the Saginaw Fireworks (approximately 90,000 – 100,000). Additionally, events held at the Dow Event Center, First Merit Event Park and other venues throughout Saginaw County such as local festivals or sporting events regularly bring thousands of visitors to the Saginaw area.



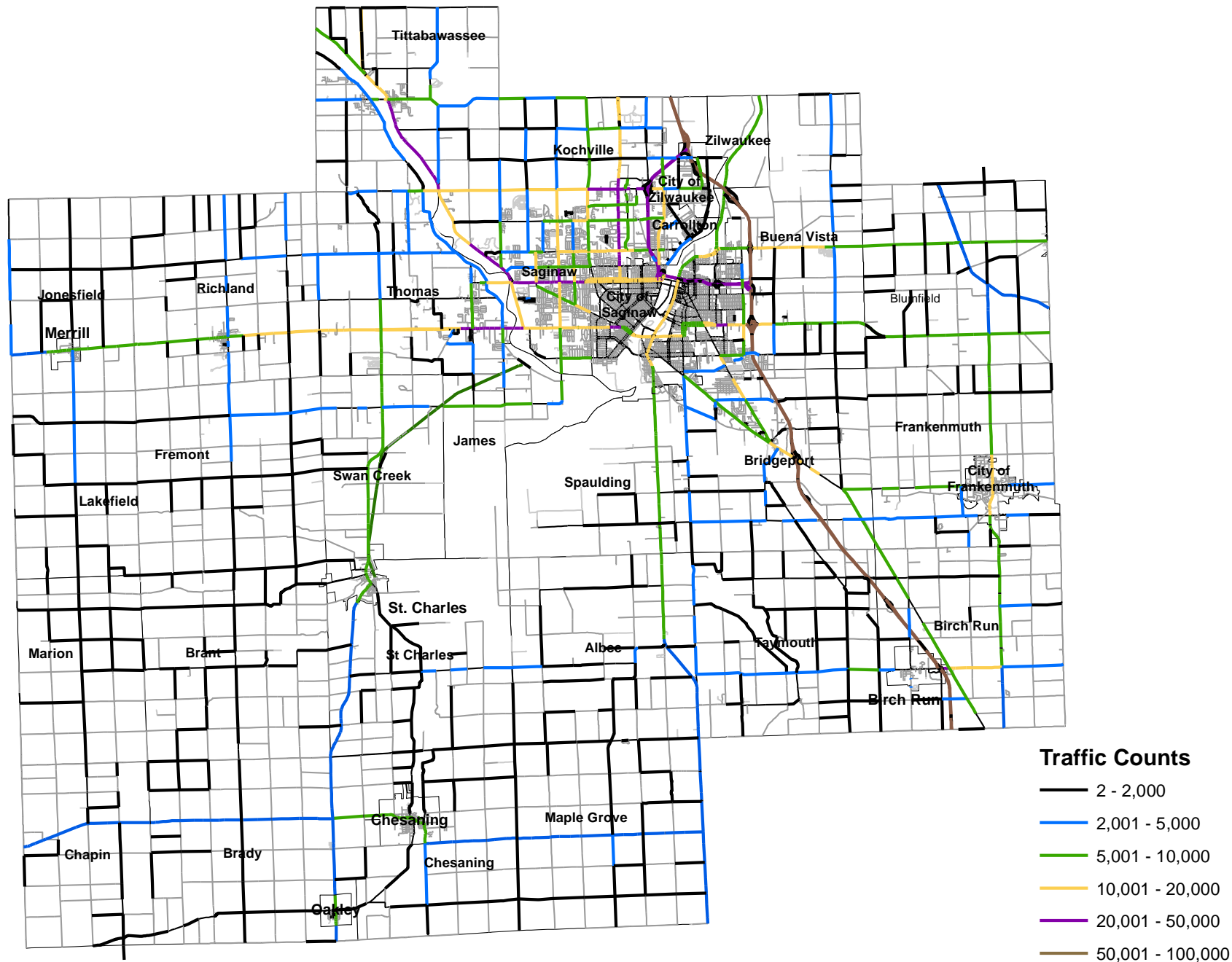
MAP 2 – PERSONS WITH DISABILITIES



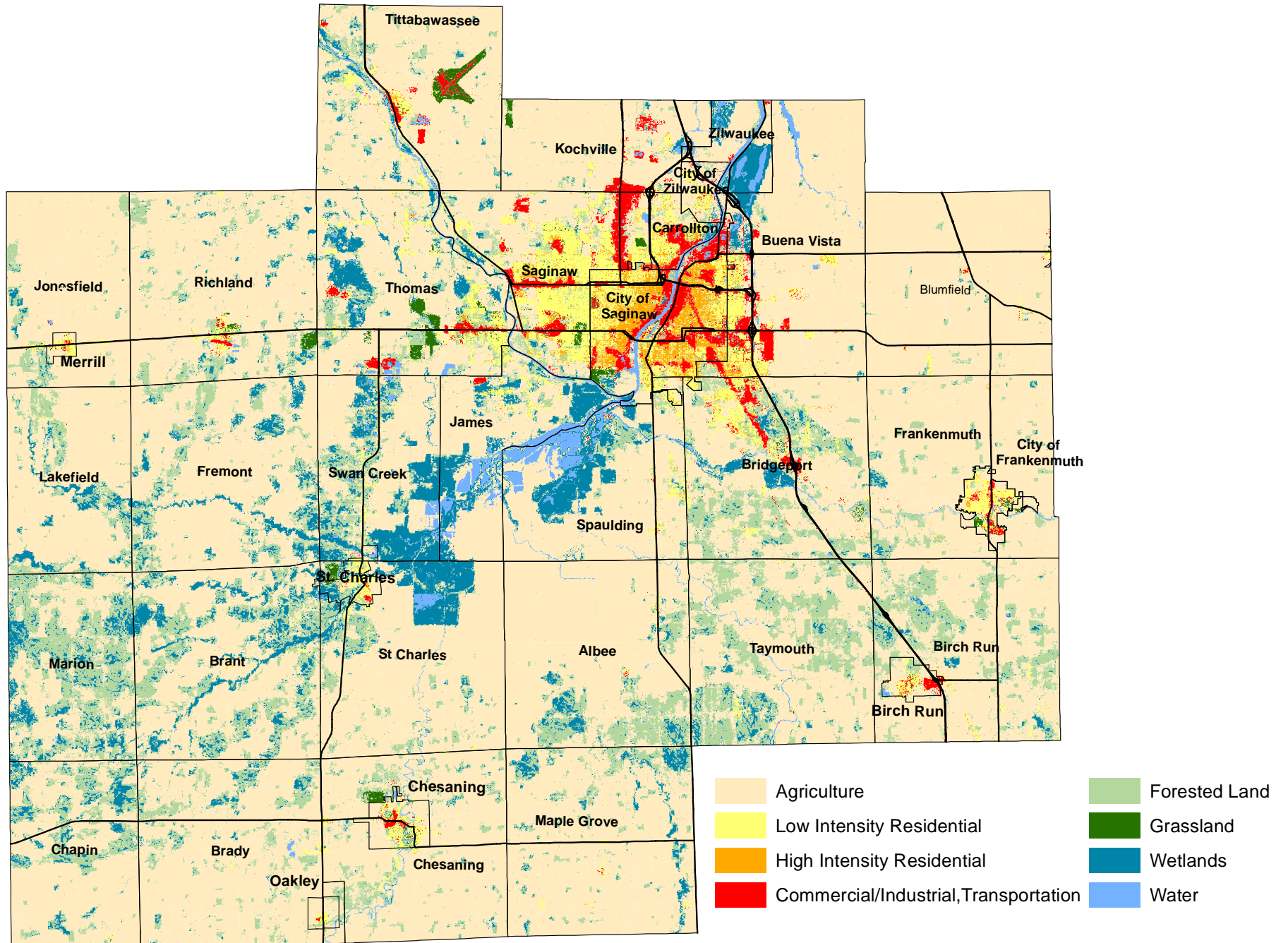
MAP 3 – TRANSPORTATION INFRASTRUCTURE



MAP 4 – AVERAGE DAILY TRAFFIC COUNTS



MAP 6 – EXISTING LAND USE



Hazard Assessment Summary Description and Rankings

Evaluation Criteria

To determine a potential ranking system, the SCEPC and planning consultant reviewed the process and methodology from the 2008 plan, and several other methodologies from other county hazard mitigation plans. The SCEPC determined that the system that was used in the past plan was still sufficient for the update of this plan. Therefore, the 5 criteria and weighted percentages which were used in the past plan are the same in this update. Each of the evaluation criteria was assigned a “weight” (percentage value) to express the level of importance each of the criteria. The sum of the weights of all the evaluation criteria equal 100%. The evaluation criteria and weight was selected by determining which aspects of the hazards were of greatest concern to the community

The selected evaluation criteria and their relative weights are described below:

Likelihood of Occurrence (30%)

Likelihood of occurrence measures the frequency in which a particular hazard occurs. The more frequently a hazard event occurs, the more potential there is for damage and negative impact on a community.

Potential for Property Damage (10%)

The capacity to cause property damage refers to the destructive capacity of the hazard. The destructive capacity of some hazard events, such as floods and tornadoes, is often immediate and readily apparent, as compared to a drought, which is often overlooked by the vast majority of the public and can cause unseen destruction.

Percent of Population Affected (10%)

This evaluation factor refers to the relative number of people who would be likely to be affected by a particular hazard.

Potential Death or Injury (30%)

This factor refers to the number of casualties (deaths and injuries) that can be expected if a particular hazard event occurs.

Potential Economic Impacts (20%)

Economic effects are the monetary losses incurred from a hazard event, and include both public and private damage. Direct physical damage costs, as well as indirect impact costs such as lost business and tax revenue, are included as part of the total monetary losses.

Hazard Ranking Methodology

To determine the hazard rankings, an online community input survey was distributed to the SCEPC, MJC, and various other community stakeholders who have some role in emergency preparedness, hazard mitigation, or emergency situations. The planning consultant, assisted by the SCEPC, prepared a contact list with all the targeted participants emails. Each individual was sent an email announcing the launch of the survey with a link on where to access it, a copy of this email is in Appendix D. Each recipient was also asked to pass the link on to other individuals who may have opinions on this process. Finally, the survey was also posted on the project website at saginawhazmit.blogspot.com.

In addition to determining the rankings, the respondents were also questioned about additional hazards that should be considered for the update, and hazards that do not need to be considered. Finally, the respondents were asked to give their name, position, and jurisdiction so it could be determined what communities were participating in the survey and hazard mitigation planning process. Of all the 36 different communities in the County, there was participation from all but four. The individuals who participated mostly consisted of elected or appointed officials (29%), police chief/officers (17%), and fire chiefs/firefighters (18%). Other individuals included medical professionals, County government offices and employees, school officials, municipal employees, industry stakeholders, transportation representatives, emergency management individuals, and radio and dispatch personnel. For further review, the complete results of the survey can be found in Appendix D.

The following is the list of communities that participated in the survey:

- Albee Township
- Birch Run Township
- Village of Birch Run
- Blumfield Township
- Brady Township
- Brant Township
- Bridgeport Charter Township
- Buena Vista Charter Township
- Carrollton Township
- Chapin Township
- Chesaning Township
- Village of Chesaning
- Frankenmuth Township
- City of Frankenmuth
- Fremont Township
- James Township
- Jonesfield Township
- Kochville Township
- Lakefield Township
- Maple Grove Township
- Marion Township
- Village of Merrill
- Village of Oakley
- Richland Township
- Saginaw Charter Township
- City of Saginaw
- Spaulding Township
- St. Charles Township
- Village of St. Charles
- Swan Creek Township
- Taymouth Township
- Thomas Township
- Tittabawassee Township
- Zilwaukee Township
- City of Zilwaukee
- Saginaw County overall

In addition to these jurisdictions, we also had survey participation from the following organizations, governmental entities, and residents:

- Delta College
- Midland County Resident
- Saginaw County Road Commission
- Saginaw Valley State University
- Saginaw 911

The survey was structured so that each respondent ranked each hazard on a scale of 1 to 10, for each of the 5 different evaluation criteria listed above. For example, the respondents were asked to rate the likelihood of occurrence, 1 being very unlikely and 10 be very likely, that each hazard could occur within the County. Respondents did this for each hazard in all 5 of the evaluation categories. The final results of the survey, including the points per each evaluation criteria, the total points for each hazard, and their final rankings are depicted in Table 9 below. After the individual point values for each criterion were calculated they were added to get the total score for that hazard. Then, the hazards were ranked in descending order according to their total scores. The results of this scoring process along with the hazard rankings are shown below. To see a more complete process of calculating the survey results, please reference Appendix D.

TABLE 9 FINAL RANKINGS

	Likelihood of Occurrence	Potential Property Damage	Percent of Population Affected	Potential Death or Injury	Potential Economic Impacts	Scores	Rank
Civil Disturbance	1.58	0.51	0.45	1.51	1.13	5.18	10
Dam Failure	0.87	0.39	0.33	0.004	0.72	2.314	16
Drought	1.17	0.41	0.48	0.77	1.1	3.93	13
Extreme Temperatures	1.67	0.42	0.64	1.34	1.12	5.19	9
Flooding	2.31	0.72	0.61	1.22	1.23	6.09	3
Hazmat Fixed Site Incident	1.91	0.6	0.48	1.33	0.98	5.3	8
Hazmat Transportation Incident	2.13	0.61	0.51	1.57	1	5.82	6
Inclement Weather	2.4	0.66	0.77	1.71	1.25	6.79	1
Infrastructure Failure	1.53	0.51	0.56	1.14	1.12	4.86	11
Oil and Gas Well Accident	1.07	0.39	0.33	0.92	0.7	3.41	15
Oil and Gas Pipeline Accident	1.25	0.46	0.41	1.06	0.82	4	12
Public Health Emergencies	1.64	0.43	0.69	1.8	1.19	5.75	7
Structural Fires	2.26	0.68	0.43	1.58	0.9	5.85	5
Tornadoes	2	0.75	0.63	1.9	1.3	6.58	2
Transportation Accidents	2.31	0.57	0.47	1.77	0.9	6.02	4
Wildfires	1.24	0.41	0.35	0.85	0.65	3.5	14

There are some differences in the scores and rankings from the 2016 update compared to the 2008 Plan. Table 10 below shows the hazard rankings from the past plan and this update. As indicated in the table, the top 2 hazards, inclement weather and tornadoes, have not changed with the update. The third hazard is now flooding, as compared to structural fires, which has dropped down to number 5 with the 2016 update. Aside from transportation accidents, which was ranked 8th in the past plan, and is now ranked 4th, there were no major jumps in the hazard rankings, but there were several small changes with one hazard going up or down one or two rankings in the 2016 update.

TABLE 10 COMPARISON OF HAZARD RANKINGS

	2016 Total Score	2016 Ranking	2008 Ranking
Inclement Weather	6.79	1	1
Tornadoes	6.58	2	2
Flooding	6.09	3	5
Transportation Accidents	6.02	4	8
Structural Fires	5.85	5	3
Hazmat Transportation Incident	5.82	6	4
Public Health Emergencies	5.75	7	6
Hazmat Fixed Site Incident	5.3	8	9
Extreme Temperatures	5.19	9	11
Civil Disturbance	5.18	10	10
Infrastructure Failure	4.86	11	7
Oil and Gas Pipeline Accident	4	12	13
Drought	3.93	13	12
Wildfires	3.5	14	15
Oil and Gas Well Accident	3.41	15	16
Dam Failure	2.314	16	17
Terrorism	-	-	14
Scrap Tire Fires	-	-	18
Nuclear Attack	-	-	19
Subsidence	-	-	20
Nuclear Power Plant Accident	-	-	21
Earthquake	-	-	22

There are 5 hazards that no longer have rankings, the explanation for this can be found in the upcoming Risk Assessment chapter.

In addition to the public input survey, a website, saginawhazmit.blogspot.com, was also created to keep the individuals involved in the process abreast of upcoming meeting dates, progress on the update process, and other important information. The website is open to the public and designed to inform citizens and stakeholders of the process to update this plan and to be involved in the update. The link to the website was also posted on the SCEPC county page.

It is important that not only local individuals and agencies be included in this process but that other neighboring counties have the opportunity to comment a participate in the update of the Saginaw County Hazard Mitigation Plan. A list of other local governmental agencies, organizations, and businesses that were given a copy for review is listed in the introduction section of this document.

Vulnerability Assessment

Introduction

In the following section, each hazard has a dedicated subsection based on the preceding list of sources. The subsection includes a general description of the hazard, a list of known historical occurrences, location, severity, and impacts, and a summary description of the County's vulnerability to each hazard, including expected frequency of occurrence in the future. Information has also been included regarding local jurisdictions where the hazard vulnerability is higher than that of the County.

The information was obtained from various sources including: local input, the Saginaw County Emergency Management coordinator, the Law Enforcement Information Network, National Climate Data Center internet database, National Flood Insurance Program, Flood Insurance Rate Maps, facilities and mapping information from the Saginaw County Planning Department, guidance materials from the Michigan State Police Emergency Management, and Homeland Security Division (Michigan Hazard Analysis, Michigan Hazard Mitigation Plan, FEMA Hazard Mitigation Planning Workbook). Please note all calculations describing the average cost of an event and the rate of occurrence are only calculated from the Climate Data Center Information and does not include any additional information from the 2008 Plan.

Changes to Hazards

There are 5 hazards that are no longer ranked or included in this plan, they include: Scrap Tire Fires, Nuclear Attacks, Nuclear Power Plant Accidents, Earthquakes, and Subsidence. The following paragraphs describe the reasoning behind the SCEPC's decision to eliminate these hazards from the plan.

According to the Michigan Hazard Analysis document and the State of Michigan Hazard Mitigation Plan, the threat of Scrap Tire Fires has been almost completely eliminated statewide, and there are no longer any stockpiles in Saginaw County, therefore the threat within is almost nonexistent. The committee thinks that because the stockpiles are depleted and there are sufficient strategies to deal with the incoming tires, there is no need to include this hazard in the 2015 update of the plan.

The County still recognizes the remaining 4 hazards as possible eventualities in the community, but as this is a mitigation plan, and according to the FEMA definition, is a tool to reduce or eliminate the long-term risk to human life and property, the committee did not feel these specific hazards needed to be included. There are numerous strategies to deploy in preparation of the hazards that are included in this plan, and while there are still some strategies that can be deployed to prepare communities from nuclear attacks, or nuclear power plant accidents most of the actions are out of control of the local government. Planning for nuclear attacks is handled on the state and federal level, as are the actions taken if an event does occur. While the threat is very real, the ability of local emergency planning professionals to mitigate attacks is low. The State and Federal government have plans in place if a nuclear attack was to occur in Saginaw County. Nuclear power plant accidents are no longer included because the closest nuclear power plant is over 100 miles away, while a nuclear power plant accident would be devastating, the local government could better use mitigation resources to prepare for hazards that are much closer to home.

The committee also decided not to include subsidence or earthquakes because the threat these pose to Saginaw County is minimal. There has only been one recorded incident of subsidence in the County, and there has never been an earthquake. The closest tectonic plates lie in the southwestern portion of the State. The committee recognizes the value of being prepared for all possible

eventualities, but they also recognize the reality that limited resources need to be used wisely. These 4 hazards are still important to consider and understand, but the SCEPC did not think they merited the same scale and value system, therefore they were removed.

Hazard Number 1: Inclement Weather

Hail, Lightning, Severe Winds, and Snow and Ice have been combined under inclement weather due to their connectivity)

Hail

A condition where atmospheric water particles from thunderstorms form into rounded or irregular lumps of ice that fall to the earth.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Hail is a product of the strong thunderstorms that frequently move across the State. When a thunderstorm event involves hail, it usually falls near the center of the storm, along with the heaviest rain. Unless, strong winds occurring at high altitudes blow the hailstones away from the storm center, causing an unexpected hazard at places that otherwise might not appear threatened.

Most hailstones range in size from a pea to a golf ball, but hailstones larger than baseballs have occurred with the most severe thunderstorms. Hail is formed when strong updrafts within the thunderstorm carry water droplets above the freezing level, where they remain suspended and continue to grow larger until their weight can no longer be supported by the wind. They finally fall to the ground, battering crops, denting automobiles, and injuring wildlife and people. Large hail is a characteristic of severe thunderstorms, and it may precede the occurrence of a tornado.

PREVIOUS EVENTS (SOURCE : NATIONAL CLIMATE DATA CENTER, 2016)

Location	Date	Magnitude (inches in diameter)	Deaths	Injuries	Property Damage	Information from 2008 Plan
FOSTERS	7/27/2000	0.75	0	0		
FRANKENMUTH	5/25/2001	0.88	0	0		
OAKLEY	10/24/2001	0.75	0	0		
ST CHARLES	10/24/2001	0.75	0	0		
BRIDGEPORT	10/24/2001	0.75	0	0		
FENMORE	6/17/2002	0.75	0	0		
FREELAND	7/17/2003	0.88	0	0		
LAYTON CORNERS	6/9/2004	1	0	0		
OAKLEY	6/23/2004	0.75	0	0		
CHESANING	6/23/2004	1	0	0		
ARTHUR	8/2/2004	0.75	0	0		
MERRILL	6/5/2005	0.75	0	0		
FREELAND	6/5/2005	0.75	0	0		
HEMLOCK	6/5/2005	1.75	0	0		
SAGINAW	6/5/2005	1.75	0	0		

Location	Date	Magnitude (inches in diameter)	Deaths	Injuries	Property Damage	Information from 2008 Plan
BURT	6/14/2005	1	0	0		
FREELAND	3/31/2006	1	0	0		
BRIDGEPORT	3/31/2006	0.88	0	0		
BURT	3/31/2006	0.75	0	0		
ARTHUR	3/31/2006	1	0	0		
BIRCH RUN	4/22/2006	1.75	0	0		
SAGINAW	6/28/2006	0.75	0	0		
SAGINAW	6/28/2006	0.75	0	0		
SAGINAW	6/28/2006	0.75	0	0		
MERRILL	7/17/2006	1.75	0	0		
FREELAND	6/27/2007	0.88	0	0		
SAGINAW	6/27/2007	0.75	0	0		
SAGINAW	6/27/2007	1	0	0		
BRIDGEPORT	6/27/2007	0.75	0	0		
SHIELDS	7/5/2007	0.75	0	0		
BURT	7/5/2007	1	0	0		
SHIELDS	7/5/2007	0.75	0	0		
NELSON	7/9/2007	0.75	0	0		
FRANKENMUTH	8/29/2007	1.5	0	0		\$15,000
FOSTERS	4/11/2008	1	0	0		
BRIDGEPORT	4/11/2008	0.75	0	0		
ST CHARLES	4/11/2008	0.75	0	0		
SAGINAW	6/6/2008	1	0	0	\$300	
FREELAND	6/15/2008	0.88	0	0		
MERSHON	6/15/2008	1	0	0		
SHIELDS	6/27/2008	0.88	0	0		
MERSHON	6/27/2008	1	0	0		
CARROLLTON	6/27/2008	0.88	0	0		
ARTHUR	6/27/2008	0.75	0	0		
ARTHUR	6/27/2008	1	0	0		
SHIELDS	7/16/2008	0.75	0	0		
SAGINAW	7/16/2008	0.75	0	0		
FREELAND	8/19/2010	0.75	0	0		
BUENA VISTA	8/19/2010	1.75	0	0		
SAGINAW	6/22/2011	0.88	0	0		
BRIDGEPORT	6/22/2011	0.88	0	0		
SAGINAW	6/22/2011	1	0	0		
MERSHON	7/2/2011	1	0	0		
SHIELDS	7/2/2011	0.75	0	0		
CARROLLTON	7/2/2011	0.75	0	0		

Location	Date	Magnitude (inches in diameter)	Deaths	Injuries	Property Damage	Information from 2008 Plan
FREELAND	8/24/2011	0.75	0	0		
NELSON	5/30/2013	1	0	0		
NELSON	5/30/2013	1	0	0		
SWAN CREEK	5/30/2013	0.88	0	0		
NELSON	5/30/2013	1	0	0		
NELSON	5/30/2013	1	0	0		
GARFIELD	5/30/2013	1	0	0		
SHIELDS	5/30/2013	0.75	0	0		
GARFIELD	5/30/2013	1	0	0		
GARFIELD	5/30/2013	1	0	0		
SWAN CREEK	5/30/2013	0.88	0	0		
NELSON	5/30/2013	1	0	0		
NELSON	5/30/2013	1	0	0		
SWAN CREEK	6/17/2013	1.75	0	0		
FORDNEY	6/17/2013	1.25	0	0		
BURT	6/17/2013	1.75	0	0		
VERNE	6/17/2013	0.75	0	0		
VERNE	6/17/2013	1	0	0		
VERNE	6/17/2013	0.75	0	0		
VERNE	6/17/2013	1	0	0		
SHIELDS	6/17/2013	0.75	0	0		
CHESANING	7/27/2014	0.88	0	0		
Total			0	0	\$300	\$15,000

SAGINAW COUNTY PERSPECTIVE

The chart above includes the hail events in Saginaw County since 2000. There has been at least one noteworthy hail event in Saginaw County every year, excluding the years of 2009 and 2012, where there were no occurrences. Therefore, on average the County could experience about 2.14 hail events per year. According to the Climate Data Center information, there was only one storm which caused property damage, meaning these storms theoretically cost less than \$4 per occurrence. Each of these events has the potential to effect multiple locations within the County. The effects and impacts of these events vary by the diameter of the hailstone. The largest diameter of hail in the history of Saginaw County was reported in 1984, where hailstones were 3.5 inches in diameter. Most of the reported hail events in the past 15 years range from .75 in to 1.5 inches in diameter. There are no known areas within the County that have an unusual risk from hail, but there are some communities which may have particular structures that are more vulnerable to hail damage than others.



Lightning

Lightning is the discharge of electricity from within a thunderstorm.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Lightning is a random and unpredictable product of a thunderstorm's tremendous energy. The energy in the storm produces an intense electrical field similar to that of a giant battery. The positive charge is concentrated at the top inside the storm, and the negative charge is concentrated at the bottom. Lightning strikes when a thunderstorm's electrical potential (the difference between its positive and negative charges) becomes great enough to overcome the resistance of the surrounding air. Bridging that difference, lightning can jump from cloud to cloud, cloud to ground, or even from the cloud to the air surrounding the thunderstorm. Lightning strikes can generate current levels of 30,000 to 40,000 amperes, with air temperatures often superheated to higher than 50,000 degrees Fahrenheit (hotter than the surface of the sun), and speeds approaching one-third the speed of light.

In the United States, approximately 100,000 thunderstorms occur each year, and every one of those storms generates lightning. It is not uncommon for a single thunderstorm to produce hundreds or even thousands of lightning strikes, however to the vast majority of the general public, lightning is perceived as a minor hazard. That perception remains despite the fact that lightning damages many more structures, kills, and injures more people in the United States per year, on average, than tornados and hurricanes. Annual lightning-related property damages are conservatively estimated at several billions of dollars per year, and those losses are expected to continue to grow as the use of computers and other lightning sensitive electronic components becomes ever more prevalent. Statistics compiled by the National Oceanic and Atmospheric Association (NOAA) and the National Lightning Safety Institute revealed the following about lightning fatalities, injuries, and damage in the United States:

Location of Lightning Strikes:

- 40% are at unspecified locations
- 27% occur in open fields and recreation areas (not golf courses)
- 14% occur to someone under a tree (not on a golf course)
- 8% are water related
- 5% are golf related
- 3% are related to heavy equipment or machinery
- 2.4% are telephone related
- 0.7% are radio, transmitter and antenna-related

Gender of Victims:

- 84% male
- 16% female

Months of Most Strikes

- July (30%),
- August (22%),
- June (21%)



PREVIOUS EVENTS

Lo cation	Date	Dea th	Inju rie s	Prope rty Da mage	Cr op Da mage
BR IDG EPO RT	5/6/2005	0	0	\$15,000	
SAG INAW	5/6/2005	0	0	\$50,000	
SAG INAW	7/9/2006	0	0	\$8,500	
SAG INAW	7/17/2006	0	0	\$106,000	
HEM LOC K	7/18/2007	0	0	\$10,000	
To tal		0	0	\$189,500	

SAGINAW COUNTY PERSPECTIVE

Saginaw County is not an exception when it comes to damaging lightning strikes. Of the 5 lightning strikes that have happened since 2000, 3 of them have happened in the City of Saginaw. This suggests that the probability of a damaging lightning strike is not equal throughout the County, but may be more prone to occur in urban areas. A more specialized study will need to be done to determine what structures in the County are a higher risk and might be in need of greater protection. The annual frequency of damaging lightning is about 0.33 per year, and the property damages average about 37,900 dollars per strike. This value does not take into consideration the economic costs or costs to human health. Lightning strikes are an unpredictable, but very real threat to the County.

Severe Winds

Severe winds are winds of 58 miles per hour or greater.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Severe winds spawned by thunderstorms or other storm events have had devastating effects on Michigan in terms of loss of life, injuries, crop damage, and property damage. Severe wind events are characterized by wind velocities of 58 miles per hour or greater, with gusts sometimes exceeding hurricane velocity winds (74 mph). Property damage from straight line winds, called derechos, can be just as extreme as that of a tornado, since the damage from straight line winds is more widespread and usually affects a larger area. In addition to property damage, there is a risk for infrastructure damage from downed power lines due to falling limbs and trees. Large scale power failures with hundreds of thousands of customers affected are common during straight line wind events.

PREVIOUS EVENTS

Date	Type	Magnitude (Wind Speed)	Deaths	Injuries	Property Damage	Crop Damage
2/1/2002	High Wind	40	0	0		
3/9/2002	High Wind	60	0	1	\$30,000	
11/12/2003	High Wind	52	0	0	\$1,500,000	
4/19/2004	High Wind	52	0	1		
10/30/2004	High Wind	54	0	0	\$200,000	
11/6/2005	High Wind	52	0	0		

Date	Type	Magnitude (Wind Speed)	Deaths	Injuries	Property Damage	Crop Damage
11/13/2005	High Wind	52	0	0	\$10,000	
11/15/2005	Strong Wind	48	0	0	\$450,000	
3/13/2006	High Wind	52	0	0	-	
12/23/2007	High Wind	50	0	0	\$35,000	
1/30/2008	High Wind	52	0	0	\$6,000	
12/28/2008	High Wind	56	0	0	\$2,000,000	
9/7/2010	Strong Wind	39	0	0	\$5,000	
10/27/2010	High Wind	52	0	0	\$5,000	
5/14/2011	High Wind	50	0	0	\$15,000	
10/15/2011	Strong Wind	39	0	0	\$2,000	
10/19/2011	High Wind	52	0	0	\$5,000	
11/17/2013	High Wind	54	0	0	\$2,000,000	
11/24/2014	High Wind	50	0	0	\$50,000	
Total			0	2	\$6,313,000	

SAGINAW COUNTY PERSPECTIVE

Because the National Climate Data Center defines a wind event as anything above 58 mph, the occurrences listed above are only representative of those events. There have been many other occurrences of wind events in the County that caused millions of dollars in damage, but these did not exceed 58mph. and thus were not tabulated for this hazard. According to data compiled by the NCDC, for the period from 2000-2015, Saginaw County experienced 19 severe wind events (not including tornadoes), which resulted in \$6,313,000 in damage. From this information, it can be inferred that there will be an average of 1.26 severe wind storms annually in Saginaw County. Although, the damage from these storms seems severe, it is not representative of the actual amount of damage due to strong winds that occurs each year.

Snow and Ice Storms

A period of rapid accumulation of snow often accompanied by high winds, cold temperatures, and low visibility.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Due to the Great Lakes, Michigan experiences large differences in annual snowfall across the State. The annual mean accumulation ranges from 30 to 200 inches of snow. The highest accumulations are in the northern and western parts of the Upper Peninsula. In Lower Michigan, the highest snowfall accumulations occur near Lake Michigan and in the higher elevations of northern Lower Michigan.



Blizzards are the most dramatic and perilous of all snowstorms, characterized by low temperatures, strong winds (35 miles per hour or greater), and bearing large amounts of snow. Most of the snow accompanying a blizzard is in the form of fine, powdery particles that are windblown in such great quantities that, at times, visibility is reduced to only a few feet. Blizzards have the potential to result in property damage and loss of life. The cost of clearing the snow can be enormous. Most of the severe winter weather events that occur in Michigan have their origin as Canadian and Arctic cold fronts that move across the State from the west or northwest. Michigan is susceptible to moderate snowfall and extreme cold, averaging 90-180 days per year below freezing in the Lower Peninsula, and over 180 days below freezing in most of the Upper Peninsula. Ice and sleet storms are also a very real threat that Saginaw County must deal with annually.

Ice storms are sometimes incorrectly referred to as sleet storms. Sleet is similar to small hail and can be easily identified as frozen rain drops (ice pellets), which bounce when hitting the ground or other objects. Sleet does not stick to trees and wires, but sleet in sufficient depth does cause hazardous driving conditions. However, ice storms are the result of cold rain that freezes on contact with a surface, coating the ground, trees, buildings, overhead wires, and other exposed objects with ice, sometimes causing extensive damage. When electric lines are downed, households may be without power for several days, resulting in significant economic loss and disruption of essential services in affected communities. Oftentimes, ice storms are accompanied by snowfall, in which the ice is camouflaged, creating treacherous transportation conditions. Both storms occur when the temperature is close to 32°F, but are more severe when the temperature is in the 20s.

PREVIOUS EVENTS

Date	Type	Deaths	Injuries	Property Damage	Information from 2008 Plan
1/12/2000	Heavy Snow	0	0		
4/7/2000	Heavy Snow	0	0		
10/7/2000	Heavy Snow	0	0		
12/11/2000	Heavy Snow	0	0		\$1,100,000
12/13/2000	Heavy Snow	0	0		\$25,000
12/17/2000	Heavy Snow	0	0	\$25,000	\$560,000
2/7/2001	Ice Storm	0	0		
2/24/2001	Ice Storm	0	0		\$2,000
1/31/2002	Winter Storm	0	0		1 death
3/2/2002	Winter Storm	0	0		
3/4/2003	Heavy Snow	0	0		
12/24/2003	Heavy Snow	0	0		
4/3/2003	Ice Storm	0	0	\$161,100,000	\$161,100,000 1 death 14 injuries
1/14/2004	Heavy Snow	0	0		
1/26/2004	Winter Storm	0	0		
11/24/2004	Winter Storm	0	0		3 deaths
1/6/2005	Heavy Snow	0	0		
1/22/2005	Winter Storm	0	0		
2/14/2005	Ice Storm	0	0		

Date	Type	Deaths	Injuries	Property Damage	Information from 2008 Plan
2/20/2005	Heavy Snow	0	0		
4/23/2005	Winter Storm	0	0		
12/15/2005	Heavy Snow	0	0		
1/21/2006	Heavy Snow	0	0		
2/16/2006	Ice Storm	0	0	\$1,000,000	
3/2/2006	Winter Storm	0	0		
1/14/2007	Winter Weather	0	0		\$100,000
2/25/2007	Winter Weather	0	0		
3/1/2007	Winter Weather	0	0		
4/4/2007	Winter Weather	0	0		
12/1/2007	Winter Storm	0	0		
12/11/2007	Winter Weather	0	0		
12/16/2007	Winter Storm	0	0		
12/28/2007	Heavy Snow	0	0		
1/1/2008	Winter Storm	0	0		
1/14/2008	Heavy Snow	0	0		
1/21/2008	Heavy Snow	0	0		
2/3/2008	Heavy Snow	0	0		
2/6/2008	Winter Storm	0	0		
12/9/2008	Winter Storm	0	0		
12/19/2008	Winter Storm	0	0		
2/9/2010	Heavy Snow	0	0		
12/12/2010	Winter Storm	0	0		
2/2/2011	Blizzard	0	0		
2/20/2011	Heavy Snow	0	0		
3/22/2011	Winter Storm	0	0		
2/24/2012	Winter Storm	0	0		
2/7/2013	Heavy Snow	0	0		
12/21/2013	Ice Storm	0	0	\$3,000,000	
1/5/2014	Heavy Snow	0	0		
Total				\$165,125,000	\$162,887,000

SAGINAW COUNTY PERSPECTIVE

Over the past 15 years almost every year has had at least 2 major snow or ice events, and some years have had significantly more. On average, Saginaw County can expect to have 3.2 snow or ice storms per year, and some of these events can be very severe, as the emergency declarations listed at the end of this section indicate. Although some years have fewer reported snow or ice storms, a major event tends to occur every 5 years, causing more than \$1 million of damage in the County. Between major and minor events with recorded damages, it is estimated that the average annual property damages due to snow and ice, (not including the value of casualties, emergency response, snow clearance, delays, and power failures) is approximately \$11 million.

Hazard Number 2: Tornadoes

An intense rotating column of wind that extends from the base of a severe thunderstorm to the ground.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Tornados in Michigan are most frequent in the spring and early summer when warm, moist air from the Gulf of Mexico collides with cold air from the Polar Regions to generate severe thunderstorms. These thunderstorms often produce violently rotating columns of wind that are called tornadoes. Michigan lies at the northeastern edge of the nation's primary tornado belt, which extends from Texas and Oklahoma through Missouri, Illinois, Indiana, and Ohio. Most of a tornado's destructive force is exerted by the powerful winds that knock down walls and lift roofs from buildings in the storm's path. The violently rotating winds then carry debris aloft that can be blown through the air, becoming dangerous missiles.

A tornado may have winds up to 300 miles per hour and an interior air pressure that is 10-20% below that of the surrounding atmosphere. The typical length of a tornado path is approximately 16 miles, but tracks much longer than that – even up to 200 miles – have been reported. Tornado path widths are generally less than one-quarter mile wide. Typically, tornadoes last only a few minutes on the ground, but those few minutes can result in tremendous damage and devastation. Historically, tornadoes have resulted in tremendous loss of life, with the mean national annual death toll being 111 persons. Property damage from tornadoes is in the hundreds of millions of dollars every year.

TORNADO INTENSITY

Tornado intensity is measured on the Fujita Scale, which examines the damage caused by a tornado on homes, commercial buildings, and other man-made structures.

EF Scale	Intensity Descriptor	Wind Speed (mph)	Type/ Intensity of Damage
EF0	Gale Tornado	65 - 85	Light damage. Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
EF1	Weak Tornado	86- 110	Moderate damage. The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF2	Strong Tornado	111 - 135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	Severe Tornado	136 - 165	Severe damage. Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.
EF4	Devastating Tornado	166 - 200	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
EF5	Incredible Tornado	Over 200	Incredible damage. Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile-sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged; incredible phenomena will occur.

The Fujita Scale rates the intensity of a tornado based on damage caused, not by its size. It is important to remember that the size of a tornado is not necessarily an indication of its intensity. Large tornados can be weak, and small tornados can be extremely strong. It is very difficult to judge the intensity and power of a tornado while it is occurring. Generally, that can only be done after the tornado has passed, using the Fujita Scale as the measuring tool.

PREVIOUS EVENTS

Location	Date	EF Scale	Deaths	Injuries	Property Damage	Crop Damage
	6/5/1953	F2	0	0	\$25,000	
	5/12/1956	F2	0	0	\$25,000	
	4/14/1967	F1	0	0	\$250,000	
	8/22/1972	F1	0	0	\$2,500	
	6/1/1973	F1	0	0	\$250,000	
	6/18/1976	F1	0	0	\$25,000	
	6/15/1982	F2	0	3	\$2,500,000	
	6/20/1982	F1	0	0	\$250,000	
	4/28/1986	F2	0	0	\$2,500,000	
	8/17/1991	F0	0	0		
FRANKENMUTH	6/21/1996	F3	0	0	\$5,000,000	
CHESANING	7/2/1997	F1	0	0	\$400,000	
CHESANING	7/2/1997	F1	0	0	\$400,000	
LAYTON CORNERS	7/2/1997	F1	0	0	\$200,000	
BURT	7/2/1997	F1	0	0	\$50,000	
FERGUS	6/10/2001	F0	0	0	\$5,000	\$5,000
FOSTERS	10/24/2001	F0	0	0		
SHIELDS	5/14/2004	F1	0	0	\$250,000	
BURT	5/22/2004	F0	0	0		
ARTHUR	5/22/2004	F0	0	0		
HEMLOCK	6/5/2005	F0	0	0		
LAKEFIELD	8/9/2011	EF0	0	0		\$500
CHESANING ARPT	8/20/2011	EF0	0	0	\$3,000	
BRANT	6/11/2014	EF1	0	0	\$250,000	
BIRCH RUN	6/22/2015	EF0	0	2	\$50,000	
Total			0	5	12,410,500	\$5,500

SAGINAW COUNTY PERSPECTIVE

Because tornadoes are such devastating events and occurrences are rarer than other natural hazards in this plan, all the data that was available from the NCDC was considered. There is a total of 25 events dating back to 1953, including separate tornado touchdowns originating from the same storm. These events result in an average of 0.6 events per year. When only considering data from the past 15 years, there have been a total of 10 events, increasing the average to 0.66 events per year. In 1996, an EF3 tornado which caused \$5 million dollars in property damage rolled through Saginaw County, this was the most intense tornado the County has experienced.

On average tornados cause the most damage of any storm in relation to their duration. Historically tornados have resulted in tremendous loss of life, with the mean national annual death toll at 111 persons. Property damage from tornadoes is in the hundreds of millions of dollars each year. Since 1953, there has been a total of \$12.5 million worth of property damage in Saginaw County, which is an average of \$497,420 per event. When only considering data from 2000 to the present, there is an average of \$56,350 per event, including property and crop damage. This includes each separate tornado touchdown, even if they were originated from the same storm. It should be noted that the 2014 Michigan Hazard Analysis document, states that north of Flint and Grand Rapids, only Saginaw County has a relatively high occurrence of tornadoes. Map 14, at the end of this section, illustrates the tornado sirens located throughout the County.



Hazard Number 3: Flooding

The overflowing of rivers, streams, drains and lakes due to excessive rainfall, rapid snowmelt or ice.

Most Vulnerable Jurisdictions: Albee Township, Brant Township, Bridgeport Charter Township, Buena Vista Charter Township, Carrollton Township, Chesaning Township, Village of Chesaning, Frankenmuth Township, City of Frankenmuth, James Township, Kochville Township, Maple Grove Township, Saginaw Charter Township, City of Saginaw, Spaulding Township, St. Charles Township, Village of St. Charles, Swan Creek Township, Taymouth Township, Thomas Township, Tittabawassee Township, Zilwaukee Township, and City of Zilwaukee

HAZARD DESCRIPTION

The flooding of land adjoining the normal course of a stream or river is a natural occurrence. However, development around natural water courses have increased the potential for serious flooding. Rainfall that would naturally soak into the ground or take several days to reach a river or stream, now quickly runs off streets, parking lots, rooftops, and through man-made channels and pipes. Development that encroaches on the floodplain impedes the carrying capacity of the water drainage basin and exacerbates flooding. Damage could be more easily avoided if, floodplain areas were left in their natural state.

Floods can damage or destroy public and private property, disable utilities, make roads and bridges impassable, destroy crops and agricultural lands, cause disruption to emergency services, and result in fatalities. People may be stranded in their homes for several days without power or heat, or they may be unable to reach their homes at all. Long-term collateral dangers include the outbreak of disease, widespread animal death, broken sewer lines causing water supply pollution, downed power lines, broken gas lines, fires, and the release of hazardous materials.

Flood prone areas are found throughout the State, as every lake, river, stream and County drain has a floodplain. The type of development that exists within the floodplain will determine whether or not flooding will cause damage. The Michigan Department of Environmental Quality (MDEQ) estimates that about 6% of Michigan's land is flood-prone, which includes about 200,000 buildings.

Floodplain areas are identified based on hydrologic studies and topographic surveys, as well as, soil studies and land cover characteristics. The result of this research is a statistical model that indicates an area vulnerable to the "100-year flood". This is the elevation that has a 1% chance of being equaled or exceeded each year. It is also referred to as the "1% annual chance flood."

The 100-year flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. Structures located in the flood hazard area have a 26% chance of suffering flood damage during the term of a 30-year mortgage. This means a home in the mapped flood hazard area is five times more likely to be damaged by flood than to have a major fire.

The southern half of the Lower Peninsula contains the areas with the most flood damage potential. The primary flooding sources include the Great Lakes and connecting waters, thousands of miles of rivers and streams, and hundreds of inland lakes. Michigan is divided into 63 major watersheds. All of these watersheds experience flooding, although the Saginaw River Watershed, and many others in the State, have experienced the most extensive flooding problems or have significant damage potential.

Most riverine flooding occurs in early spring and is the result of excessive rainfall and/or the combination of rainfall and snowmelt. Ice jams also cause flooding in winter and early spring. Severe thunderstorms may cause flooding during the summer or fall, although these are normally localized and have more impact on watercourses with smaller drainage areas. Oftentimes, flooding may not necessarily be directly attributable to a river, stream or lake overflowing its banks. Rather, it may simply be the combination of excessive rainfall and/or snowmelt, saturated ground, and inadequate drainage. With no place to go, the water will find the lowest elevations including areas that are often not in a floodplain. This type of flooding is becoming increasingly prevalent in Michigan, as development outstrips the ability of the drainage infrastructure to properly carry and disburse the water flow. Flooding also occurs due to combined storm and sanitary sewers that cannot handle the tremendous flow of water that often accompanies storm events. Typically, the result is wastewater backing up into basements, which damages mechanical systems and can create serious public health and safety concerns.

PREVIOUS EVENTS

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage	2008 Crop Damage
	5/21/1996	Flood	0	0	-	1,000,000	
	5/22/1996	Flood	0	0	-	-	1,000,000
	6/19/1996	Flood	0	0	-	-	
	6/21/1996	Flood	0	0	-	-	
NRN 1/2 OF CO.	6/21/1996	Flash Flood	0	0	1,000,000	-	
	2/21/1997	Flood	0	0	-	-	
COUNTYWIDE	2/21/1997	Flash Flood	0	0	50,000	-	
	2/22/1997	Flood	0	0	-	-	
	3/20/1998	Flood	0	0	-	-	
CHAPIN	5/1/1998	Flash Flood	0	0	-	-	
SAGINAW	7/14/1998	Flash Flood	0	0	-	-	
	5/19/2000	Flood	0	0	-	-	
	2/10/2001	Flood	0	0	50,000	-	
	2/25/2001	Flood	0	0	-	-	
	2/22/2002	Flood	0	0	-	-	
	3/10/2002	Flood	0	0	-	-	
	3/2/2004	Flood	0	0	-	-	
	3/5/2004	Flood	0	0	-	-	
	3/5/2004	Flood	0	0	-	-	
	3/7/2004	Flood	0	0	-	-	
	5/23/2004	Flood	0	0	-	-	
	5/23/2004	Flood	0	0	-	-	
	5/24/2004	Flood	0	0	-	-	
	5/25/2004	Flood	0	0	-	-	
	1/13/2005	Flood	0	0	-	-	
	1/15/2005	Flood	0	0	-	-	

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage	2008 Crop Damage
	3/8/2005	Flood	0	0	-	-	
SAGINAW	3/11/2006	Flood	0	0	10,000	-	
FREELAND	3/13/2006	Flood	0	0	7,000	-	
SAGINAW	6/27/2007	Flash Flood	0	0	10,000	-	
FENMORE	9/14/2008	Flood	0	0	100,000	-	
HEMLOCK	6/21/2011	Flash Flood	0	0	-	-	
MERRILL	4/10/2013	Flood	0	0	150,000	-	
(MBS)TRI CITY APT SA	4/19/2013	Flood	0	0	1,300,000	-	
MUNGER	8/11/2014	Flash Flood	0	0	-	-	
			0	0	2,677,000	1,000,000	

SAGINAW COUNTY PERSPECTIVE

The County has a total of 23 jurisdictions within the regulatory floodplain. (see the maps at the end of this document) There are also numerous properties that have been identified as “repetitive



loss properties” and may be eligible for special funding for mitigation actions that would alleviate flood impacts on such properties. The following information was provided by the Michigan State Police.

Saginaw County has 17 properties that are officially listed by FEMA and the National Flood Insurance Program (NFIP) as suffering from repeated flood losses. These “repetitive loss properties” are currently located within seven of the county’s local jurisdictions, as described in the following text which excludes 2 single-family homes which have already benefited from flood mitigation activities (one home in Bridgeport Charter Township and one in the City of Zilwaukee). The remaining 15 repetitive loss properties identified by the NFIP include the following: 1 in Bridgeport Charter Township, 1 in Buena Vista Charter Township, 2 in Carrollton Township, 4 in Saginaw Charter Township, 3 in the City of Saginaw, 3 in Spaulding Township, and 1 in Tittabawassee Township. Fourteen out of these fifteen properties are single-family residential homes, with the one other property being listed as “other Nonresidential” in type.

In order to prioritize the extent of flooding by community, the following information about flood impacts is provided. The greatest damages had involved properties within Saginaw Charter Township, involving more than \$300,000 total damage (to four structures and their contents) since 1996. These damages resulted from 6 floods, an average of more than \$50,000 in damage per flood. The next most heavily damaged set of repetitive-loss properties were those located in the City of Saginaw, which suffered more than \$200,000 in damage during 14 flood events since 1985, an average of more than \$15,000 per event. Next was Spaulding Township, which had flood damages documented in 14 events since 1978, amounting to over \$90,000 in damage, an average of more than \$6,000 per event.

A second tier of impacts involved the communities of Bridgeport Charter Township (about \$34,000 in damages from 2 events in the 1980s), Tittabawassee Township (about \$29,000 in damages from 3 events since 1996), and Carrollton Township (about \$19,000 in damages from 3 floods since 1981). Finally, Buena Vista Charter Township had about half that amount of damage during 3 floods since 1986. These damage amounts only reflect the designated high-priority properties identified by the NFIP. Overall damages within each community would be larger than described here. However, because these known areas of historical flood impact have been identified officially by agencies that have grant funds available to accomplish flood mitigation, they are specially prioritized within this plan to benefit from hazard mitigation activities (which will vary from place to place, depending upon the preferences of the owners, availability of grant funds, and so on).

The hazard history above includes details about past incidents within the County. The official floodplain maps of the National Flood Insurance Program identify areas that have been calculated to have at least a 1% annual chance per year of flooding. Additional areas not yet identified as flood-prone may be affected by the hazard due to the possible formation of ice jams or other obstructions to water drainage flows.

As of 2010, Saginaw County is number 5 in ranking of Michigan counties with flood insurance policies, and ranked number 6 with dollars of flood insurance coverage. More recent data shows the County has a total of 1,394 NFIP policies with a total of \$157,311,400 dollars in coverage and 526 paid claims, or \$3,629,398 in paid claims since 1978. The total premium for the County is \$1,185,362.

There are 3 communities in Saginaw County which participate in FEMA's Community Rating System (CRS), they include: Saginaw Charter Township, Taymouth Township, and the City of Zilwaukee. This program reduces to cost of flood insurance for homes with the participating jurisdictions. The three communities are all Class 8, meaning the residents save 10% on their flood insurance premiums. As a part of the CRS process, FEMA completes an annual audit of the floodplain management procedures to maintain the CRS certification.

Over the past 15 years there has been a total of 24 floods in Saginaw County, of those 3 have been flash floods. This means the annual average for flooding in the County is 1.46. While mathematically this average means there will be just approximately one flood a year, oftentimes there are many floods one year and none the next. The National Climate Data Center calculated at total of \$1.7 million worth of property damage over the past 15 years. This equates to about 72,000 dollars in damage per flood. In some cases though, like in April of 2013, there was a more damaging flood which causes \$1.3 million in damage alone. Because floods have the potential to be so devastating, data back to 1996 was included in this additional analysis. Over the past 18 years there have been 35 floods, of which 7 have been flash floods. This means the annual average for flooding is increased to 1.9 events per year. This additional analysis shows a total property damage at \$5.4 million, with an additional 2 million in crop damage. These figures equate to an average property damage amount of \$152,971 per event, and crop damage at \$57,971 per event, totaling an average of \$210,114 in damage per flood event. Of all the watersheds in Michigan that experience flooding, the Saginaw River is ranked the 7th for most extensive flooding problems or significant damage potential.

FEMA NATIONAL FLOOD INSURANCE PROGRAM (NFIP) AND FLOOD INSURANCE RATE MAPS (FIRM)

Flooding is a major hazard in Saginaw County, the floodplain map below indicates where there is a 1% annual chance of flooding in a given year. Map 15, at the end of this section, indicated the floodplain in Saginaw County. This data is from 1997 FEMA Flood Insurance Rate Maps (FIRM) and it indicates that the following communities participate in the National Flood Insurance Program (NFIP):

- Albee Township
- Brant Township
- Bridgeport Charter Township
- Buena Vista Charter Township
- Carrollton Township
- Chesaning Township
- Village of Chesaning
- Frankenmuth Township
- City of Frankenmuth
- James Township
- Kochville Township
- Maple Grove Township
- Saginaw Charter Township
- City of Saginaw
- Spaulding Township
- St Charles Township
- Village of St. Charles
- Swan Creek Township
- Taymouth Township
- Thomas Township
- Tittabawssee Township
- Zilwaukee Township
- City of Zilwaukee

The reference information is from 1997 because Saginaw County is currently in the process of updating their Flood Insurance Rate Maps and there is no official updated data available yet. The County is working closely with FEMA to ensure these maps have the most accurate data available to date. Once completed these maps will be able to provide much needed information to the municipalities, governmental agencies, and residents of the County. The updated and anticipated improved accuracy will help provide clarifications and more reliable floodplain mapping products. The process to update the maps began in 2010 and as soon as it is complete, the County will continue to offer residents access to the information online through the Saginaw County GIS Authority.

The following are additional services and activities the County and local jurisdictions provide in relation to flooding and floodplain information:

- The County provides online interactive GIS mapping of the 100-year floodplain through the Saginaw Area GIS Authority (SAGA). This means the County, local jurisdictions, and residents all have easy online access to the most current floodplain information. The SAGA website is www.sagagis.org, and the current floodplain data is also available to residents at the following website: <http://www.saginawcounty.com/docs/emd/documents/Flood%20Plain%20Mitigation%204-2008.pdf> or directly from FEMA at <http://www.fema.gov/national-flood-hazard-layer-nfhl>. The availability of the data gives planners and other officials the ability to identify problem areas in a more accurate manner than was previously possible. Thus, allowing the County and local jurisdictions to take more comprehensive measures against repetitive losses caused by flooding. This also makes it easier for residents to be aware and make more informed decisions in regard to their properties.
- The County and local jurisdictions monitor floodplain development when building permits are issued for new development. Before any construction begins, the communities review the development plans for each proposed structure in a floodplain and ensure it is in compliance with all Michigan building codes and state and federal requirements for building in the floodplain. This also provides education to property owners to know what is allowed in these protected areas.
- The local jurisdictions work closely with the local Michigan Department of Environmental Quality (MDEQ) Floodplain Engineer to discuss proposed work in the floodplain areas. The MDEQ is also the main source of information whenever unusual situations are encountered.

- Localities also issue soil erosion and sedimentation control permits (SESC). This includes enforcement and education of state requirements pertaining to SESC. Additionally, keeping soil out of streams and storm sewers is a great way to assure that storm system will be open and free to transport water when needed and keep soil out of the receiving waters.
- The communities within the 100-year floodplain have storm water management plans which evaluate the current drainage systems and provide recommendations for runoff and drainage patterns on sites. In conjunction with storm water provisions outlined in various communities' ordinances, these plans help prevent further flooding by regulating the discharge of storm water on site. Without these provisions, the storm water system would backup causing flooding during rain events.
- The Saginaw County Public Works Commissioner works in a continuous manner to clean out drains and works to refurbish pump stations in floodprone areas. The drainage districts also do continual maintenance to lessen the probability of flooding.
- Several communities with flood plains in the County have applied for Storm water, Asset Management, and Wastewater (SAW) grants to determine potential flooding problems and create plans to address these problems in the future.
- Within the County, there is also the Saginaw Area Storm Water Authority (SASWA) this organization is a coalition of various municipalities, government agencies, educational institutions, and other associate members which work together to meet the state and federal storm water regulations. The authority works to address water quality issues related to storm water, educate the general public on the importance of water quality, and elevate awareness of individual effects on water quality. The authority also creates watershed management plans which are resources for communities within that watershed to understand best management practices, threatened areas, and existing efforts already in place. The watershed plans also include a public input section and an education plan for the public. Further information on SASWA can be found at www.saswa.org.
- In the Spring of 2013/2014 the County and City of Saginaw staff worked to provide up to the minute mapping based on gauge data from the Saginaw River to project flood stage elevations on land to predict which areas would flood. The staff was able to work with the Road Commission to close roads before they reached flooding stages keeping the public out of dangerous roadways. The data can also be used to warn property owners within the floodplain if their homes or businesses will be at risk and when to evacuate.

All communities listed above with identified floodplains participate in the NFIP. All have enrolled in NFIP and adopted local floodplain ordinances. Each of these communities enforces the Michigan Building Code pursuant to floodplain management through building inspectors. Their efforts are supported by the local MDEQ Floodplain Engineer who assists local communities with questions NFIP and the floodplain within Saginaw County. NFIP zones for all of Saginaw County are mapped and available electronically to the public at <http://www.saginawcounty.com/docs/emd/documents/Flood%20Plain%20Mitigation%204-2008.pdf>, or through the Saginaw County GIS Authority.



Hazard Number 4: Transportation Accident (Bus, Airplane, Train)

A crash or accident involving an air, land or water-based commercial passenger carrier resulting in death or serious injury.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Transportation accidents are defined as an accident involving an air, land, or water based commercial passenger carrier resulting in death or serious injury. Vulnerable areas would include communities with, or near, an airport offering commercial passenger service, communities with railroad tracks providing commercial rail passenger services, communities with commercial intercity passenger bus or local transit bus service, communities with school bus service, and communities with commercial marine passenger ferry service. A serious event involving any of the above-mentioned modes of passenger transportation could result in a mass casualty incident, requiring immediate life-saving response.

Air Transportation Accident

There are four circumstances that can result in an air transportation accident:

- 1) an airliner colliding with another aircraft in the air;
- 2) an airliner crashing while in the cruise phase of a flight due to mechanical problems, sabotage, or other cause;
- 3) an airliner crashing while in the takeoff or landing phase of a flight; or
- 4) two or more airlines colliding with one another on the ground during staging or taxi operations.

When responding to any of these types of air transportation accidents, emergency personnel may be confronted with several problems, such as: suppressing fires; rescuing and providing emergency first aid for survivors; establishing mortuary facilities for victims; detecting the presence of explosive or radioactive materials; and providing crash site security, crowd and traffic control, and protection of evidence.

Land Transportation Accident

In Michigan, a land transportation accident could involve a commercial intercity passenger bus, a local public transit bus, a school bus, or an intercity passenger train. Although these modes of land transportation have a good safety record, accidents do occur. Typically, bus accidents are caused by the bus slipping off the roadway in inclement weather, or colliding with another vehicle. Intercity passenger train accidents usually involve a collision with a vehicle attempting to cross the railroad tracks before the train arrives at the crossing. Unless the train accident results in a major derailment, serious injuries are usually kept to a minimum. Bus accidents, on the other hand, can be quite serious, especially if the bus has tipped over. Numerous injuries are a very real possibility in these types of situations.

Water Transportation Accidents

A water transportation accident could have significant life safety consequences. Most vessels operate on a seasonal basis (typically May through November) and vessel sizes vary. Although the vessels have an excellent safety record and must pass rigorous standards, the potential for an accident is always present.

SIGNIFICANT EVENTS

Easter Sunday 1958 - At the time, the worst commercial passenger airplane crash in Michigan took place at Saginaw Tri-City International Airport (now MBS), and remained the most serious event in the State until August of 1987. The Saginaw incident resulted in 47 fatalities and was determined to have resulted from ice build-up on the plane's directional systems. The pilot was unable to maneuver the plane to reach the runway on the land approach at the airport.

March 5, 1992 - Twin Cessna 414, was departing Tri City Airport. At 15:04 the pilot notified the Control Tower it was experiencing a mechanical problem and was returning to the Airport. Within seconds the pilot stated he could not make it back to the Airport Runway. The aircraft crashed 68' east of the main air carrier terminal building against a blast wall. All three occupants of the air ambulance (pilot, nurse and patient) died in the crash. The aircraft was owned by Airborne Flying Services from Hot Springs Arkansas. The weather conditions were not a factor in the crash. On site Airport Fire Crews along with Tittabawassee Fire Department responded to the crash extinguishing the fire.

Fortunately, there have not been any additional significant transportation accidents in the County.

SAGINAW COUNTY PERSPECTIVE

This document is primarily interested in events that have the potential to cause emergency or disaster level impacts, and to take advance action to prevent or alleviate the effects of such occurrences. Therefore, most small-scale transportation accidents are more appropriately addressed through ongoing transportation plans. This document intends to draw attention to larger-scale events that have the potential to tax or even overwhelm local emergency response capabilities. For example, a bus accident in a rural section of a Township may involve numerous casualties and may require the assistance of resources from nearby jurisdictions. As compared to the crash of a large commercial aircraft, which would be a situation of great concern with the potential for catastrophic loss of life and massive property damage.

Saginaw County is equipped with airports, both intercity and regional bus services, and tour boat in Frankenmuth. The airports include: the MBS International Airport, Saginaw County HW Browne Airport, Howard Nixon Memorial Airport, and William "Tiny" Zehnder Field. MBS International Airport, as of 2013 is home to a renovated and expanded terminal, two runways, and 27 aircraft that are based at the airport. There is over 50,000 annual aircraft operations with a total of 293,047 passengers that travel through the airport. Although many residents live in areas surrounding these airports or underneath the flight patterns, the safety records for these flights are very good.

The Saginaw Transit Authority Regional Services, or STARS, and three commercial bus transportation stops in the County, including Amtrak, Greyhound, and Indian Trails provide mass bus transportation in the County. STARS provide traditional bus routes and lift services, and its full schedule has 8 routes throughout the community. As of 2010, STARS served 895,995 regular passengers annually, this was an increase of 25% compared to recent count cycles. The bus system travels over 1.5 million miles per year. The regional bus systems connect residents of Saginaw County across Michigan and to larger regional transportation hubs through the state highway trunklines. Finally, the Bavarian Belle Riverboat in Frankenmuth provides a 1-hour tour for water transportation in the County.

Because the County has such an extensive network of transportation services, which effect so many people, it is important that each is considered while planning for mitigation strategies, particularly in each jurisdiction where the facilities are located.

Hazard Number 5: Structural Fires

A fire, of any origin, that ignites one or more structures, causing loss of life and/or property.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Structural fires are often referred to as the “universal hazard,” because they occur in virtually every community. The highest risk is during winter months, when wood stoves and faulty heaters are used. Each year in the United States, fires result in approximately 5,000 deaths and 25,000 injuries which require medical treatment. Structural fires cause more loss of life and property damage than all types of natural disasters combined. Direct property losses due to fire exceed \$9 billion per year – and much of that figure is the result of structural fires.

Ironically, while the United States has made great strides in lessening deaths and injuries caused by other types of disasters, the problem of structure fires is worse in this Country, than in many other industrialized nations (even those with a more densely developed population pattern). The United States Center for Disease Control (CDC) figures indicate that fire-associated mortality rates in the United States are approximately 2-3 times greater than those in many other developed countries. According to the Federal Emergency Management Agency’s National Fire Data Center, residential fires represent 78% of all structural fires and cause 80% of all fire fatalities. Approximately 83% of those fatalities occur in single-family homes and duplexes. Perhaps the most tragic statistic of all is that over 40% of residential fires and 60% of residential fatalities occur in homes with no smoke alarms.

PREVIOUS EVENTS

2006- Arson and “Devil’s Night” Disturbances- 42 fires reported over a two-day period before and during Halloween night. The community responded quickly and since has only had a quarter or less of this number of fires on those two days.

February 23, 2015- Elmwood Manor- Fire on the 7th floor of a 10-story building. Residents were evacuated and street was closed during the response. There were 2 injuries.

The following chart contains more generalized data for recent fires in Saginaw County. This information is from the Michigan Department of Licensing and Regulatory Affairs (LARA). This is the information currently available on the National Fire Incident Reporting System.

Fire Incidents in Saginaw County		
	2013	2014
Total Fires in Saginaw County	776	752
Arson	83	99
Suspicious	158	130
Total Estimated Loss	\$ 5,819,821	\$ 8,323,908
Statewide average number of fires per County	304	309
Statewide average Loss per County	\$ 7,765,769	\$ 6,195,526

SAGINAW COUNTY PERSPECTIVE

Unfortunately, the historical events of structural fires do not have the same detailed database as the natural hazards from the Climate Data Center. Even though individual events are not available, the table above is generalized data on structural fires for Saginaw County. Structural fires are a frequent occurrence in terms of individual structures throughout the County. Fires of an emergency management level concern occur at larger structures, critical facilities, rows of attached units, commercial storefronts, and fire risks involving special populations such as senior centers, schools, medical, and detention facilities. Also of concern are older, more dilapidated, and underused structures, many of which are in urban areas, which may be more vulnerable or at-risk from fire events and effects, especially if smoke detectors and fire suppression systems are not in use at these locations.

As indicated in the table above, Saginaw County has significantly more fires than the average for all counties in Michigan. This indicates a need to focus on fire prevention and protection. In the County, the annual numbers of fires do not seem to differ greatly from year to year. However, the estimated loss can change drastically depending upon the type of structure and the materials within the structure. Additional risk of fire in Saginaw County derives from the multiple industrial uses in the County, the farming nature of some communities, and the density found in the City of Saginaw.



Hazard Number 6: Hazardous Materials Transportation Incidents

An uncontrolled release of hazardous materials during transport capable of posing a risk to life, health, safety, property, or the environment.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

As a result of the extensive use of chemicals in our society, all modes of transportation – highway, rail, air, marine, and pipeline – are carrying thousands of hazardous materials shipments on a daily basis. A transportation accident involving any hazardous material shipments could cause a local emergency affecting many people.

Michigan has had numerous hazardous material transportation incidents. The majority only affect the immediate vicinity of an accident site or a small portion of the surrounding community. Those types of incidents, while problematic for the affected community, are fairly commonplace. They are effectively dealt with by local and state emergency responders and hazardous material response teams. Larger incidents, however, pose a completely different set of problems and concerns for the affected community. Large-scale, or serious hazardous material transportation incidents, that involve a widespread release of harmful material (or have the potential for such a release) can adversely impact the life, safety, and/or health and well-being of those in the immediate vicinity of the accident site, as well as those who come in contact with the spill or airborne plume. In addition, damage to property and the environment can be severe. Almost all hazardous material transportation incidents are the result of an accident or other human error. Rarely are they caused simply by mechanical failure of the carrying vessel.

Heating fuel and motor fuel account for approximately 98% of all the hazardous materials that are being transported on today's roadways. The remaining 2% includes all other hazardous materials. An example is, Anhydrous Ammonia, which is sprayed on farm fields, and is also used for air conditioning and refrigeration purposes. If there were to be an accident during transit, this would be an extremely dangerous hazardous material that could affect a large region. It is likely that the remaining proportion of hazardous material transported is greater than 2.0% because of the presence of DOW and Hemlock Semiconductor.

SIGNIFICANT EVENTS

July 22, 1989 Tittabawassee Township- A freight train carrying a variety of hazardous materials derailed near Freeland, causing two rail cars to catch on fire and forcing a week-long evacuation of over 1,000 residents. One home near the accident site was destroyed by the fire. After the fire was extinguished one week later, the site was cleared and the contaminated soil surrounding the site was excavated and transported to a hazardous waste landfill. After all hazardous conditions and health concerns were alleviated, the evacuation was lifted and evacuees were allowed to return to their homes.

January 20, 1990 Buena Vista Charter Township- A semi-tanker carrying 5,000 gallons of gasoline and 5,000 gallons of diesel fuel overturned due to icy roads and high winds. Approximately 2,500 gallons of diesel fuel spilled into the drain system and traveled an estimated $\frac{3}{4}$ mile before it could be diked and removed by an environmental cleanup contractor. The spill prompted the evacuation of approximately 520 persons in a half-mile radius. The evacuated area was re-opened 12 hours later, after the cleanup was completed.

April 21, 2013 Birch Run Township – A vehicle caught on fire on I-75 NB in Birch Run, and in order to avoid the car and emergency vehicles at the scene a semi-tanker carrying acrylic acid swerved and then rolled on the highway. The accident caused I-75 to be closed for 18 hours, and the movie theater and mall were also evacuated. Firefighters from Birch Run and Clio who were already on scene to attend to the fire, when the truck rolled. They ran to attend to the injured truck driver; however, they were exposed to the chemical and had to be taken to the hospital. To cover duties, several other area fire departments responded to the accident, in addition to the County Hazardous Materials Team, and Dow Chemical personnel. Several firefighters had to be taken to the hospital for evaluation due to this accident, and the truck driver was also injured.

Fortunately, there have not been any additional significant hazardous materials transportation accidents in the County.

SAGINAW COUNTY PERSPECTIVE

Saginaw County has had numerous small-scale hazardous material transportation incidents that required a response by local fire departments and hazardous material teams, and many required the implementation of evacuation and other protective actions. As a major manufacturer, user and transporter of hazardous materials, Saginaw County remains vulnerable to the threat of a serious hazardous material transportation incident at any point in time. Also, Saginaw County is crisscrossed by major interstate routes and state trunk line roads, all of which are used by commercial traffic that may be transporting hazardous materials.

As mentioned previously in this plan, this hazard is particularly important to Saginaw County because of the various industries in the surrounding region. There are significantly more hazardous materials being transported through the County via rail and trucking than the average community. First responders and emergency personnel need to be aware of this, and have the proper training to deal with incidents, otherwise accidents could get out of control very quickly.

The greatest risk for hazardous material transportation incidents arise when proper safety procedures are not observed, therefore enforcing those safety measures is paramount to ensure the safety of hazardous materials transportation.

Hazard Number 7: Public Health Emergency

A widespread and/or severe epidemic, incident of contamination, or other situation that presents a danger to or otherwise negatively impacts the general health and well-being of the public.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Public health emergencies can take many forms – disease epidemics, large-scale incidents of food or water contamination, extended periods without adequate water and sewer services, harmful exposure to chemical, radiological or biological agents, and large-scale infestations of disease-carrying insects or rodents – to name just a few. Public health emergencies can occur as primary events by themselves, or they may be secondary events to another disaster or emergency such as a flood, tornado, or a hazardous materials incident. Public health emergencies can be statewide, regional, or localized in scope and magnitude. The common characteristic of most public health emergencies is that they adversely impact, or have the potential to adversely impact, a large number of people.

Perhaps the greatest emerging public health hazard would be the intentional release of a radiological, chemical, or biological agent to adversely impact a large number of people. Such a release would most likely be an act of terrorism aimed at the government, a specific organization, or segment of the population. Fortunately, to date, Michigan has not yet experienced such a release aimed at mass destruction. However, it is probably only a matter of time before an incident of that nature and magnitude does occur. If and when it does, the public health implications – under the right set of circumstances – could be staggering.

SAGINAW COUNTY PERSPECTIVE

Like the rest of the United States and the world, Saginaw County has had serious outbreaks of diseases like influenza and it has been many years since the County has had to deal with diseases like polio in the 1950's. However, Saginaw County is susceptible to health emergencies such as the Severe Acute Respiratory Syndrome (SARS) outbreak in Canada, the West Nile Virus, and meningitis outbreaks that occur sporadically on local college campuses. More recently, diseases such as Pertussis (whooping cough), Measles, E Coli, H1N1, MRSA, and Norovirus have become more of a threat to the state of Michigan. The following statistics were taken from the Saginaw County Health Department report detailing confirmed cases of diseases from 2009- 2014

- 308 confirmed cases of foodborne illness- including Salmonella and Norovirus
- Almost 50,000 cases of influenza
- 150 cases of Meningitis
- 579 cases of E. Coli
- In July of 2015, West Nile Virus was officially confirmed in Saginaw County.

Costs associated with public health emergencies include deaths, hospitalizations, doctors' visits, mass immunization programs, lost wages, and lost productivity. Public health emergencies can also occur as primary or secondary events related to natural or human related hazards. Because there have not been any major public health emergencies in recent past in Saginaw County, it is difficult to determine probability or cost, but considering the trends in the County and the historical precedent the risk is low. There are not enough recently documented cases in Saginaw County to estimate an average cost.

Hazard Number 8: Hazardous Material Incidents at Fixed Sites (Including Industrial Accidents)

Hazardous Material Incident- An uncontrolled release of hazardous materials from a fixed site capable of posing risk to life, health, safety, property, or the environment.

Industrial Accident: A fire, explosion, or other severe accident (especially if it involves hazardous materials) at an industrial facility that results in serious property damage, injury, or loss of life.

Most Vulnerable Jurisdictions: Albee Township, Village of Birch Run, Birch Run Township, Blumfield Township, Brady Township, Bridgeport Charter Township, Buena Vista Charter Township, Carrollton Township, Chesaning Township, Village of Chesaning, Frankenmuth Township, City of Frankenmuth, Fremont Township, James Township, Kochville Township, Richland Township, Saginaw Charter Township, City of Saginaw, Spaulding Township, Village of St. Charles, Swan Creek Township, Taymouth Township, Tittabawassee Township, Thomas Township, Zilwaukee Township, City of Zilwaukee.

HAZARD DESCRIPTION

Hazardous Materials Incident

Over the past decades, new technologies have developed at a stunning pace. As a result, hazardous materials are present in business, industry, agriculture, universities, hospitals, utilities, and other facilities in our communities. Hazardous materials are materials or substances which, because of their chemical, physical, or biological nature, pose a potential risk to life, health, property, or the environment if they are released. Examples of hazardous materials include corrosives, explosives, flammable materials, radioactive materials, poisons, oxidizers, and dangerous gasses.

Hazardous materials are highly regulated by federal and state agencies to reduce risk to the general public and the environment. Despite precautions taken to ensure careful handling during manufacturing, transport, storage, use, and disposal of these materials, accidental releases do occur. If proper mitigative action is not immediately taken, these releases can cause severe harm to people or the environment. Most releases are the result of human error. Occasionally, releases can be attributed to natural causes, such as a flood that washes away barrels of chemicals stored at a site. However, those situations are the exception rather than the rule.

Industrial Accidents

Industrial accidents differ from hazardous material incidents in the scope and magnitude of offsite impacts. Whereas hazardous material incidents typically involve an uncontrolled release of material into the surrounding community and environment that may require evacuations or in-place sheltering of the affected population. The impacts from industrial accidents, which are often confined to the site or facility itself, create minimal physical outside impacts. Nonetheless, industrial accidents, such as fires, explosions, and excessive exposure to hazardous materials, may cause injury or loss of life to workers at the facility, and significant property damage. In addition, industrial accidents can cause severe economic disruption to the facility and surrounding community, as well as significant long-term impacts on the families of the workers injured or killed. Map 16, at the end of this section, depicts all the industrial areas in the County.

SARA Title III

In 1986, the President signed into law the Superfund Amendments and Reauthorization Act (SARA). Included under Title III of SARA was the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), commonly known as SARA Title III. SARA Title III is meant to encourage and support emergency planning efforts at the State and local levels and to provide the public and local units of government with information concerning potential chemical hazards present in their communities. Determining if a facility is subject to emergency planning requirements is straightforward. The Environmental Protection Agency (EPA) publishes a list of Extremely Hazardous Substances (EHS). For each EHS, the list identifies and describes the chemical, and includes a number called a Threshold Planning Quantity (TPQ). The TPQ, expressed in pounds, is the key number. If a facility has within its boundaries an amount of an EHS equal to or in excess of its TPQ, then Section 302 of SARA Title III requires that the facility is subject to emergency planning requirements and must notify both the State Emergency Response Commission (SERC) and the Local Emergency Management Office of this fact. The facility must also identify an emergency response coordinator who works with the Local Emergency Management Office on developing and implementing the local emergency plan at the facility. This regulation applies even if the chemical is on site for only a day. There are no exemptions for emergency planning notification. Map 17, at the end of this section, depicts the SARA Title III sites in Saginaw County.

SIGNIFICANT EVENTS

January 22, 1976 Saginaw: An explosion and fire at a farm supply shipping plant and grain tower killed five persons and injured 12.

July 22, 1989 Freeland: At 11:20 am a CSX Transportation Inc. Freight Train derailed. Fourteen of the sixteen train cars that derailed were damaged in addition to a heat recovery steam generator all sustained heavy damage or were destroyed. The derailment resulted in a release of hazardous materials, 1,000 residents were evacuated for a week, there were 11 injuries, and no deaths. An adjacent residence caught on fire following the release of the chemicals. Estimated damage exceeded \$4 million. The NTSB determined the probable cause for the derailment was inadequate car inspection, track conditions, and train handling. Additionally, the train cars were not equipped with head-shield protection. The following emergency responders were called to the scene: Saginaw County Fire, Tittabawassee Fire, Thomas Township Fire, Kochville Township Fire, Midland Township Fire, Tri County Airport Fire, Michigan State Police and Saginaw County Sheriff.

July 3, 2012 Frankenmuth Township: Star of the West grain elevator was struck by lightning, causing a series of three explosions. Water leaked into bins which contained grain and gas, which when mixed with water could cause explosions. Seven homes around the area were evacuated, and there was approximately 240,000 dollars in damage. The Frankenmuth Fire Department and Haz Mat Team was called out to the scene.

Fortunately, there have not been any additional significant hazardous materials accidents in the County.

SAGINAW COUNTY PERSPECTIVE

The County is home to various industrial businesses that have the potential to create an industrial accident. As the majority of these structures are private facilities, it is not public knowledge what chemicals are used and stored at each site. Therefore, the public has very little opportunity to effect change, though due to the nature of these accidents, on a large scale the public will be somewhat unaffected. The mapping section of this plan includes the locations of the various industrial sites in the County.

A second map represents the SARA Title III sites. All industrial sites are not SARA Title III sites, therefore the parcels highlighted on this map provides all the possible locations that an industrial accident could occur on site, not just the more hazardous SARA Title III sites. These sites are not public knowledge, but the SARA Title III sites that handle, store, or use some sort of hazardous materials in quantities that require pre-planning efforts are in coordination with the local emergency planning committee. Saginaw County's active SCEPC deals specifically with issues of hazardous materials, and coordination exists between this hazard mitigation plan and the numerous site overseen by the SCEPC, because the individuals involved in the update of this hazard mitigation plan, also serve on the committee that oversee these hazardous material sites. One significant change since the update of the last plan, is the expansion of the Hemlock Semiconductor Plant in Hemlock. The expansion was finished in 2012, and the company invested over 1 billion dollars into the plant. This project was also projected to add over 200 jobs to the economy, and more than doubled in size. The plant manufactures polysilicon for computers and solar panels.

Hazard Number 9: Extreme Temperatures

Prolonged periods of very high or very low temperatures, often accompanied by other Extreme meteorological conditions.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

The County is susceptible to both extreme heat and extreme cold. It is not uncommon to have a 40-degree swing in temperature within a 24-hour period. Prolonged periods of extreme temperatures, whether extreme summer heat or extreme winter cold, can create severe and often life-threatening situations for Michigan's citizens. Although they are radically different in terms of initiating conditions, the two hazards share a commonality in that they both primarily affect the most vulnerable segments of the population – the elderly, children, impoverished individuals, and people in poor health. The longer duration of an event leads to produce more severe effects. These two extreme occurrences are measured by recording the temperature, humidity, and wind speed to determine to extent of the extreme temperatures impact. The Heat Index (HI) and the Wind Chill Temperature Index (WCT) are measuring standards.

Extreme Summer Heat

Extreme summer weather is characterized by a combination of very high temperatures and exceptionally humid conditions. When persisting over a long period of time, this phenomenon is commonly called a heat wave. The major threats of extreme summer heat are heatstroke and heat exhaustion. Other, less serious risks associated with extreme summer heat are often exercise-related and include heat and heat cramps. The combined effects of high temperatures and high humidity are more intense in urban centers, heatstroke, and heat exhaustion are a greater problem in cities than in suburban or rural areas.

Nationwide, approximately 200 deaths a year are directly attributable to extreme heat. Extreme summer heat is also hazardous to livestock and agricultural crops, and can cause water shortages, exacerbate fire hazards, and prompt excessive demands for energy. Roads, bridges, railroad tracks, and other infrastructure is susceptible to damage from extreme heat. Air conditioning is probably the most effective measure for mitigating the effects on extreme summer heat. Unfortunately, many of those most vulnerable to this hazard do not live or work in air conditioned environments, especially in major urban centers where the vulnerability is highest.

Extreme Winter Cold

Like heat waves, periods of prolonged, unusually cold weather can result in a significant number of temperature-related deaths. Each year in the United States, approximately 700 people die because of severe cold temperature-related causes. It should be noted that a significant number of cold-related deaths are not the direct result of “freezing” conditions. Rather, many deaths are the result of illnesses and diseases that are negatively impacted by severe cold weather, such as stroke, heart disease, and pneumonia. It could convincingly be argued that, were it not for the extreme cold temperatures, death in many cases would not have occurred from the illness or disease alone. Periods of



extreme cold are risky for those in both rural and in urban areas. Frostbite and Hypothermia are common in rural areas where people are trapped outdoors and do not adjust properly to the temperatures. Even indoors, hypothermia is a concern for individuals living in inadequately heated apartments or rooms. Loss of life can occur with either of these situations. Damage to buildings and pipelines can also occur in bitter cold conditions, resulting in expensive repairs and potential days of business and school shutdowns.

Hypothermia and frostbite are probably the two conditions most closely associated with cold temperature-related injury and death. Hypothermia usually occurs in one of two sets of circumstances. One situation involves hypothermia associated with prolonged exposure to cold while participating in outdoor sports. The second situation involves a particularly vulnerable person who is subjected to only a moderate, indoor cold stress. A common example would be an elderly person living in an inadequately heated home. The special vulnerability of elderly persons to hypothermia has become readily apparent. Over half of the approximately 700 persons who die each year due to cold exposure are 60 years of age or older, even though this age group only represents about 20% of the country's population.

PREVIOUS EVENTS

Date	Type	Deaths	Injuries	Property Damage	Crop Damage	Information from 2008 Plan
3/8/2000	Excessive Heat	0	0	-	-	
12/21/2000	Extreme Cold/Wind Chill	0	0	-	-	\$475,000
8/6/2001	Heat	0	0	-	-	1 death 200 injuries
1/10/2003	Cold/Wind Chill	0	0	-	-	3 deaths
5/29/2006	Heat	0	3	-	-	75 injuries
7/29/2006	Heat	0	0	-	-	25 injuries
8/1/2006	Heat	0	0	-	-	215 injuries
2/3/2007	Cold/Wind Chill	0	10	\$25,000	-	
1/14/2009	Extreme Cold/Wind Chill	0	0	-	-	
7/17/2011	Excessive Heat	0	0	-	-	
6/28/2012	Heat	0	5	-	-	
7/1/2012	Heat	0	5	-	-	
7/14/2013	Heat	0	6	-	-	
1/6/2014	Cold/Wind Chill	0	0	-	-	
1/28/2014	Cold/Wind Chill	0	0	-	-	
2/14/2015	Extreme Cold/Wind Chill	0	0	-	-	
2/19/2015	Extreme Cold/Wind Chill	0	0	-	-	
2/23/2015	Extreme Cold/Wind Chill	0	0	-	-	
				\$25,000	-	

SAGINAW COUNTY PERSPECTIVE

In the County, excessive heat occurs, on average, every few years and has been seen to cause numerous hospitalizations, and even some deaths. Extreme cold has a slightly longer and more frequent history in Saginaw County, but similarly appears to occur every few years (although every winter season includes isolated conditions that may temporarily exhibit similarly dangerous effects.) Far fewer persons were affected by extreme cold conditions (perhaps because it is easier to heat spaces than it is to cool them down, or perhaps because fewer people know the health effects heat can have and thus fewer take precautions against them). However, the extreme cold hazard has caused larger amounts of property damage, due to freezing pipe damage, and overlaps between freezing events and snow/ice accumulations that may cause other forms of damage. Periods of extreme heat may create greater energy demands for widespread air-conditioning. This may cause the power supply system to become temporarily overwhelmed, resulting in a power failure in a time of great need. This would be a case where hazard mitigation planning would need to overlap with the considerations of utility providers, to encourage the maintenance of people's health and comfort through adequate system capacities and functioning.

Hazard Number 10: Civil Disturbance

A public demonstration or gathering, or a prison uprising, that results in a disruption of essential functions; rioting, looting, arson or other unlawful behavior.

Most Vulnerable Jurisdictions: Kochville Township, City of Saginaw, and Tittabawassee Township.

HAZARD DESCRIPTION

Large-scale civil disturbances rarely occur, but when they do they are usually an offshoot or result of one or more of the following events:

- 1) high profile/controversial judicial proceedings;
- 2) the implementation of controversial laws or other governmental actions;
- 3) resource shortages caused by a catastrophic event;
- 4) disagreements between special interest groups over a particular issue or cause; or
- 5) a perceived unjust death or injury to a person held in high esteem or regard by a particular segment of society. Prison uprisings are normally the result of perceived injustice by inmates regarding facility rules, operating policies and/or living conditions, or insurrections started by rival groups or gangs within the facility;
- 6) labor disputes where there is a high degree of animosity between the participating parties.

SAGINAW COUNTY PERSPECTIVE

Saginaw County has experienced many labor strikes over the years, and rallies concerning jobs and politics, but these have not lead to any major civil disturbances. Large public gatherings, such as those occurring at sporting events, concerts, and festivals always create the potential for a civil disturbance. Although these gatherings usually occur without a serious incident, law enforcement must maintain a heightened level of vigilance when managing crowds in any situation.

Another site facility with potential for unrest is the Saginaw Regional Correctional Facility located in Tittabawassee Township. This is a state prison located on 142 acres of land. It is comprised of 11 main buildings totaling 304,000 square feet. The facility includes 3 Level II buildings, 3 Level IV buildings, and 1 Level I building along with buildings for education, programs, administration, food service, health care, and maintenance. The facility has demonstrated its ability to restrain prisoners properly, and the chances are high that any problems would be contained with the facility itself.

The County is fortunate enough to have many institutions of higher learning. Universities and Colleges are can be home to many social organizations which have the potential to be a detriment the community. Fortunately, this has not been the case in Saginaw County.

Overall the risk of a civil disturbance is low in Saginaw County.

Hazard Number 11: Infrastructure Failure

The failure of critical public or private utility infrastructure resulting in a temporary loss of essential functions and/or services.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Michigan's citizens are dependent on the public and private utility infrastructure to provide essential life supporting services such as electric power, heating and air conditioning, water, sewage disposal and treatment, storm drainage, communications, and transportation. When one or more of these independent, yet interrelated systems fail due to disaster or other cause, even for a short period of time, it can have devastating consequences. For example, when power is lost during periods of extreme heat or cold, people can die in their homes if immediate mitigative action is not taken. When the water or wastewater treatment systems in a community are inoperable, serious public health problems arise that must be addressed immediately to prevent outbreaks of disease. When storm drainage systems fail due to damage or capacity overload, serious flooding can occur.

These are just some examples of the types of infrastructure failures that can occur, and if immediate mitigative action is not in place all of these situations can lead to disastrous public health and safety consequences. Typically, it is the most vulnerable members of society (i.e., the elderly, children, impoverished individuals, and people in poor health) that are the most heavily impacted by infrastructure failure. If the failure involves more than one system, or is large enough in scope and magnitude, whole communities and possibly even regions can be severely impacted. Refer to the "Dam Failure" and "Oil or Natural Gas Well/Pipeline Accidents" sections for more information on those particular types of infrastructure failure.

SIGNIFICANT INCIDENTS

May 31, 1998 Southern Michigan- Electric Power Infrastructure Failure- On May 31, 1998 a derecho with winds averaging 60 to 90 mph (the highest being 130 mph) raced across lower Michigan, causing about 860,000 customers in Michigan to lose electrical power, and around 2 million across the United States. The 860,000 customers became a new historical record in Michigan, slightly exceeding the number of customers that lost power during the Southern Great Lakes Derecho of 1991. Some would not get power back for 10 days. For Consumers Energy utility company, which serves much of western and middle Lower Michigan, this derecho event was considered to be the most destructive weather event in its history.

August 2003- Northeastern United States- Electrical Blackout- On Aug. 14, 2003, most residents of the northeast United States and Ontario were hit by the largest blackout in North America's history. Electricity was cut to 50 million people, bringing darkness to customers from New York to Michigan. Some essential services remained in operation in most of these areas, although backup generation in some cities was not up to the task. The phone systems remained operational in most areas; however, the increased demand by people phoning home left many circuits overloaded. Water systems in several cities lost pressure, forcing boil-water advisories. Cellular telephones experienced significant service disruptions as their transmission towers were overloaded with a sudden increase in the volume of calls. Television and radio stations mostly remained on the air, with the help of backup generators, or by relaying their broadcasts through the Grimsby transmission towers, which were online throughout the blackout. Most interstate rail transportation in the United States was shut down, and the power outage's impact on international air transportation and financial markets was widespread. Meanwhile, the reliability and vulnerability of all electrical power

grids were called into question. Total costs of the blackout have been estimated at between 4 and 10 billion dollars.

Ju ly 2014 - Covenant Hospital Gas Leak- A gas leak in the 1000 block of Houghton Ave in Saginaw caused the evacuation of two Covenant HealthCare buildings. Emergencies were diverted to St. Mary's and patients within the Emergency Care Center were taken to another unit on the Covenant campus. Consumers Energy and Saginaw City Fire responded at the scene, there were no injuries and the issue was resolved. There were approximately 235 customers that were impacted by the gas shut off, and Consumers Energy had to visit each customer to restore service to their house.

SAGINAW COUNTY PERSPECTIVE

Many cases of infrastructure failure result from utility failures and weather events. Failure of electrical power infrastructure in Michigan has mostly been the result of severe weather incidents such as winds, snow, or ice. Temporary loss of electrical power because of severe weather conditions is not uncommon, but because duration of outages vary so widely, accurate loss of power in terms of frequency can only be estimated based on the frequency of severe weather events. Because larger storms could cause more severe damage to the power infrastructure, it is important that facilities which require power for essential and life-sustaining services maintain long-lasting power back-ups.

As the County's infrastructure system continues to age faster than Municipal and State resources are available to update it, one challenge for Saginaw County will be working with a system that could have the possibility of more frequent failures, which will have negative effects on all populations, especially the elderly, handicapped, and children, as well as schools and hospitals. These people and facilities must be given special consideration when these infrastructure failures which have the possibility to tax or even overwhelm the emergency response capabilities of the area occur.

Hazard Number 12: Oil and Natural Gas Pipeline Accidents

An uncontrolled release of oil or natural gas, or the poisonous by-product hydrogen sulfide, from a pipeline.

Most Vulnerable Jurisdictions: Albee Township, Brant Township, Birch Run Township, Blumfield Township, Bridgeport Charter Township, Buena Vista Charter Township, Carrollton Township, City of Saginaw, Frankenmuth Township, Fremont Township, James Township, Jonesfield Township, Lakefield Township, Richland Township, Saginaw Charter Township, Spaulding Township, St. Charles Township, Taymouth Township, Thomas Township, Tittabawassee Township, Village of Birch Run.

HAZARD DESCRIPTION

Gas and oil in Michigan is imported by five interstate pipeline companies that have access to the major natural gas producing regions in North America. Michigan cycles more natural gas through its storage system than any other state. Michigan's gas and petroleum networks are highly developed and extensive, representing every sector of the two industries – from wells and production facilities, to cross-country transmission pipelines that bring the products to market, to storage facilities, and finally to local distribution systems. Even though pipelines are by far the safest form of transportation for these products, the threat of fires, explosions, ruptures, and spills nevertheless exists. Petroleum and natural gas pipelines can leak or erupt and cause property damage, environmental contamination, injuries, and even loss of life.

The clear majority of pipeline accidents that occur in Michigan are caused by third party damage to the pipeline, often due to construction or some other activity that involves trenching or digging operations. In addition to these hazards, many of Michigan's oil and gas wells contain extremely poisonous hydrogen sulfide (H₂S) gas. Hydrogen sulfide is a naturally occurring gas mixed with natural gas or dissolved in the oil or brine and released upon exposure to atmospheric conditions. Over 1,300 wells in Michigan have been identified as having H₂S levels exceeding 300 parts per million (ppm). At concentrations of 700 ppm, as little as one breath of hydrogen sulfide can be deadly. Although hydrogen sulfide can be detected by a "rotten egg" odor in concentrations from 0.03 ppm to 150 ppm, larger concentrations paralyze a person's olfactory nerves so that odor is no longer an indicator of the hazard. Within humans, small concentrations can cause coughing, nausea, severe headaches, irritation of mucous membranes, vertigo, and loss of consciousness. Hydrogen sulfide forms explosive mixtures with air at temperatures of 500 degrees Fahrenheit or above, and is dangerously reactive with powerful oxidizing materials. Hydrogen sulfide can also cause the failure of high-strength steels and other metals. This requires that all company and government responders be familiar not only with emergency procedures for the site, but also with the kinds of materials that are safe for use in sour gas response.

SIGNIFICANT INCIDENTS

Ju ly 17, 1991 Tittabawassee Township- Workers were removing a corroded segment of a Consumers Power Company's 10-inch-diameter transmission line pipeline. As a segment of the pipeline was being removed, natural gas at 360-psig pressure exerted about 12 tons of force on an adjacent closed valve (H-143), causing it and a short segment of connected pipe to move and separate from an unanchored compression coupling. The force of the escaping gas killed one worker, injured five other workers, and collapsed a steel pit that housed valve H-143. Fortunately, there was no explosion from the natural gas leak.

December 13, 2008 Maple Grove Township- A natural gas leak caused an explosion and fire that burned down a Saginaw County home. Two residents escaped without injury. Freezing winds, icy conditions, poor accessibility, and a lack of water made it difficult for neighborhood fire fighters to stop the blaze. The gas was shut off at the meter and a 3,000-gallon tanker was sent in to help eliminate the hazard.

SAGINAW COUNTY PERSPECTIVE

According to the National Pipeline Mapping System, there are several gas transmission pipelines and hazardous liquid pipelines which run through 21 jurisdictions in the County. The majority of the gas pipelines run horizontally through the whole of the County and several around and inside the City of Saginaw. The hazardous liquid pipelines run through Tittabawassee Township, Blumfield Township, Frankenmuth Township, Birch Run Township, and the Village of Birch Run. Maps showing the location of lines are not permitted to be reprinted to protect the location of lines and deter sabotage.

Because there are pipelines that traverse Saginaw County, there is a possibility of an accident. For the general public, the most relevant aspect of this hazard, is to be aware of the signs that may indicate a gas leak in one's own home or workplace, install appliances in your home or workplace to monitor gas levels, and to use the Miss Dig phone service whenever any sort of excavation, construction, or digging activities are being considered that may disturb the ground. The Miss Dig service can advise about whether a given location requires special treatment due to the presence of any type of underground infrastructure, including pipelines. Because the locations are unknown, obtaining knowledge before taking action is the most effective way for the public to effectively deal with this hazard. The contact information for the Miss Dig is 811 or 1-800-482-7171, and more information can be found www.missdig.org. If there ever is an accident in the County, alert authorities who will have proper channels to contain spills.

Hazard Description 13: Drought

A water shortage caused by a deficiency of rainfall, generally lasting for an extended period of time.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

Drought is a normal part of the Michigan climate, and of virtually all other climates around the world – including areas with high and low average rainfall. Drought differs from normal arid conditions found in low rainfall areas, in that aridity is a permanent characteristic of that climate. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. The severity of a drought depends not only on its location, duration, and geographical extent, but also on the water supply demands made by human activities and vegetation. This multifaceted nature of the hazard makes it difficult to define a drought and assess when and where one is likely to occur.

Drought differs from other natural hazards in several ways. First, it is difficult to determine the exact beginning and end of a drought, since its effects may accumulate slowly and linger even after the event is generally thought of as being over. Second, the lack of a clear-cut definition of drought often makes it difficult to determine whether one exists, and if it does, its degree of severity. Third, drought impacts are often less obvious than other natural hazards, and they are typically spread over a much larger geographic area. Fourth, due primarily to the aforementioned reasons, most communities do not have in place any contingency plans for addressing drought. This lack of pre-planning can greatly hinder a community's response capability when a drought does occur.

Droughts can cause many severe impacts on communities and regions, including: 1) water shortages for human consumption, industrial, business and agricultural uses, power generation, recreation and navigation; 2) a drop in the quantity and quality of agricultural crops; 3) decline of water quality in lakes, streams and other natural bodies of water; 4) malnourishment of wildlife and livestock; and 5) increase in wildfires and wildfire-related losses

PREVIOUS EVENTS

Location	Date	Deaths	Injuries	Property Damage	Crop Damage
	7/1/2001	0	0	0	0
	9/1/2002	0	0	0	0

SAGINAW COUNTY PERSPECTIVE

It is estimated that the County, like the State, may be dealing with drought conditions about 1 out of every 4 or 5 years (although some drought conditions may extend across more than one year). With a more serious drought occurring once every 15 years. The potential impacts appear to be most severe for the area's agricultural industry, with the past decade's drought events causing millions of dollars of crop losses.

Methods for mitigation drought damage involve stockpiling water in reservoirs and establishing a means of distribution for that water including pipelines and irrigating structures. In addition, drought has been seen to increase the risks of wildfire occurrences and severity. In some cases, rural areas may rely on certain natural bodies of water for adequate supplies when fighting fires, and such

resources may have been drastically reduced to the effects of drought. Some alternative means of water supply or supplementation should also be considered for such circumstances.

Hazard Number 14: Wildfires

An uncontrolled fire in grasslands, brush lands or forested areas.

Most Vulnerable Jurisdictions: Brant Township, Bridgeport Charter Township, James Township, Kochville Township, Marion Township, Saginaw Charter Township, Spaulding Township, St Charles Township, Swan Creek Township, Thomas Township, Zilwaukee Township

HAZARD DESCRIPTION

Forests cover approximately 49% (18.2 million acres) of Michigan's total land base. These vast forests provide Michigan with the largest state-owned forest system in the United States. In addition, Michigan has the fifth largest timberland acreage, with 4.2 million acres of softwoods and 13.1 million acres of hardwoods. That vast forest cover is a boon for both industry and recreation. However, it also makes many areas of Michigan highly vulnerable to wildfires. On lands under the jurisdiction of the MDNR, 17,449 wildfires, which burned 152,228 acres were documented between 1981 and 2010. This equates to an average of 583 fires a year, which burn 5,074 acres per year.

Although Michigan's landscape has been shaped by wildfires, the nature and scope of the wildfire threat has changed. Michigan's landscape has changed substantially over the last several decades due to wild land development, the potential danger from wildfires has become more severe. Increased development in and around rural forested areas has increased the potential for loss of life and property from wildfires. There are simply not enough fire suppression forces available in rural areas to protect every structure from wildfire.

Contrary to popular belief, lightning strikes only cause 2% of wildfires in Michigan. The rest of the wildfires are caused by human activity. Outdoor burning is the leading cause of wildfires in Michigan. Most Michigan wildfires occur close to where people live and recreate, which puts both people and property at risk. The immediate danger from wildfires is the destruction of timber, property, wildlife, and injury or loss of life to persons who live in the affected area or who are using recreational facilities in the area.

PREVIOUS EVENTS

According to the Michigan Hazard Analysis document, since 1981 there have been a total of 20 wildfires in the MDNR jurisdictions in Saginaw County, burning a total of 474 acres.

SAGINAW COUNTY PERSPECTIVE

Although Michigan is a vast resource of natural land which is at great risk to wildfires, that is not necessarily true of Saginaw County. There is not an extensive history of wildfires causing large impacts upon the population of the County. Since 1981, on average, there have been an average of one wildfire per year, on average burning 16 acres per year. The most significant hazards in the County occur in the state and federally managed land.

Even though this is not a significant threat to the County, various warnings have occasionally been given to alert residents and agencies to the possibilities of wildfire effects, and to advise caution so as not to increase the risk of accidental events through carelessness or ignorance. The awareness of the potential for wildfires should be maintained and enhanced, and those property owners situated near natural areas should consider whether their property meets the “Firewise” criteria for wildfire safety, as described as the Firewise website: www.firewise.org. The County has a good network of fire stations and fire control procedures, as well as a small percentage of woods. Therefore, while wildfires are a risk, they are not so important compared to other Counties in the north.



Hazard Number 15: Oil and Natural Gas Well Accidents

An uncontrolled release of oil or natural gas, or the poisonous by-product hydrogen sulfide, from production wells.

Most Vulnerable Jurisdictions: Albee Township, Birch Run Township, Blumfield Township, Chesaning Township, City of Saginaw, Frankenmuth Township, Fremont Township, Jonesfield Township, Lakefield Township, Saginaw Charter Township, St Charles Township, Taymouth Township, Village of Birch Run

HAZARD DESCRIPTION

Oil and natural gas is produced from fields scattered across 63 counties in the Lower Peninsula. Since 1927 to 2009, 56,525 oil and natural gas wells have been drilled in Michigan, of which roughly half currently produce oil and gas. To date, Michigan wells have produced approximately 1.4 billion barrels of crude oil and 6 trillion cubic feet of Natural Gas.

The petroleum and natural gas industry is highly regulated and has a fine safety record, but the threat of accidental releases, fires, and explosions still exists. Michigan is both a major consumer and producer of natural gas and petroleum products. According to the Michigan Public Service Commission (MPSC), approximately 20% of the natural gas consumed in Michigan is produced within the State. The remaining 80% is imported by six interstate pipeline companies that have access to the major natural gas producing regions in North America. Michigan has the largest underground natural gas storage capacity of any state, and cycles more natural gas through its storage system than any other state. Michigan ranks 13th in the nation in production of natural gas, and consumes 760 billion cubic feet per year. These figures underscore the fact that vast quantities of natural gas are extracted from, transported through, and stored in the State, making many areas vulnerable to petroleum and natural gas emergencies. Michigan's gas and petroleum networks are highly developed and extensive.

PREVIOUS EVENTS

December 13, 2008- Maple Grove Township- a natural gas leak caused an explosion and fire which burned down a home. Two residents escaped without injury, it was difficult for firefighters to stop the blaze, but gas was shut off at the meter and 3,000-gallon tanker was sent in to help eliminate the hazard.

Fortunately, there have not been any additional significant oil and gas well accidents in the County.

SAGINAW COUNTY PERSPECTIVE

According to the Michigan Hazard Mitigation Plan, as of 2012, Saginaw County has a total of 54 registered oil and gas wells. Not all those registered wells are necessarily active in production, and many probably do not pose any potential threat. The DNR has detailed mapping information highlighting the location of well, storage sites, and other detailed information pertaining to this hazard. The County doesn't have a particularly large number of such wells, compared to many other counties throughout Michigan. However, if there is a concern about the vulnerability of a specific location or the status of a well, the Office of Geological Survey at the Michigan Department of Environmental Quality can be contacted to obtain more site-specific information about the location and status of a particular well.

Hazard number 16: Dam Failure

The collapse or failure of an impoundment resulting in downstream flooding.

Most Vulnerable Jurisdictions: Albee Township, Burt, Chesaning Township, St. Charles Township, Village of St. Charles, Village of Chesaning

HAZARD DESCRIPTION

Dam failure can result in loss of life and extensive property or natural resource damage for miles downstream. Dam failures occur not only during flood events, which may cause overtopping of a dam, but also because of poor operation, lack of maintenance and repair, and vandalism. Such failures can be catastrophic because they occur unexpectedly, with no time for evacuation. There are 927 dams in the state of Michigan and about 161 of them are regulated by Part 315 of the Dam Safety Program.

Dams are regulated when they are over 6 feet in height, and when over 5 acres is impounded during the design flood. Inspection reports are also required every three to five years for dams based on their hazard potential rating. The hazard potential rating is determined by the Dam Safety Program, and is based on an assessment of the potential for loss of life, property damage, and environmental damage downstream in the event of dam failure or failure of appurtenant works. Hazard potential rating is not based on the structural or hydraulic condition of the dam. The definitions for the hazard classification as specified in the state's Dam Safety Statute, Part 315, Dam Safety, of Act 451, P.A. 1994 are as follows:

“Low hazard potential dam” means a dam located in an area where failure may cause damage limited to agriculture, uninhabited buildings, structures, or Township or County roads, where environmental degradation would be minimal, and where danger to individuals is slight or nonexistent.

“Significant hazard potential dam” means a dam located in an area where its failure may cause damage limited to isolated inhabited homes, agricultural buildings, structures, secondary highways, short line railroads, or public utilities, where environmental degradation may be significant, or where danger to individuals exists.

“High hazard potential dam” means a dam located in an area where a failure may cause serious damage to inhabited homes, agricultural buildings, campgrounds, recreational facilities, industrial or commercial buildings, public utilities, main highways, Class I carrier railroads, where environmental degradation would be significant, or where danger to individuals exists with the potential for loss of life. Part 315 of the Dam Safety Program also requires that dam owners prepare and keep current, Emergency Action Plans (EAP) for all high hazard and significant hazard potential dams. An EAP is a plan developed by the owner that establishes notification procedures for its departments, public off-site authorities, and other agencies of the emergency actions to be taken before and following an impending or actual dam failure. After the events of September 11th, it became evident that dams could be attractive targets to terrorists. Dam failures could not only cause enormous loss of life, property, and infrastructure damage, but could have residual long-lasting social, economic, and public health impacts.

PREVIOUS EVENTS

Fortunately, there have not been any significant dam failures in the County.

SAGINAW COUNTY PERSPECTIVE

The National Dam Inventory reports 13 dams in Saginaw County.

The Michigan Department of Natural Resources has information about various dams within Saginaw County (based upon the National Inventory of Dams) and all registered dams have been evaluated according to the amount of development downstream. Of the dams, dikes, and levees within Saginaw County, all of them except one have been classified as low hazard potential. The one exception is the Misteguay Creek 4 dam (in the northeast quadrant of Section 3, Township 6 North, Range 10 East) for which an Emergency Action Plan (EAP) was required and was last updated in October of 2014. The EAP has considered preventative activities to protect and maintain the dam, the possibilities of what might happen to downstream areas because of dam failure, and what sort of response may be needed in the case of each event. The following list are the additional jurisdictions in the County which have dikes or levees: Albee Township, Spaulding Township, Taymouth Township, Bridgeport Charter Township, and Village of St. Charles. If Boyce Dam in Midland County on Stanford Lake, were to fail, then Saginaw County could be inundated.

In the event of flooding, which is a fairly common occurrence in the County, these structures pose a risk of failure. Failure of the Misteguay Creek Dam could have significant consequences on the most vulnerable jurisdictions listed above. Inactive dams also pose a threat, as an out of use dam still has the potential to break. In the case of all active dams, proper maintenance and monitoring is key to avoiding major hazards.

This hazard has been rated low by Saginaw County because the one dam that requires planning is managed by and EAP. The EAP is in place to cover the possibility of failure as a required precaution due to the existence of development downstream from the dams location on the Misteguay Creek. While there is a possibility of damage, dam failure compared to other hazards is low. This plan calls for mitigation strategies, and the high hazard potential dam already has an action plan in place.

Potential Consideration: Fog

Fog forms near the ground when water vapor condenses into tiny liquid water droplets that remain suspended in the air. Many different processes can lead to the formation of fog, but the main factor is saturated air. Two ways that air can become saturated is by cooling it to its dew point temperature or by evaporating moisture into it to increase its water vapor content. Although fog alone, is not a hazard because it does not actually apply destructive forces, the interaction between humans and fog can be a dangerous situation, sometimes resulting in disastrous consequences. It must be noted, however, that freezing fog, (a hazard for which the National Weather Service does issue special statements) can cause direct harm by causing slickness on roadways and thus leading to serious transportation accidents.

Fog can be very dangerous because it reduces visibility. Although some forms of transport can penetrate fog using radar, road vehicles must travel slowly and use more lights. Localized fog is especially dangerous, as drivers can be caught by surprise. Fog is particularly hazardous at airports, where some attempts have been made to develop methods (such as using heating or spraying salt particles) to aid fog dispersal. These methods have seen some success at temperatures below freezing.

SAGINAW COUNTY PERSPECTIVE

Although not necessarily perceived as being a hazard of disaster or emergency level concern, events from the previous decades provide some consideration for the transportation related effects fog can produce. Thus, as a supplement to the transportation accident hazard already identified, fog is added here for additional consideration in the future.



Potential Consideration: Invasive Species

A species that has been introduced by human action to a location where it did not previously occur naturally, becomes capable of establishing a breeding population in the new location without further intervention by humans, and becomes a pest by threatening local biodiversity and causing human health impacts, significant economic costs, and/or harmful ecological effects.

Most Vulnerable Jurisdictions: All

HAZARD DESCRIPTION

An invasive species is defined as a species that is: (1) non-native (alien) to the ecosystem under consideration and (2) whose introduction causes, or is likely to cause economic or environmental harm, or harm to human health. Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary consideration here as a means of invasive species' introduction (thus distinguishing the situation from natural shifts in the distribution of species). Nationally, the current environmental, economic, and health costs of invasive species were estimated as exceeding the costs of all other natural disasters combined.

Invasive species can be transported in many ways, such as on animals, vehicles, ships, commercial goods, produce, and clothing. Although non-native species are the foundation of U.S. agriculture, and also are used to prevent erosion, to provide fishing and hunting opportunities, and as ornamental plants and pets, occasionally a non-native organism flourishes too well and causes unwanted economic, ecological, or human health impacts. The terms "invasive" or "nuisance" are used to describe such species. New environments may affect rates of reproduction, susceptibility to disease, and other features that affect a species' success. Consequently, a plant or animal that causes little damage to agriculture or natural ecosystems in one area may cause significant problems in another. Certain nonnative species are very successful in their new habitats because they out-compete native plants or animals and have no natural controls (predators, diseases, etc.) in the new area. At least 200 well-known, high-impact, non-native species presently occur in the United States. They range from the European gypsy moth and emerald ash borer to crabgrass, dandelions, and German cockroaches, annually costing well over a billion dollars to control. Some even pose human health risks. Others, like the zebra mussel, threaten widespread disruption of ecosystems and the displacement or loss of native plants and animals.

Although invasive species, in most cases, primarily cause environmental damage and degradation, there are situations in which serious threats to public health, safety, and well-being can occur due to animal disease or plant/animal infestations. For example, certain diseases could wipe out large segments of an animal population, creating a potentially serious public health emergency and the need to properly (and rapidly) dispose of the dead animal carcasses.

Similarly, a widespread insect infestation, such as that of the Emerald Ash Borer, can create serious public safety threats (especially in densely populated urban areas) due to dead and dying trees being fire prone (because of their dry, brittle nature) or to partial/total collapse due to high winds or ice/snow accumulation. The falling trees or limbs can also bring down power lines, cause damage to public and private structures, and cause injuries or even death.

Although not necessarily perceived as being a hazard of disaster or emergency-level concern, invasive species can wreak havoc on a region, and most people won't notice until the damage is already done. This section is presented as a special analysis, rather than a full assessment, for many reasons, most notably: (a) there is a very wide variety of invasive species and diseases to be concerned with, including new and emerging threats; (b) the characteristics and management of these threats are dynamic and frequently change; and (c) there are many existing plans, programs, and resources already dedicated to addressing these threats. There is no Saginaw County assessment for these threats. In short, this section is to raise awareness of these threats and their potential implications, rather than to duplicate existing efforts or quantify vulnerabilities.

Potential Consideration: Terrorism

Terrorism is described as activities that involve violent or life-threatening acts that are a violation of the criminal laws of the United States and appear to be intended to intimidate or coerce a civilian population, to influence the policy of a government by intimidation or coercion, or to affect the conduct of a government by mass destruction, assassination, or kidnapping. Terrorism is used to achieve political goals by inciting fear and uncertainty in a large population.

Terrorists use fear as a weapon to achieve their goals. Often terrorists are small groups which could never achieve their political goals, so they use fear techniques which effect a small population, but are then covered by the media and thus are able to cause negative effects across the whole country. There are both, foreign and domestic terrorists, sometimes they are working toward the same goals, however other times the domestic groups have very different political agendas.

There are numerous ways to carry out a terrorist attack and the specific effects of the attack, and how law enforcement respond often depend on the tools used. These tools could include: explosives, incendiaries, airline attacks, shooting attacks, chemical weapons, biological weapons, radiological weapons, nuclear weapons, sabotage, and cyber-attacks.

Shootings

One specific type of terrorist attack and criminal activity that is becoming more common is mass shootings. The DHS describes these individuals as active shooters, and they are individuals who are actively engaged in killing or attempting to kill people in a confined and populated area. These shooters more often than not use firearms, and there is no pattern or method the selection of victims.

Firearms can be used to target a specific individual or to attack many people in a crowded place. Shootings at schools and workplaces are among the most common types of major criminal attack. An important drawback of firearms, in mass shooting is that the attacker is not likely to get away. Attackers can either fire at a large group at close range or a sniper type attack can occur from a distance. Countermeasures against shooting are difficult, because attackers usually choose unprotected public areas. Appropriate security measures and effective lock-down training can limit casualties in high-risk buildings such as schools. Rapid response by well-trained law enforcement officers and emergency medical personnel is also important.

Cyber Attack

Cyber-attacks are a new category of terrorism and criminal threats, which involve the use of computers, electronic devices, and or the internet to attack computer systems. Examples of cyber-attacks include computer viruses, denial-of-service attacks, and hacking attacks. These attacks may be used as part of extortion schemes. To undermine public confidence, as a form of technological vandalism, or military sabotage. Early cyber-attacks were conducted by amateur hackers, more

recently, well organized groups of profit driven cyber-attackers have developed. These groups are able to attack systems on a global basis. Other possible cyber-attackers include hacktivists which are criminals motivated by a political cause. These attacks could be used to infiltrate critical systems within the government including data files, law enforcement, water treatment facilities, electrical grids or utility lines.

The State has several initiatives in place to prepare for cyber-attacks and to educate the local governments on how to best protect themselves. FEMA considers early detection and prevention the best way to avoid these attacks. Therefore, local governments should work to ensure their information is secure and have plans in place to prepare for any breaches in security, and the after effects of those attacks.

SAGINAW COUNTY PERSPECTIVE

Terrorist events have not been reported in Saginaw County. The risk of international terrorist event occurring in Saginaw County is low, however the risk of a domestic terrorist event has a slightly higher possibility of occurrence. There are many training programs emergency management personnel can participate in, and the state and federal government have many plans and programs in place in the event of an attack. The County has similar concerns pertaining to terrorism as the surrounding jurisdictions. As well as strategies to protect from cyber threats.

Disaster Declarations

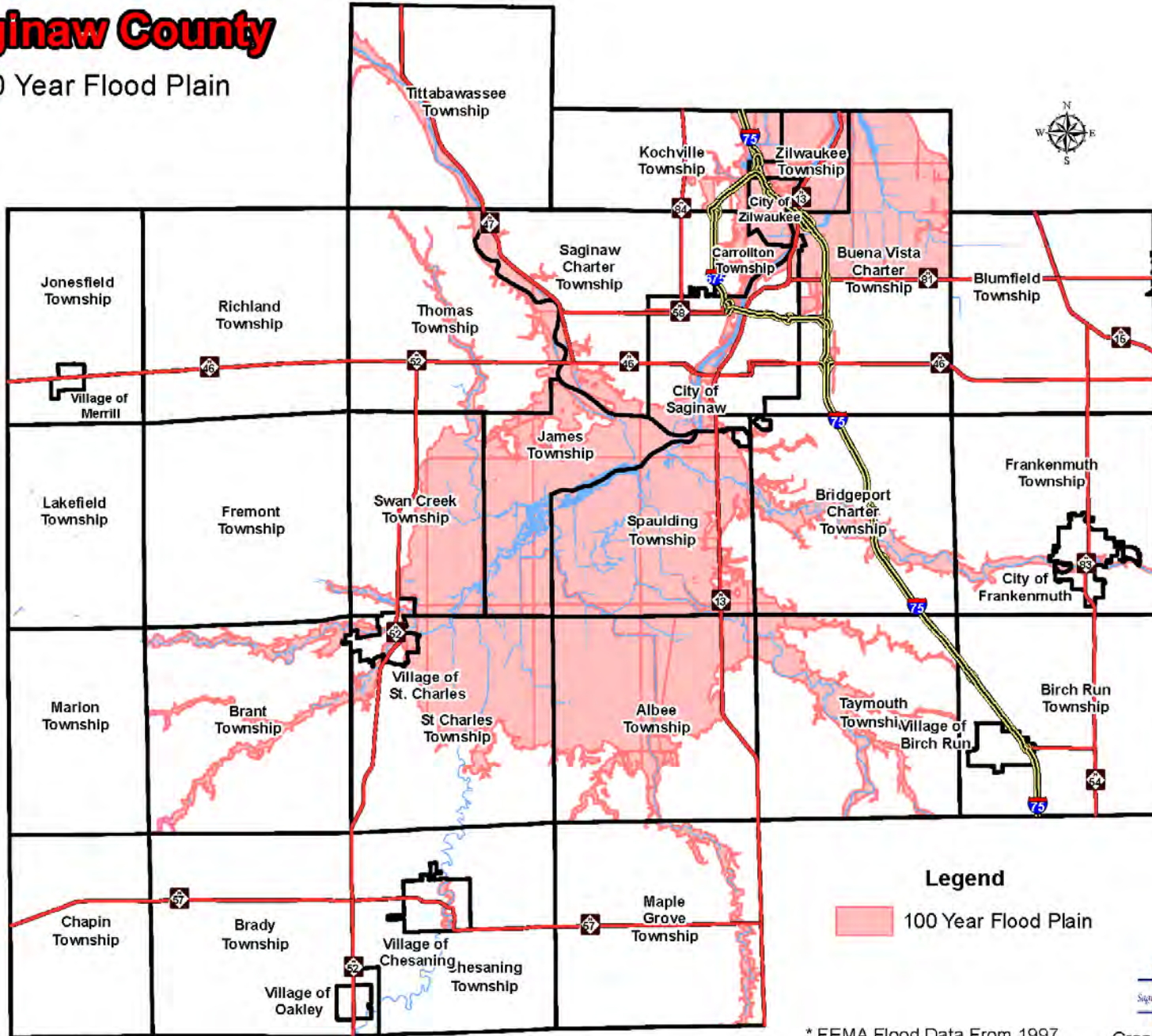
The following charts are a list of the Governors and Presidential Disaster Declaration Days for Saginaw County.

Presidential Declaration		
Date	Event	Type
04/16/2013 - 05/14/2013	Flooding	Major Disaster
7/14/2008	Flooding, Thunderstorm	Major Disaster
9/7/2005	Hurricane Evacuation	Major Disaster
05/20/2004 - 06/08/2004	Thunderstorms, Flooding	Major Disaster
12/11/2000 - 12/31/2000	Blizzard, Snowstorm	Emergency
5/31/1998	Thunderstorms, Severe Winds	Major Disaster
7/2/1997	Tornados, Flooding	Major Disaster
06/21/1996 - 07/01/1996	Rainstorms, Flooding, Tornado	Major Disaster
09/10/1986 - 09/19/1986	Flooding	Major Disaster
09/05/1985 - 09/06/1985	Flooding	Major Disaster
01/26/1978 - 01/27/1978	Blizzard, Snowstorm	Emergency
03/20/1976 - 03/27/1976	Ice Storm, Tornado	Major Disaster
08/20/1975 - 09/06/1975	Rainstorms, Severe Winds, Flooding	Major Disaster
04/18/1975 - 04/30/1975	Flooding, Rain, Tornados	Major Disaster
4/12/1973	Severe Storms Flooding	Major Disaster

Governor's Declaration		
Date	Event	Type
05/07/2013 - 06/18/2013	Flooding	Disaster
6/13/2008	Thunderstorms	Emergency
9/4/2005	Hurricane Evacuation	Disaster
6/3/2004	Thunderstorms, Flooding	Disaster
6/3/1998 - 6/5/1998	Thunderstorms, Severe Winds	Disaster
7/3/1997 - 7/6/1997	Tornados, Flooding	Disaster
6/21/1996 - 6/26/1996	Rainstorms, Tornados, Flooding	Disaster
9/12/1986 - 9/15/1986	Flooding, Heavy Rain	Disaster
10/28/1986	Flooding, Heavy Rain	Disaster
2/21/1986	Great Lakes Flooding, Wave Action	Disaster
9/10/1985	Heavy Rain, Flooding	Disaster
4/13/1985	Great Lakes Flooding, Wave Action	Disaster
1/26/1978	Blizzard, Snow Storm	Disaster

Saginaw County

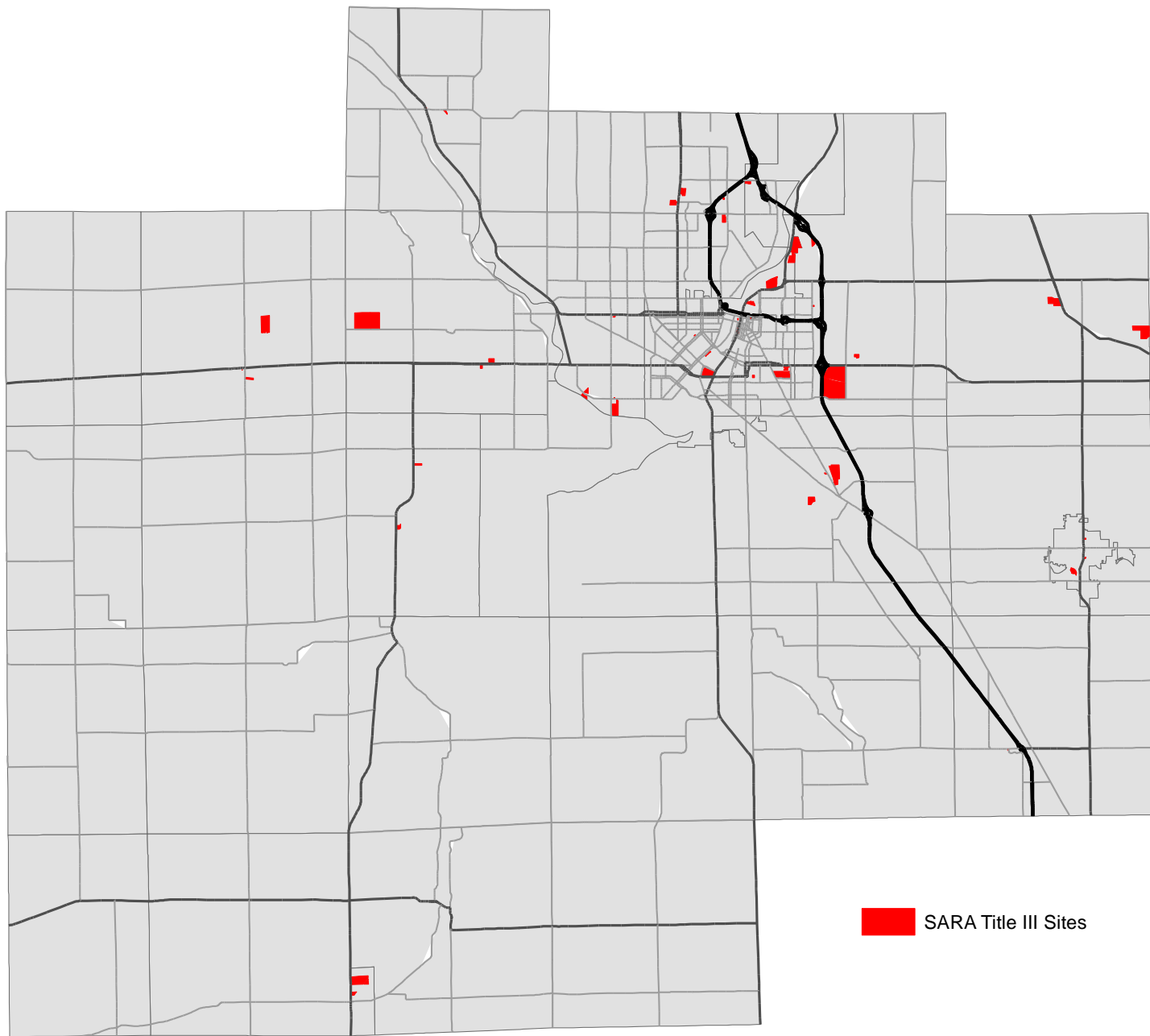
100 Year Flood Plain



* FEMA Flood Data From 1997



MAP 17 – SARA TITLE III SITES



Goals and Objectives

This section establishes the goals and objectives that will guide hazard mitigation efforts in Saginaw County. The goals and objectives, along with the hazard analysis and mitigation strategies, are the heart of this document and the basis of a solid community plan. The County can encourage local units of government to demonstrate commitment to hazard mitigation activities by including these goals and objectives, and mitigation strategies in other planning documents, such as local Master Plans and Capital Improvement Plans. Each jurisdiction has been provided with a sample resolution for adoption, and included in that resolution is a statement that communities will work to integrate these strategies into their other planning mechanisms.

The following goals are general guidelines that explain what a community would like to accomplish. These goals are long term and reflective of the broad vision for this hazard mitigation plan. However, objectives, are specific strategies or implementation steps set in place to accomplish the identified goals. As a general rule, objectives carry out the purpose of a goal and are measurable results a community can work toward.

It is critical that an effective County wide plan reflects the cooperation and commitment of all participating local jurisdictions to ensure the maximum positive effect on all communities and the County as a whole.

These goals were developed by contributions from both the SCEPC and the MJC. The SCEPC conducted the primary review to determine what had been accomplished since the last plan, and therefore which goals were obsolete, needed updated to match current conditions in the County, and what goals needed to be added to the plan. Then SCEPC determined the first draft of the new goals and objectives for the 2016 update of this plan. Next, the Multi-Jurisdictional Committee was asked to review and give comments on the updated goals and objectives from the SCEPC. Their comments on the past goals were also readily welcomed. The results of this process can be found below in the Goals and Objective Sections of this document.

Since the original creation of this plan, the County and local jurisdictions have made significant strides in the hazard mitigation goals, objectives, and mitigation strategies set forth in the past plan. To continue this trend, the updated document incorporated those changes, and built upon them with new strategies and priorities set forth by each individual jurisdiction, which highlight the new goals the County and local jurisdictions plan to accomplish in the upcoming years. This plan is a living document that is expected to continue to change over time, reflecting new development patterns, priorities, and progress within the participating jurisdictions. With each update, other components of the plan, including hazard rankings and mitigation strategies will also continue to evolve.

Saginaw County's Hazard Mitigation Goals:

1. Protect public health and safety, and prevent loss of life
2. Minimize damage to public and private property
3. Maintain essential public services
4. Enhance early warning systems
5. Increase and expand public awareness

Objectives, in furtherance of those goals:

1. Enhance coordination between response agencies and jurisdictions
2. Continue to increase warning siren coverage and weather radio availability
3. Integrate hazard mitigation planning into local land use planning
4. Provide resources to ensure provision of essential services
5. Provide opportunities for public education
6. Determine if additional storm shelters are needed. If so work to provide the infrastructure for the shelters.
7. Enhance warning systems and notifications for special populations
8. Promote and encourage Saginaw County Emergency Alert System.
9. Host neighborhood meetings to include the public in the hazard mitigation process.
10. Educate the public on what infrastructure is in place and what it means for emergencies.
11. Work with telephone, cable, TV, internet service providers, and electric utility companies to encourage proper maintenance of infrastructure.

These goals and objectives can be met through various mitigation strategies. The purpose of a mitigation strategy is to reduce or eliminate the amount of harm that could be caused in the future by a hazard. The following list delineates the five basic hazard mitigation approaches that will be used to accomplish the goals and objectives listed above:

- A. Modify a hazard by removing or eliminating it.
- B. Segregate a hazard by keeping it away from people.
- C. Preventing or eliminating development – keep people away from the hazard through land use controls such as zoning.
- D. Altering design or construction. This approach provides engineering solutions for at-risk structures.
- E. Early warning and public education – keeps the public well informed of potential hazards and ensures that early warning and communication systems are available.

For the plan to remain a relevant document, the goals and objective should be periodically revisited and updated to reflect changing conditions in the County. The revision should include the addition of new goals and the elimination of completed objectives or goals. The SCEPC will be in charge of reviewing the plan throughout its life to ensure effectiveness.

Mitigation Strategies

This section identifies proposed strategies that can be implemented to mitigate the hazards identified in this plan. Each jurisdiction within Saginaw County was asked to identify strategies (actions) that would be applicable to their jurisdiction. To identify those strategies, each jurisdiction was asked to complete a “Mitigation Strategy Worksheet”

Methodology

The mitigation strategies worksheet sent to each community was compiled from the previous 2008 strategies. The communities were asked what had been accomplished in the past several years, what still needed to be done, and which strategies needed to be tweaked or eliminated for this new update. The strategies were reviewed by the SCEPC and it was determined that the past methodology and rationale for determining the strategies could be applied to this update as well. The SCEPC also decided to include another priority determination level in addition to the original three of Top, High and Medium, this update also includes a Low option.

The strategies in the worksheet are broken down into sections each representing one of the major hazards previously identified and described in this plan. Because communities were asked to personalize their worksheet to the specific community needs, the completed document may not include all the original strategies that were sent out or may have new strategies added only to that specific jurisdiction. Additionally, some communities eliminated an entire hazard from their worksheets.

The worksheet asked the communities to identify the following categories:

1. Applicable hazards and strategies
2. Strategy priority
3. Schedule for completion
4. Lead agency for each strategy

The following are explanations for the priority rankings that can be found in the Mitigation Strategies documents:

- **Top:** Mitigation actions for which the County and Local needs appear to be the greatest, due to the threat and likelihood of the hazard affecting the community.
- **High:** Mitigation actions for which the County and Local needs are present, and important, but address situations of comparatively lower threat and likelihood.
- **Medium:** Mitigation actions for hazards that pose lesser threats and likelihood of affecting the community, but that may still be implemented in cases where it is relatively easy to do so.
- **Low:** Mitigation actions for hazards that are unlikely to affect the community, but may still be implemented in cases where it is easy to do so.

Community Mitigation Strategies

Appendix B contains a completed mitigation strategies document for each participating community. The example worksheet that was sent to each community is also included in the beginning of Appendix B. That original worksheet looks different from the completed documents because the information from the 2008 plan was included for a reference. The final documents for each community only includes the strategies they outlined for the 2016 update of this hazard mitigation plan. As an ongoing high priority, the Board of Trustees/City Council/Village Council will integrate, where appropriate, these mitigation

strategies into existing authorities, policies, programs, plans, and resources. Such integration will reduce the potential losses that were identified in the risk assessment section. Future actions to expand and improve hazard mitigation efforts in the community shall include a review of the Master Plan, the zoning ordinance, and any capital improvements plans, and if necessary, update these documents to address to hazard mitigation efforts.

Analysis and Funding

When considering the mitigation strategies to include in this update, the issue of the relative ease of implementation is an important one, and it is necessary to describe some of the more clear-cut means by which the priorities of these strategies were determined. These strategies were considered according to evaluation criteria as follows:

- A general assessment of the political acceptability of each mitigation strategy
- The technical feasibility of the proposed actions
- The availability of appropriate staff or agencies to take the lead in implementing selected strategies
- Compatibility with this plan's goals
- The absence of serious objections from the planning feedback process

In addition, for those projects where implementation is contingent upon the outlay of funds for initiation or completion, consideration should give to the availability of federal grant sources for hazard mitigation (including the Hazard Mitigation Grant Program, the Pre-Disaster Mitigation Program, and possibly the Repetitive Flood Claims program). After formal submission and acceptance of a project application, these federal grant programs can provide the majority of funding needed to implement mitigation actions that pass federal criteria. The list of mitigation actions in this plan does not mean that any funding has been committed by either federal, state, or local agencies. Rather, projects listed here, are important enough to eventually have formal applications for funding from sources outside the governmental agencies of the County and its sub jurisdictions.

More specific details on many of these projects will be included in the project application. Thus, it may be that some mitigation actions, due to their contingency upon local opportunities, partnerships, and shared goals and incentives between agencies, etc. may be implemented (or submitted for federal funding), in an order that differs somewhat from the priority that it has been assigned. That is because the priority of an action, may be inversely related to the complexity, difficulty, or amount of resources involved in its implementation.

The prioritization of these mitigation strategies is a further extension of the hazard ranking process, but with additional discussion and feedback opportunities provided to ensure that these specific strategies were appropriate for the communities and agencies they involve.

The implementing agencies are described below. These listings identify the lead agencies only. They are not intended to limit or preclude the participation of other agencies or organizations in any way

County EM:	The Saginaw County office of Emergency Management & Homeland Security
Local Units:	Local Units of government including
Local ER:	Local emergency responders such as: police, fire, and medical.
Local DPW:	Local Departments of Public Works
State:	State agencies such as MDOT and MDEQ
Federal:	Federal agencies such as FEMA
Utilities:	Private utility companies such as gas, electric, and telephone
Private:	Private businesses or other non-public entities

The following list is an explanation of potential funding sources: This list should not be considered as all-inclusive when considering outside funding options.

- HMGP:** Hazard Mitigation Grant Program – A pool of funds made available to states in which federally-declared disasters have occurred, with the amount of available funding based on a percentage of documented damages from the latest declared disaster incident. Following the submission and formal acceptance of project applications, 75% of the project's budget would be covered by federal funds, with the remaining 25% covered by non-federal funds (such as those from private property owners who may be benefiting directly from the project, other local stakeholders or agencies, private non-profits, corporate giving programs, community foundations, or local budgets) or through the contribution of "in-kind" services or "soft matches" in which the value of eligible contributed services are counted toward the value of the non-federal match. HMGP funds are only available following a federally-declared disaster in Michigan, but such funds can usually then be used by qualifying communities throughout the state. (Communities must have a FEMA-approved and locally adopted hazard mitigation plan in place to qualify for this funding.)
- PDMP:** Pre-Disaster Mitigation Program -Very similar to HMGP, except that the PDMP offers annual funding on a nationally competitive basis.
- RFC:** Repetitive Flood Claims Program – A relatively new funding source that is only used in mitigation projects that reduce flood losses to specific qualifying structures designated by FEMA as "repetitive loss properties" on the basis of past damages reported under the National Flood Insurance Program (NFIP) and that, therefore, is pertinent only to those communities that participate in the NFIP and have qualifying structures within them. (NOTE: Saginaw County has the following communities that are currently recognized as active NFIP participants: Albee Township, Brant Township, Bridgeport Charter Township, Buena Vista Charter Township, Carrollton Township, Chesaning Township, Village of Chesaning, Frankenmuth Township, City of Frankenmuth, James Township, Kochville Township, Maple Grove Township, Saginaw Charter Township, City of Saginaw, Spaulding Township, St Charles Township, Village of St. Charles, Swan Creek Township, Taymouth Township, Thomas Township, Tittabawssee Township, Zilwaukee Township, and City of Zilwaukee)
- Local:** Various non-federal sources (such as those listed within the HMGP description above) plus, under certain conditions, funds from the Community Development Block Grant (CDBG) program that may be usable as non-federal funds.

Conclusion

Plan Monitoring

Following County and local jurisdiction adoption, the Saginaw County Office of Emergency Management and Homeland Security will have the lead responsibility for implementation of the Hazard Mitigation Plan. Participating local units of government will be encouraged to collaborate with the County and other local units of government to participate in hazard mitigation planning activities. In so doing, they will become eligible for hazard mitigation grant funds, pending federal approval of the plan and their local adoption documentation.

The local units of government which did not participate in the current planning process will continue to be invited to do so, and will be encouraged to join in plan adoption and hazard mitigation efforts in the future. Such additional participation will be reflected in future updates or revisions to this hazard mitigation plan.

Any comments from the public or local agencies on the plan or hazard mitigation actions will be considered by the Emergency Management Division and SCEPC, and will be added to the updated plan accordingly. In particular, as involved agencies, county departments/officials, and local units of government wish to include new priorities and projects, the plan can be updated to reflect new information and changes.

To maintain County and local eligibility for federal hazard mitigation project funding opportunities, the entire plan must be reviewed and, where necessary, formally updated and re-adopted before the passage of five years. In between these periods, the Emergency Management Division and SCEPC will conduct an annual review of the plan to determine what has been accomplished, what communities are working on, and determine any additional information which may need to be added to the plan.

Future Evaluation and Update Process

The formal update process of the plan will begin with an evaluation by the Emergency Management Division and SCEPC to determine what sections of the plan are outdated and will need to be updated, what has been accomplished since the last update, and what communities the plan should target to include. Additional efforts will be made to encourage new participants among the local units of government which have yet to participate in the formal update and adoption process of the hazard mitigation plan. These parties will be the review and evaluation team for the plan review and update process. Unless an earlier timeframe is set by County authorities or situational needs, the planned start of the update process shall occur by late 2021, to allow approximately a year for the content of the plan to be formally reviewed, discussed, and suggested changes to be evaluated and implemented with the production and distribution of a revised draft plan.

In addition, local jurisdiction should designate an entity, such as a Planning Commission, to review the Hazard Mitigation Plan annually, and provide their legislative body a status report to communicate with the County. To promote public access to the document, local jurisdictions should host the plan on their websites, and should be open to comment on the draft. When the time for review of the draft occurs, the participating jurisdictions should have comments to include in the update from their progress and public input.

Once the plan's content has been evaluated for accuracy, timeliness, feasibility, and relevance, any amendments to the plan will be made by the staff designated for the update process. The Saginaw County Office of Emergency Management and Homeland Security shall be the lead agency in designating appropriate tasks to those involved in the review and evaluation team. The revised draft plan will then be distributed in a manner that allows widespread evaluation of its contents. Evaluation criteria will include a consideration of the political acceptability of mitigation strategies, the technical feasibility of the proposed actions, the appropriate staff or agencies to take the lead in implementing selected strategies, and whether some new priority may need to be assigned, based upon the new information that may have been created about hazard risks and vulnerabilities. In addition, for any projects that are contingent upon the outlay of funds for their initiation or completion, a consideration will be given to the availability of federal grant sources for hazard mitigation (including the Hazard Mitigation Grant Program, the Pre-Disaster Mitigation Program, and possibly the Repetitive Flood Claims program).

The update process will be very similar to the development process for this current edition of the Saginaw County Local Hazard Mitigation Plan.

Criteria for plan review and content evaluation shall include a consideration of:

1. The accuracy of information in the plan,
2. The addition of relevant detail about any important hazard-related incidents, risks, or vulnerabilities that became known since the adoption of the plan in 2017,
3. The amendment of mitigation strategies to reflect the completion of mitigation actions, which shall then be removed from the strategy list or amended to reflect progress
4. that had occurred since the 2017 plan adoption,
5. Any new information provided from reliable sources about new risks or vulnerabilities,
6. Changes in the fiscal, technical, or political feasibility of mitigation options, and

In the current plan, action items will have their implementation progress monitored by the Saginaw County Office of Emergency Management and Homeland Security. Any pertinent observations or suggestions for improving mitigation accomplishments within the process of evaluating and updating this plan over the 5-year period following its adoption. In particular, any of those mitigation strategies that rely upon the receipt of federal hazard mitigation funds will generally be organized with the active coordination of that office, since it is the normal agency to be notified about and to respond to grant availability through the submission of hazard mitigation project applications.

An important aspect of hazard mitigation planning is to encourage hazard mitigation concepts and awareness into other types of planning. Emergency response plans, site plans, and the activities of Local Emergency Planning Committees are part of this effort, but a broader awareness and incorporation of hazard awareness and mitigation concepts would ideally involve other agencies and their respective planning efforts. Examples of coordination could include: land use planning, zoning, subdivision and other developments, economic development, environmental and recreational planning, water/drainage/infrastructure, and transportation planning.

There are many potential areas which overlap between hazard mitigation planning and the activities listed above. For example, capital facilities should ideally be located outside of known floodplain areas and other hazard-prone locations. Transportation planning activities can include a consideration of such hazards as hazardous materials spills, potential evacuation routing, and emergency response and access needs. Many other kinds of considerations are possible, and therefore it is recommended that hazard mitigation concepts be considered during the updating and revision of Master Plans within Saginaw County. It is for this reason that some of the participating local jurisdictions have agreed to keep hazard mitigation concepts in mind when undertaking revisions to important planning documents and related activities or projects. This can be efficiently accomplished through the joint efforts of both the Saginaw Emergency Management staff and the Saginaw County Planning Department. Copies of this plan shall be provided by these agencies to the appropriate County offices and departments, and the appropriate departments of the participating local units of government. In many cases, pooled resources and shared goals may result in success for multiple projects that, in isolation, might be difficult or impossible to accomplish.

Mitigation Strategies Worksheet

Saginaw County Strategies

HAZARD MITIGATION STRATEGIES for Saginaw County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	Joint
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing, as needed to replace existing	Joint
Routine and aggressive local tree trimming activities	Low	Ongoing	Private
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing, an needed	Joint
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing, support needed	Joint
Improve public notification through smart 911 and other mass notification technology	High	1 - 5 Years	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Local
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Joint
Improve warning siren coverage and reliability by adding new or replacing/updating existing sirens.	Medium	Ongoing	Local
3. Flooding			
Map all floodplains.	Low	Ongoing, support needed	County
Identify all structures in the floodplain.	Medium	Ongoing	Local
Encourage removal of existing mobile home parks from floodplain.	Low	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	Low	Ongoing	Local
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing, as needed	Joint
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing, support needed	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 years to initiate (for repetitive loss properties) others as appropriate	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	Low	Private Industries	Private
Update disaster response plan as necessary.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Review and update fire department equipment as necessary.	Medium	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Joint
Community shelter sites published.	Low	Ongoing, as needed	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing, as needed	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
Where needed evaluate/ improve public safety training and equipment needed to respond to civil unrest.	Top	1 - 5 Years	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Joint
Shelters	Medium	Ongoing	Joint
Emergency water supply	High	1 - 5 Years	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Low	1 - 5 Years	County
Training for responders	Medium	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Local
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Low	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Low	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
15. Oil and Gas Well Accident			
Evaluate/Update as need response equipment for countywide haz mat team	High	Ongoing	Joint
16. Dam Failure			
Training for responders	Low	Ongoing	Joint
Continue inspections program	Medium	Ongoing	County

Brant Township Strategies

HAZARD MITIGATION STRATEGIES for Brant Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Top	1 - 10 Years	Joint
Emergency generators for police and fire department, special needs facilities and community shelters	Top	1 - 5 Years	Joint
Routine and aggressive local tree trimming activities	High	Ongoing	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 Years	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Joint
3. Flooding			
Map all floodplains.	High	Ongoing	Joint
Identify all structures in the floodplain.	High	Ongoing	Joint
Encourage removal of existing mobile home parks from floodplain.	High	Ongoing	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Joint
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 Years	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	High	Ongoing	Joint
Review and update fire department equipment as necessary.	High	Ongoing	Joint
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Joint
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Joint
Shelters	High	Ongoing	Joint
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Local
Water rationing if conditions demand.	Medium	Ongoing	Local
Public information and education regarding water conservation.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Joint
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Bridgeport Charter Township Strategies

HAZARD MITIGATION STRATEGIES for Bridgeport Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	Ongoing	County
Routine and aggressive local tree trimming activities	High	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	In Place	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	In Place	Local
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	1 Year	Local
3. Flooding			
Map all floodplains.	High	In Place	Local
Identify all structures in the floodplain.	High	1 - 5 Years	Local
Adopt and enforce land use regulation to prevent development in floodplains.	High	In Place	Local
Review and update disaster response plan regularly.	High	Ongoing	Local
Ensure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	In Place	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Medium	1 - 5 Years	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	In Place	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	In Place	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	In Place	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	In Place	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	Top	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	In Place	County
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Joint
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	In Place	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Medium	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	In Place	County
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	Medium	Ongoing	Joint
Shelters	Medium	Ongoing	Joint
Emergency water supply	Medium	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	Medium	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	In Place	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	Ongoing	Joint
Training for responders	Medium	Ongoing	Joint
13. Drought			
Ample water supply.	Medium	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	In Place	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	In Place	County

Buena Vista Charter Township Strategies

HAZARD MITIGATION STRATEGIES for Buena Vista Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing	Joint
Routine and aggressive local tree trimming activities	Low	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	1 - 5 Years	Joint
3. Flooding			
Map all floodplains.	Low	Ongoing	County
Identify all structures in the floodplain.	Medium	Ongoing	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Joint
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 Years	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	Top	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	High	Ongoing	Joint
Review and update fire department equipment as necessary.	High	Ongoing	Joint
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Joint
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	Medium	Ongoing	Joint
Shelters	Medium	Ongoing	Joint
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	1 - 5 Years	County
Training for responders	Medium	1 - 5 Years	County
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Low	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	Medium	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	1 - 5 Years	County
Training for responders	Medium	1 - 5 Years	County
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Low	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	Medium	Ongoing	Joint

Carrollton Township Strategies

HAZARD MITIGATION STRATEGIES for Carrollton Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	Joint
Emergency generators for police and fire department, special needs facilities and community shelters	High	1 - 5 Years	Local
Routine and aggressive local tree trimming activities	High	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Local
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	Joint
Identify all structures in the floodplain.	High	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Local
Review and update disaster response plan regularly.	High	Ongoing	Local
Insure all key agencies have generous amounts of emergency generators.	High	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	County
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Local
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	County
Emergency water supply	Low	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	High	Ongoing	Joint
Public information and education regarding water conservation.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
14. Wildfires			
Enforce local ordinances for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Chapin Township

HAZARD MITIGATION STRATEGIES for Chapin Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	1 - 5 Years	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.		Ongoing	County
2. Tornadoes			
Proper anchoring of manufactured homes.			
3. Flooding			
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	1 - 10 Years	Local
Review and update disaster response plan regularly.	High		
Insure all key agencies have generous amounts of emergency generators.	Medium	1 - 5 Years	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).			
4. Transportation Accidents			
Ongoing training directed at first responders.	High		
Enforcement of safety regulations.	Medium		County
Update disaster response plan as necessary.	Low		

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	1 - 5 Years	Local
Fast response training, with emphases on the less senior employees.	Low	1 - 10 Years	
Review and update fire department equipment as necessary.	High	1 - 5 Years	Joint
Public Education on fire safety.	Medium	1 - 5 Years	
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	Medium	1 - 5 Years	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Medium	1 - 5 Years	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	Low		
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Low	1 - 10 Years	
Encourage residents to develop a family disaster plan.	Low		
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	1 - 5 Years	Joint
Community shelter sites published.	Medium		Local
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	Medium		
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	Medium		

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	1 - 5 Years	Local
Ongoing training and exercises for response personnel.	Medium	1 - 5 Years	Local
Mutual aid arrangements with neighboring communities.	High	1 - 5 Years	
Interoperability of radio system between all key agencies and organizations.	High		

Chesaning Township Strategies

HAZARD MITIGATION STRATEGIES for Chesaning Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	High	1 Year	County
Routine and aggressive local tree trimming activities	Low	Ongoing	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	1 - 5 Years	Local
Standby power for water plants, pump stations and booster pumping stations.	Medium	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
2. Tornadoes			
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Update disaster response plan as necessary.	High	1 - 5 Years	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Top	1 Year	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
6. Hazardous Materials, Transportation Accidents			
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	1 - 5 Years	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Top	1 Year	County
7. Public Health Emergencies			
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Implement school safety programs.	High	1 Year	Local
9. Extreme Temperatures			
Community shelter sites published.	High	1 - 5 Years	Local
10. Civil Disturbance			
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Local
11. Infrastructure Failure			
Emergency generators	High	1 Year	County
Review/update disaster response plan regularly.	High	1 Year	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
13. Drought			
Water rationing if conditions demand.	Medium	5 Years	Local
Public information and education regarding water conservation.	Low	1 - 10 Years	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
Additional Strategies			
Have line in budget for Emergency Fund	High	Ongoing	Local

City of Frankenmuth Strategies

HAZARD MITIGATION STRATEGIES for City of Frankenmuth

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	Medium	Ongoing	Joint
Routine and aggressive local tree trimming activities	Top	Ongoing	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing	Joint
Maintenance of above ground/downed public utilities	Top	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Joint
3. Flooding			
Map all floodplains.	Top	Ongoing	Joint
Identify all structures in the floodplain.	High	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	Ongoing	Local
Review and update disaster response plan regularly.	High	Ongoing	Joint
Ensure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the floodplain).	High	1 - 5 Years	Local
Implement levee improvements to mitigate the risk of flooding and flood losses.	Top	1 - 5 Years	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	Medium	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Medium	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites. Including Levee/flooding plan.	Medium	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Joint
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Medium	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructure, including levee system	Top	Ongoing	Joint
Emergency generators	Medium	Ongoing	Joint
Shelters	Medium	Ongoing	Joint
Emergency water supply	Medium	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	Top	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	Ongoing	Joint
Training for responders	Medium	Ongoing	Joint
13. Drought			
Ample water supply.	Medium	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Joint
Ongoing training and exercises for response personnel.	Medium	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
15. Oil and Gas Well Accident			
Update response equipment	Medium	Ongoing	Joint

City of Saginaw Strategies

HAZARD MITIGATION STRATEGIES for the City of Saginaw

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Top	1 - 10 Years	County
Emergency generators for police and fire department, special needs facilities and community shelters	Top	1 - 5 Years	Local
Routine and aggressive local tree trimming activities	High	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 Years	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Local
Proper anchoring of manufactured homes.	Low	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	Local
Identify all structures in the floodplain.	High	Ongoing	Local
Encourage removal of existing mobile home parks from floodplain.		Ongoing	
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Joint
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 Years	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Local
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Local
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Local
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Local
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
13. Drought			
Ample water supply.	High	Ongoing	County
Water rationing if conditions demand.	Medium	Ongoing	County
Public information and education regarding water conservation.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

City of Zilwaukee Strategies

HAZARD MITIGATION STRATEGIES for the City of Zilwaukee

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Top	1-5 Years	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	1-5 Years	Joint
Routine and aggressive local tree trimming activities	Medium	Ongoing	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	Medium	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	1 - 10 Years	Joint
3. Flooding			
Map all floodplains.	High	Ongoing	County
Identify all structures in the floodplain.	High	Ongoing	Joint
Encourage removal of existing mobile home parks from floodplain.	Low	1 - 10 Years	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	1 - 5 Years	Joint
Review and update disaster response plan regularly.	High	1 Year	Joint
Insure all key agencies have generous amounts of emergency generators.	High	1 - 10 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	1 Year	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	High	Ongoing	Joint
Review and update fire department equipment as necessary.	High	Ongoing	Joint
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Joint
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Joint
Shelters	Medium	Ongoing	Joint
Emergency water supply	Medium	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	Ongoing	Joint
Training for responders	High	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Joint
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Frankenmuth Township Strategies

HAZARD MITIGATION STRATEGIES for Frankenmuth Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	As Needed	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing	Local
Routine and aggressive local tree trimming activities	High	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 Years	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Joint
3. Flooding			
Map all floodplains.	Medium	1 - 5 Years	County
Identify all structures in the floodplain.	Medium	1 - 5 Years	County
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	1 - 10 Years	County
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 Years	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	1 - 5 Years	Local
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Local
Shelters	High	Ongoing	Joint
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	County
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Fremont Township Strategies

HAZARD MITIGATION STRATEGIES Fremont Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Top	1 - 10 years as needed	
Emergency generators for police and fire department, special needs facilities and community shelters	Top	1 - 5 years as needed	
Routine and aggressive local tree trimming activities	High	Ongoing	
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	
Standby power for water plants, pump stations and booster pumping stations.	High	1 - 5 years as needed	
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 years as needed	
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	
Proper anchoring of manufactured homes.	High	Ongoing	
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	
3. Flooding			
Map all floodplains.	High	Ongoing	
Identify all structures in the floodplain.	High	Ongoing	
Encourage removal of existing mobile home parks from floodplain.	High	Ongoing	
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	
Review and update disaster response plan regularly.	High	Ongoing	
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 years to initiate (for repetitive loss properties) others as appropriate	
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	
Enforcement of safety regulations.	High	Ongoing	
Safety training for transit, airplane and train operators.	High	Ongoing	
Update disaster response plan as necessary.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	
Fast response training, with emphases on the less senior employees.	High	Ongoing	
Review and update fire department equipment as necessary.	High	Ongoing	
Public Education on fire safety.	High	Ongoing	
Enforce existing codes.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	
Encourage residents to develop a family disaster plan.	High	Ongoing	
Implement school safety programs.	High	Ongoing	
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	
Community shelter sites published.	Medium	Ongoing	
Public information on safety during extreme temperatures.	Medium	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	
Emergency generators	High	Ongoing	
Shelters	Medium	Ongoing	
Emergency water supply	Medium	Ongoing	
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	
Review/update disaster response plan regularly.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
13. Drought			
Ample water supply.	High	Ongoing	
Water rationing if conditions demand.	Medium	Ongoing	
Public information and education regarding water conservation.	Medium	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	
Ongoing training and exercises for response personnel.	High	Ongoing	
Mutual aid arrangements with neighboring communities.	High	Ongoing	
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	

James Township Strategies

HAZARD MITIGATION STRATEGIES for James Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Low	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing	joint
Routine and aggressive local tree trimming activities	Medium	Ongoing	County & Consumers
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Medium	ongoing	County
2. Tornadoes			
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Joint
3. Flooding			
Map all floodplains.	Low	Ongoing	Joint
Identify all structures in the floodplain.	Low	Ongoing	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	Ongoing	Local
Review and update disaster response plan regularly.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Update disaster response plan as necessary.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	Top	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	Top	Ongoing	Joint
Review and update fire department equipment as necessary.	Top	Ongoing	Joint
Public Education on fire safety.	Top	Ongoing	Joint
Enforce existing codes.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
7. Public Health Emergencies			
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
11. Infrastructure Failure			
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Training for responders	Medium	Ongoing	Local
13. Drought			
Ample water supply.	Medium	Ongoing	Joint
Water rationing if conditions demand.	Low	Ongoing	Joint
Public information and education regarding water conservation.	Low	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Top	Ongoing	Joint
Ongoing training and exercises for response personnel.	Top	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint

Jonesfield Township Strategies

HAZARD MITIGATION STRATEGIES for Jonesfield Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	Medium	Ongoing	Local
Routine and aggressive local tree trimming activities	Medium	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	Ongoing	Local
Standby power for water plants, pump stations and booster pumping stations.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	County
Proper anchoring of manufactured homes.	Medium	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Low	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	County
Identify all structures in the floodplain.	High	Ongoing	County
Encourage removal of existing mobile home parks from floodplain.	Low	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	Low	Ongoing	Local
Review and update disaster response plan regularly.	Medium	Ongoing	Local
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Low	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Safety training for transit, airplane and train operators.	Medium	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	County
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	County
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Low	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Low	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
13. Drought			
Ample water supply.	High	Ongoing	Local
Water rationing if conditions demand.	Low	Ongoing	Local
Public information and education regarding water conservation.	Low	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Kochville Township Strategies

HAZARD MITIGATION STRATEGIES for Kochville Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	Medium	Ongoing	Local
Proper anchoring of manufactured homes.	Medium	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.			
3. Flooding			
Map all floodplains.	Medium	Ongoing	County
Identify all structures in the floodplain.	Medium	Ongoing	County
Encourage removal of existing mobile home parks from floodplain.	Medium	Ongoing	County
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	Ongoing	County
Review and update disaster response plan regularly.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Medium	Ongoing	County
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	County
Safety training for transit, airplane and train operators.	High	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	1 Year	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Local
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Local
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	Low	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	Low	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	Low	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Local
Encourage residents to develop a family disaster plan.	Medium	Ongoing	Local
Implement school safety programs.	Medium	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Local
Emergency generators	Low	Ongoing	Local
Shelters	Low	Ongoing	County
Emergency water supply	Low	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing	Local
13. Drought			
Ample water supply.	Low	Ongoing	County
Water rationing if conditions demand.	Low	Ongoing	County
Public information and education regarding water conservation.	Low	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Low	Ongoing	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Local
Mutual aid arrangements with neighboring communities.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint

Lakefield Township Strategies

HAZARD MITIGATION STRATEGIES for Lakefield Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lightning, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	County
Routine and aggressive local tree trimming activities	Medium	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	County
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Low	Ongoing	Local
3. Flooding			
Map all floodplains.	Medium	Ongoing	County
Identify all structures in the floodplain.	Medium	Ongoing	County
Review and update disaster response plan regularly.	High	Ongoing	County
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	County
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	County
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Low	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	County
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	High	Ongoing	Local
Training for responders	High	Ongoing	Local
13. Drought			
Ample water supply.	Medium	Ongoing	Local
Water rationing if conditions demand.	Medium	Ongoing	Local
Public information and education regarding water conservation.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
15. Oil and Gas Well Accident			
Update response equipment	High	Ongoing	Local

MBS International Airport Strategies

HAZARD MITIGATION STRATEGIES for MBS International Airport

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	Top	1 - 5 years	Local
Routine and aggressive local tree trimming activities	Medium	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Local
Standby power for water plants, pump stations and booster pumping stations.	High	1 - 5 years	Township
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 years	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	Medium	Ongoing	Local
Proper anchoring of manufactured homes.	Medium	Ongoing	County
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	County
3. Flooding			
Map all floodplains.	Medium	Ongoing	County
Identify all structures in the floodplain.	Medium	Ongoing	County
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	County
Review and update disaster response plan regularly.	Medium	Ongoing	County
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Medium	1 - 5 years to initiate (for repetitive loss properties) others as appropriate	County
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Safety training for transit, airplane and train operators.	High	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	Medium	Ongoing	Joint
Review and update fire department equipment as necessary.	High	Ongoing	Joint
Public Education on fire safety.	Top	Ongoing	Joint
Enforce existing codes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Medium	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	Top	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	Medium	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	Medium	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Medium	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	Medium	Ongoing	Joint
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Joint
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
13. Drought			
Ample water supply.	Medium	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Joint
Ongoing training and exercises for response personnel.	Medium	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint

Richland Township Strategies

HAZARD MITIGATION STRATEGIES for Richland Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	Low	Ongoing	Local
Routine and aggressive local tree trimming activities	Medium	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Local
Proper anchoring of manufactured homes.	High	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Joint
3. Flooding			
Map all floodplains.	High	1 - 5 Years	Joint
Identify all structures in the floodplain.	High	Ongoing	Local
Encourage removal of existing mobile home parks from floodplain.	High	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Local
Review and update disaster response plan regularly.	High	Ongoing	Local
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	1 - 5 Years	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	Medium	Ongoing	Joint
Safety training for transit, airplane and train operators.	Low	1 - 10 Years	Local
Update disaster response plan as necessary.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	High	Ongoing	Joint
Review and update fire department equipment as necessary.	Medium	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	Medium	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Medium	1 - 5 Years	County
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	Medium	1 - 10 Years	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	Low	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Joint
Public information on safety during extreme temperatures.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	1 - 5 Years	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Propane Tank Inspections	Medium	Ongoing	Local
13. Drought			
Ample water supply.	Medium	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Local
Public information and education regarding water conservation.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Saginaw Charter Township Strategies

HAZARD MITIGATION STRATEGIES for Saginaw Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing (Police/Fire Complete)	Joint
Routine and aggressive local tree trimming activities	Medium	Currently Underway	Private (Consumers)
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing- Educate the Public	Joint
Standby power for water plants, pump stations and booster pumping stations.	Low	Mostly Completed	Local
Interoperability of radio system between all key agencies and organizations.	High	Currently Underway- DPS Needed	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Local
Publish the locations of shelter sites.	High	Ongoing	Joint
3. Flooding			
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Local
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Local
Encourage residents to develop a family disaster plan.	Medium	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Community shelter sites published.	High	Ongoing	Joint
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Joint
Shelters	High	Ongoing	Joint
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
13. Drought			
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Spaulding Township Strategies

HAZARD MITIGATION STRATEGIES for Spaulding Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	Top	Ongoing	Joint
Routine and aggressive local tree trimming activities	High	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	High	1 - 5 Years	Local
3. Flooding			
Map all floodplains.	High	1 Year	Joint
Identify all structures in the floodplain.	High	1 Year	Local
Adopt and enforce land use regulation to prevent development in floodplains.	Top	Ongoing	MDEQ
Review and update disaster response plan regularly.	High	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
5. Structural Fires			
Regular and progressive fire department training.	Top	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Joint
Enforce existing codes.	Top	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	1 - 5 Years	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
7. Public Health Emergencies			
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	Low	5 Years	
Emergency generators	High	Ongoing	
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	Medium		
Review/update disaster response plan regularly.	Medium		
Interoperability of radio system between all key agencies and organizations.	High		
12. Oil and Gas Pipeline Accident			
Training for responders	High	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	High	Ongoing	Joint
Public information and education regarding water conservation.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

St. Charles Township Strategies

HAZARD MITIGATION STRATEGIES for St. Charles Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	5 Years	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing	Joint
Routine and aggressive local tree trimming activities	Medium	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	County
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	County
3. Flooding			
Map all floodplains.	High	Ongoing	County
Identify all structures in the floodplain.	High	Ongoing	County
Encourage removal of existing mobile home parks from floodplain.	High	Ongoing	County
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	County
Review and update disaster response plan regularly.	High	Ongoing	County
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	County
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	County
Enforcement of safety regulations.	High	Ongoing	County
Safety training for transit, airplane and train operators.	High	Ongoing	County
Update disaster response plan as necessary.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	Top	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	Top	Ongoing	Joint
Review and update fire department equipment as necessary.	Top	Ongoing	Joint
Public Education on fire safety.	Top	Ongoing	Joint
Enforce existing codes.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	County
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	Top	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	Top	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Top	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	Top	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Joint
Encourage residents to develop a family disaster plan.	High	Ongoing	Joint
Implement school safety programs.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	Top	Ongoing	Joint
Community shelter sites published.	Top	Ongoing	Joint
Public information on safety during extreme temperatures.	Top	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Top	Ongoing	County
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Top	Ongoing	County
Establish avenues of reporting information to help prevent and control incidents.	Top	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	Top	Ongoing	County
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	County
Emergency generators	High	Ongoing	County
Shelters	High	Ongoing	County
Emergency water supply	High	Ongoing	County
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	County
Review/update disaster response plan regularly.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	High	Ongoing	Joint
Public information and education regarding water conservation.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Joint
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Swan Creek Township Strategies

HAZARD MITIGATION STRATEGIES for Swan Creek Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	High	1 Year	County
Emergency generators for police and fire department, special needs facilities and community shelters	High	1 - 5 Years	Joint
Routine and aggressive local tree trimming activities	High	1 - 5 Years	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	1 - 5 Years	Joint
Standby power for water plants, pump stations and booster pumping stations.	High	1 Year	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	1 - 5 Years	Joint
Proper anchoring of manufactured homes.	High	1 - 5 Years	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	1 - 10 years	Joint
3. Flooding			
Map all floodplains.	High	1 Year	County
Identify all structures in the floodplain.	Medium	1 - 5 Years	Local
Adopt and enforce land use regulation to prevent development in floodplains.	High	1 - 5 Years	Local
Review and update disaster response plan regularly.	High	1 - 5 Years	Joint
Insure all key agencies have generous amounts of emergency generators.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 - 5 Years	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Low	1 - 5 Years	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	1 - 5 Years	Joint
Enforcement of safety regulations.	Medium	1 - 5 Years	Joint
Safety training for transit, airplane and train operators.	Medium	1 - 5 Years	Joint
Update disaster response plan as necessary.	Medium	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	1 - 5 Years	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	Top	1 Year	Joint
Fast response training, with emphases on the less senior employees.	High	1 Year	Joint
Review and update fire department equipment as necessary.	High	1 - 5 Years	Local
Public Education on fire safety.	High	1 - 5 Years	Joint
Enforce existing codes.	High	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	1 - 5 Years	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	1 - 5 Years	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	1 - 5 Years	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	1 - 5 Years	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	1 - 5 Years	Local
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	1 - 5 Years	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	1 - 5 Years	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 - 5 Years	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	1 - 5 Years	Joint
Encourage residents to develop a family disaster plan.	High	1 - 5 Years	Joint
Implement school safety programs.	High	1 Year	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	1 - 5 Years	Joint
Community shelter sites published.	High	1 - 5 Years	Joint
Public information on safety during extreme temperatures.	Medium	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	Medium	1 - 5 Years	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	1 - 5 Years	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Medium	1 - 5 Years	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	1 - 5 Years	Joint
Emergency generators	Medium	1 - 5 Years	Joint
Shelters	Medium	1 - 5 Years	Joint
Emergency water supply	High	1 - 5 Years	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	1 - 5 Years	Joint
Review/update disaster response plan regularly.	High	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	1 - 5 Years	Joint
Training for responders	Medium	1 - 5 Years	Joint
13. Drought			
Ample water supply.	High	1 Year	Joint
Water rationing if conditions demand.	Medium	1 - 5 Years	Joint
Public information and education regarding water conservation.	Medium	1 - 5 Years	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	1 - 5 Years	Local
Ongoing training and exercises for response personnel.	High	1 - 5 Years	Joint
Mutual aid arrangements with neighboring communities.	High	1 Year	Joint
Interoperability of radio system between all key agencies and organizations.	High	1 Year	Joint

Thomas Township Strategies

HAZARD MITIGATION STRATEGIES for Thomas Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Routine and aggressive local tree trimming activities	Medium	Ongoing	Consumers
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Local
Proper anchoring of manufactured homes.	High	Ongoing	State & Local
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	Joint
Identify all structures in the floodplain.	High	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	Medium	Ongoing	State & Local
Review and update disaster response plan regularly.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	State, County, & Local
Safety training for transit, airplane and train operators.	High	Ongoing	Industry
Update disaster response plan as necessary.	High	Ongoing	Joint
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Local
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County & State
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County & State
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Local
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	Top	Ongoing	Local
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
9. Extreme Temperatures			
Community shelter sites published.	Medium	1 - 5 Years	Supplier & Local
Public information on safety during extreme temperatures.	Medium	2 - 5 Years	Supplier & Local
10. Civil Disturbance			
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Local
Emergency generators	High	1 Year	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	Medium	Completed	Local
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	High	Ongoing	Joint
Training for responders	High	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Low	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	Medium	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Completed	Local

Tittabawassee Township Strategies

HAZARD MITIGATION STRATEGIES for Tittabawassee Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	Top	1 - 5 years	Local
Routine and aggressive local tree trimming activities	Medium	Ongoing	Joint
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	Local
Standby power for water plants, pump stations and booster pumping stations.	High	1 - 5 years	Local
Interoperability of radio system between all key agencies and organizations.	High	1 - 10 years	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	Medium	Ongoing	Local
Proper anchoring of manufactured homes.	Medium	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
3. Flooding			
Map all floodplains.	Medium	Ongoing	Joint
Identify all structures in the floodplain.	Medium	Ongoing	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	High	Ongoing	Joint
Review and update disaster response plan regularly.	Medium	Ongoing	Joint
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Medium	1 - 5 years to initiate (for repetitive loss properties) others as	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
Safety training for transit, airplane and train operators.	High	Ongoing	Joint
Update disaster response plan as necessary.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	Medium	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	Top	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Local
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	Joint
Create evacuation plans and ensure active steps are taken to inform the community of such.	Medium	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	Top	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	Medium	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	Medium	Ongoing	Local
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Local
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	Medium	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Medium	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Medium	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	Medium	Ongoing	Local
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	High	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	Ongoing	Joint
Training for responders	Medium	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
13. Drought			
Ample water supply.	Medium	Ongoing	Local
Water rationing if conditions demand.	Medium	Ongoing	Joint
Public information and education regarding water conservation.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	Medium	Ongoing	Local
Mutual aid arrangements with neighboring communities.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	Joint
16. Dam Failure			
Training for responders	High	Ongoing	Joint
Continue inspections program	High	Ongoing	Joint

Village of Chesaning Strategies

HAZARD MITIGATION STRATEGIES for the Village of Chesaning

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	Ongoing	Joint
Emergency generators for police and fire department, special needs facilities and community shelters	High	1 - 5 Years	Local
Routine and aggressive local tree trimming activities	High	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	1 - 5 Years	Joint
Standby power for water plants, pump stations and booster pumping stations.	Low	1 Year	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	Joint
Proper anchoring of manufactured homes.	High	1 - 10 Years	Local
Establish safe and appropriate locations for temporary debris disposal sites.	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
3. Flooding			
Map all floodplains.	High	Ongoing	Local
Identify all structures in the floodplain.	High	Ongoing	Local
Adopt and enforce land use regulation to prevent development in floodplains.	High	1 - 5 Years	Local
Review and update disaster response plan regularly.	High	Ongoing	Local
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	High	Ongoing	Local
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Joint
Fast response training, with emphases on the less senior employees.	High	1 - 5 Years	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Joint
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	Joint
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Local
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	1 - 5 Years	Local
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	High	Ongoing	Local
Public information on safety during extreme temperatures.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	1 - 5 Years	Local
Establish avenues of reporting information to help prevent and control incidents.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Local
Emergency generators	Medium	1 - 5 Years	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
12. Oil and Gas Pipeline Accident			
Update inventory of pipelines	Medium	Ongoing	Joint
Training for responders	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
13. Drought			
Ample water supply.	High	1 - 5 Years	Joint
Water rationing if conditions demand.	Medium	Ongoing	Local
Public information and education regarding water conservation.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Joint

Village of Merrill Strategies

HAZARD MITIGATION STRATEGIES for The Village of Merrill

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	Ongoing	County
Emergency generators for police and fire department, special needs facilities and community shelters	Medium	Ongoing	Local
Routine and aggressive local tree trimming activities	Medium	Ongoing	Local
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	Medium	Ongoing	Local
Standby power for water plants, pump stations and booster pumping stations.	Medium	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	Medium	Ongoing	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	High	Ongoing	County
Proper anchoring of manufactured homes.	Medium	Ongoing	Local
Establish safe and appropriate locations for temporary debris disposal sites.	Low	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	County
Identify all structures in the floodplain.	High	Ongoing	County
Review and update disaster response plan regularly.	Medium	Ongoing	Local
Insure all key agencies have generous amounts of emergency generators.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Local
Enforcement of safety regulations.	High	Ongoing	Local
Safety training for transit, airplane and train operators.	Medium	Ongoing	Local
Update disaster response plan as necessary.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
5. Structural Fires			
Regular and progressive fire department training.	High	Ongoing	Local
Fast response training, with emphases on the less senior employees.	High	Ongoing	Local
Review and update fire department equipment as necessary.	High	Ongoing	Local
Public Education on fire safety.	High	Ongoing	Local
Enforce existing codes.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	County
Ensure compliance with and enforcement of USDOT and MMOT regulations regarding hazardous materials transport.	High	Ongoing	County
Create evacuation plans and ensure active steps are taken to inform the community of such.	High	Ongoing	Local
Train, equip and prepare local hazardous materials emergency response teams and search and rescue teams.	High	Ongoing	County
Local zoning practices to locate schools, nursing homes and other facilities away from hazardous material transportation routes.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	County
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	County
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	County
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	County
Encourage residents to develop a family disaster plan.	High	Ongoing	Local
Implement school safety programs.	High	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
9. Extreme Temperatures			
Ample and available emergency generators.	High	Ongoing	Local
Community shelter sites published.	Medium	Ongoing	Local
Public information on safety during extreme temperatures.	Medium	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	Low	Ongoing	Local
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	Low	Ongoing	Local
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	Local
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Local
Shelters	Medium	Ongoing	Local
Emergency water supply	Medium	Ongoing	Local
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Local
Review/update disaster response plan regularly.	High	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County
13. Drought			
Ample water supply.	High	Ongoing	Local
Water rationing if conditions demand.	Low	Ongoing	Local
Public information and education regarding water conservation.	Low	Ongoing	Local
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Local
Ongoing training and exercises for response personnel.	High	Ongoing	Local
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint
Interoperability of radio system between all key agencies and organizations.	High	Ongoing	County

Village of St. Charles Strategies

HAZARD MITIGATION STRATEGIES for the Village of St. Charles

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lighting, snow, and ice storms			
Emergency generators for police and fire department, special needs facilities and community shelters	High	Ongoing	Joint
Routine and aggressive local tree trimming activities	High	Ongoing	Local
3. Flooding			
Map all floodplains.	High	Ongoing	Joint
4. Transportation Accidents			
Ongoing training directed at first responders.	High	Ongoing	Joint
Enforcement of safety regulations.	High	Ongoing	Joint
6. Hazardous Materials, Transportation Accidents			
Train, plan and prepare for hazardous material incidents along roadways and railways.	High	Ongoing	Joint
7. Public Health Emergencies			
Development of community risk assessment tools, and plans regarding specific strategies to implement should need arise.	High	Ongoing	Joint
Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas, and other appropriate sites.	High	Ongoing	Joint
Establish and participate in avenues of collaboration with relevant community agencies to provide information and result in a "same page" atmosphere for responding to an incident.	High	Ongoing	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
8. Hazardous materials, Fixed Site Incident			
Development of a thorough community risk and threat assessment that identifies potential emergencies.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, recreation areas and other appropriate sites.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas and other appropriate sites.	High	Ongoing	Joint
Establish avenues of reporting information to help prevent and control incidents.	High	Ongoing	Joint
11. Infrastructure Failure			
Regularly identify deficiencies in infrastructures.	High	Ongoing	Joint
Emergency generators	High	Ongoing	Joint
Maintain and repair infrastructure as necessary, expand capacity where appropriate.	High	Ongoing	Joint
Review/update disaster response plan regularly.	High	Ongoing	Joint
14. Wildfires			
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint

Zilwaukee Township Strategies

HAZARD MITIGATION STRATEGIES for Zilwaukee Township

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
1. Inclement weather - severe winds, thunderstorms, hail, lightning, snow, and ice storms			
Increase NOAA weather radio coverage.	Medium	1 - 10 Years	County
Routine and aggressive local tree trimming activities	High	Ongoing	County
Increase the public awareness regarding these weather events, and where to look for assistance in weather emergencies.	High	Ongoing	County
Standby power for water plants, pump stations and booster pumping stations.	Top	1 - 5 Years	County
2. Tornadoes			
Ensure that appropriate wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage are in place.	Medium	Ongoing	County
Proper anchoring of manufactured homes.	High	Ongoing	Joint
Establish safe and appropriate locations for temporary debris disposal sites.	Medium	Ongoing	Joint
3. Flooding			
Map all floodplains.	Top	Ongoing	Joint
Identify all structures in the floodplain.	Top	Ongoing	Joint
Adopt and enforce land use regulation to prevent development in floodplains.	Top	Ongoing	Joint
Review and update disaster response plan regularly.	Top	Ongoing	County
Propose and, where desirable, implement flood mitigation actions specific to identified flood-prone structures (such as structure elevation, buy-outs, or relocation out of the flood plain).	Top	1 - 5 Years	Joint

Hazards and Strategy	Priority (Top, High, Med, Low)	Timeline (1 year, 1- 5 years, 1- 10 years, ongoing)	Lead (County, Local, Joint)
4. Transportation Accidents			
Enforcement of safety regulations.	High	Ongoing	County
5. Structural Fires			
Enforce existing codes.	High	Ongoing	Joint
10. Civil Disturbance			
Development of a thorough community risk and threat assessment that identifies potential vulnerabilities from a civil disturbance perspective.	High	Ongoing	Joint
11. Infrastructure Failure			
Review/update disaster response plan regularly.	High	Ongoing	Joint
13. Drought			
Ample water supply.	High	Ongoing	Joint
Water rationing if conditions demand.	Medium	Ongoing	County
14. Wildfires			
Enforce local ordinances that require burn permits for outdoor burning.	High	Ongoing	Joint
Mutual aid arrangements with neighboring communities.	High	Ongoing	Joint

Appendix C

Adoption Documentation



FEMA

SEP 11 2017

Mr. Matt Schnepf
State Hazard Mitigation Officer
Michigan State Police
Emergency Management and
Homeland Security Division
P.O. Box 30634
Lansing, MI 48909

Dear Mr. Schnepf:

Thank you for submitting the adoption documentation for the Saginaw County Hazard Mitigation Plan. The plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000. Saginaw County met the required criteria for a multi-jurisdiction hazard mitigation plan and the plan is now approved for the county. Please submit the adoption resolutions for any remaining jurisdictions who participated in the planning process.

The approval of this plan ensures continued availability of the full complement of Hazard Mitigation Assistance (HMA) Grants. All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

We encourage Saginaw County to follow the plan's schedule for monitoring and updating the plan, and continue their efforts to implement the mitigation measures. The expiration date of the Saginaw County Plan is five years from the date of this letter. In order to continue project grant eligibility, the plan must be reviewed, revised as appropriate, resubmitted, and approved no later than the plan expiration date.

Please pass on our congratulations to Saginaw County for this significant action. If you or the communities have any questions, please contact Christine Meissner at (312) 408-4460 or christine.meissner@fema.dhs.gov.

Sincerely,

A handwritten signature in black ink that reads "Mary Beth Caruso".

Mary Beth Caruso
Director, Mitigation Division

**OFFICIAL PROCEEDINGS
OF THE**
Board of Commissioners
OF SAGINAW COUNTY, MICHIGAN

FEBRUARY SESSION 2017

First Day of the February Session of the Board of Commissioners of Saginaw County, Michigan, held Tuesday, February 21, 2017. The Board met pursuant to adjournment at 5:00 p.m. with the Honorable Carl E. Ruth in the Chair. Deputy Clerk Suzy Koeplinger took roll, quorum present as follows:

PRESENT: *Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O’Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster - 11*

ABSENT: *None - 0*

TOTAL: *- 11*

Commissioner Stack opened the meeting with a prayer, followed by the Pledge of Allegiance to the Flag.

APPROVAL OF MINUTES

Commissioner Krafft moved, seconded by Commissioner Kilpatrick, to approve the Minutes from the December 20, 2016 Board Session and the Compiled Minutes from the January 3, 2017 Organizational Board Session, the January 5, 2017 Committee Assignment Board Session, and the January 17, 2017 Board Session. Motion carried.

PUBLIC HEARING

At 5:02 p.m., Chairman Ruth opened a public hearing on the draft of the Saginaw County Hazard Mitigation Plan prepared by the Saginaw County Emergency Preparedness Council. He asked if there was anyone wishing to speak; hearing none, he announced the hearing would remain open. *(A copy of the Plan was made available to the public)*

AUDIENCES

- Commissioner Hadsall presented Allie Martinez, Prevention Education Coordinator at Underground Railroad, Inc., with a Proclamation for February as Teen Dating Violence Awareness and Prevention Month. Ms. Martinez thanked the Board of Commissioners and stated it is important for community leaders to be on board with the work of the Underground Railroad.



- Cathy Konieczny spoke in favor of a Birch Run Area CVB Management Agreement and provided the Board of Commissioners with a written statement.
- Jerry Preston spoke in favor of a Birch Run Area CVB Management Agreement and provided the Board of Commissioners with a written statement.

LAUDATORY RESOLUTIONS

Certificate of Recognition

Richard E. Leach, Jr.
Spaulding Township

Richard “Dick” E. Leach, Jr. was born in Saginaw County and has been a lifelong resident of Spaulding Township. He faithfully served his country in the United States National Guard from 1956 – 1964. Dick volunteered on the Spaulding Township Fire Department for 26 years, from 1958 – 1984.

In 1968 Dick was elected to the Spaulding Township Board as a trustee where he served for 16 years. In 1984 he was elected as Clerk and served in that capacity for 32 years. Dick’s wife, Sharon, has supported him throughout the years including as Spaulding Township Deputy Clerk for 32 years.

He has been an integral part of his successful family farming in Spaulding Township, from early childhood to present day. Dick has served in countless leadership positions within the agricultural industry, his church and among local elected officials. He is respected as a trusted advisor to anyone who would ask for advice, historical knowledge or general direction.

The Saginaw County Board of Commissioners thanks Richard E. Leach, Jr. for his dedication and hard work for the betterment of Spaulding Township citizens and its community and to Saginaw County.

Respectfully Submitted,
Saginaw County
Board of Commissioners
Carl E. Ruth
Chair, District #10

Adopted: February 21, 2017
Presented: February 25, 2017
Susan A. McInerney
Commissioner, District #4

CLERK'S CALL OF SESSION

February 9, 2017

TO: SAGINAW COUNTY BOARD OF COMMISSIONERS

RE: Notice of February 21, 2017 Board Session

Honorable Commissioners:

The Saginaw County Board of Commissioners will convene for its First Day's Session on Tuesday, February 21, 2017 at 5:00 p.m. in the Board Chambers, Second Floor - Room 200, Saginaw County Governmental Center, Saginaw, Michigan.

Respectfully submitted,
Michael J. Hanley, County Clerk

By the Chair: That the Notice of Meeting from the County Clerk be received and filed, if there are no objections. The Chair hears none; it is so ordered.



PETITIONS AND COMMUNICATIONS

By the Chair: That the following communications received by the Board of Commissioners be referred as designated, if there are no objections. The Chair hears none; it is so ordered.

- 2-21-1 EMERGENCY MANAGEMENT** requesting approval to hold a public hearing on the update to the Saginaw Hazard Mitigation Plan at the February 21, 2017 session of the Saginaw County Board of Commissioners.
-- Courts & Public Safety (*Public Hearing*)
- 2-21-2 GREAT LAKES BAY MICHIGAN WORKS!** requesting waiver of County Policy #328 regarding county identification badges.
-- Labor Relations (**2-21-5.1**)
- 2-21-3 SAGINAW COUNTY ROAD COMMISSION** submitting its FY 2017 Budget Summary of revenue and expenses.
-- County Services (*Receive and File*)
- 2-21-4 PUBLIC WORKS** requesting approval of a Full Faith and Credit Resolution regarding a Drain Note for the Misteguay Creek Intercounty Drain Drainage District.
-- County Services (**2-21-3.1/Res. "A"**)
- 2-21-5 MAINTENANCE** requesting an increase in the Maintenance Department credit cards issued to Bernard Delaney and Beth Capen in order to pay the monthly invoices/bills of eighteen (18) participating vendors.
-- County Services (**2-21-3.3**)
- 2-21-6 MOBILE MEDICAL RESPONSE** submitting its tri-annual report (2016 Calendar Year Report) on response times and other related information.
-- Courts & Public Safety (*Receive and File*)
- 2-21-7 MAINTENANCE** requesting waiver of the hiring freeze and approval to fill the position of Utility Worker.
-- Labor Relations (**2-21-5.2**)
- 2-21-8 FRANKENMUTH DDA** submitting its FY 2015-16 Annual Report in accordance with City and State codes.
-- County Services (*Receive and File*)
- 2-21-9 ANIMAL CARE CENTER** requesting approval to enter in a Fiscal Sponsorship Agreement with the Saginaw Community Foundation.
-- Courts & Public Safety (**2-21-2.1**)
- 2-21-10 TREASURER** submitting two resolutions authorizing the borrowing for the County Purchase of 2016 Delinquent Taxes.
-- Budget Audit (**2-21-4.1/Res. "D" – Res. "E"**)
- 2-21-11 CONTROLLER/CAO** regarding the Saginaw County Budget Management Process as it pertains to (1) Hiring Freeze; (2) Budget Adjustments; (3) PCN Roster Adjustments; and (4) Factoring.
-- Budget Audit (*Referred back to Committee in March*)
- 2-21-12 CONTROLLER/CAO** requesting approval of Amendment #1 to the Agreement between the Department of Army and the County of Saginaw and amend the FY 2017 Budget to include receipt of a \$275,000 grant from the Michigan Department of Environmental Quality (MDEQ) for the Saginaw River Deepening Feasibility Study.
-- County Services (**2-21-3.4**)



- 2-21-13** **CONTROLLER/CAO** requesting amendment of the FY 2017 General Fund Budget by \$41,000 to cover costs associated with engaging Municipal Analytics to assist the County in preparing a 3-year Budget and related budget processes.
-- Budget Audit **(2-21-4.3)**
- 2-21-14** **CONTROLLER/CAO** submitting the 2016 4th quarter Finance and Program Report for the Historical Society of Saginaw County and 4th quarter reports from the four (4) county museums.
-- County Services *(Receive and File)*
- 2-21-15** **CONTROLLER/CAO** requesting confirmation of the Saginaw County Board of Commissioners Vision Statement, Mission Statement and Consensus Priorities; further, to review the 3 – 5 goals submitted by Elected and Appointed Department Heads and consider whether the Board Consensus Priorities for 2017 should be amended to incorporate any new goals.
-- Executive **(2-21-6.1)**
- 2-21-16** **10th CIRCUIT COURT – FAMILY DIVISION** requesting approval to hire a candidate for the position of Juvenile Referee at the top of the pay scale (\$59,372 - \$75,571).
-- Courts & Public Safety *(Referred back to Committee in March)*
- 2-21-17** **70TH DISTRICT COURT** requesting waiver of the hiring freeze to fill one (1) position of Traffic Clerk/Cashier and one position of Civil Clerk/Cashier.
-- Labor Relations **(2-21-5.3)**
- 2-21-18** **70TH DISTRICT COURT** requesting waiver of the hiring freeze to fill the position of Traffic Clerk/Cashier.
-- Labor Relations **(2-21-5.3)**
- 2-21-19** **SHERIFF** requesting to meet with the Courts & Public Safety Committee to introduce himself to the new commissioners; (2) Discuss new uniform transition; and (3) New Jail options
-- Courts & Public Safety *(Referred back to Committee in March)*
- 2-21-20** **COMMISSION ON AGING** requesting utilization of Fund Balance in the amount of \$6,000 to repair/replace the men’s and women’s restrooms near the Home Delivered Meal area of the kitchen at the Commission on Aging building.
-- Budget Audit **(2-21-4.2)**
- 2-21-21** **10TH CIRCUIT COURT – FAMILY DIVISION** requesting a salary exception for a returning employee to place her at her prior salary status.
-- Courts & Public Safety **(2-21-2.2)**
- 2-21-22** **PUBLIC WORKS** requesting approval of a Full Faith and Credit Resolution regarding a borrowing for the No. 9 Drain Drainage District
-- County Services **(2-21-3.2/Res. “B”)**
- 2-21-23** **PROSECUTOR** requesting approval of updated job descriptions and re-factoring for the positions of Juvenile Specialist, Warrant Coordinator, and District Court Specialist.
-- Courts & Public Safety
- 2-21-24** **BIRCH RUN AREA CONVENTION & VISITORS BUREAU, INC.** submitting an update on the material previously presented documenting its request for a separate management agreement and requesting approval of a Resolution regarding same.
-- County Services **(2-21-3.5/Res. “C”)**
- 2-21-25** **COUNTY CLERK** requesting waiver of the hiring freeze and approval to fill the vacant position of Circuit Court File Clerk.
-- Labor Relations **(2-21-5.4)**



- 2-21-26 PUBLIC WORKS** requesting waiver of the hiring freeze and approval to fill the vacant position of Deputy Public Works Commissioner.
-- Labor Relations **(2-21-5.5)**
- 2-21-27 CIVIL COUNSEL** requesting a closed session at Executive Committee pursuant to MCL 15.268(e) to discuss trial or settlement strategy with respect to pending litigation.
-- Executive
- 2-21-28 PROSECUTOR** requesting waiver of the hiring freeze and approval to fill the vacant position of Appeals Specialist.
-- Labor Relations **(2-21-5.6)**
- 2-21-29 PROSECUTOR** requesting waiver of the hiring freeze and approval to fill the vacant position of Juvenile Specialist.
-- Labor Relations **(2-21-5.6)**
- 2-21-30 CONTROLLER/CAO** requesting amendment of the FY 2017 General Fund Budget in the amount of \$20,000 for Personnel (101-22353) to cover costs associated with County-wide training opportunities.
-- Executive **(2-21-6.2)**
- 2-21-31 ANDRÉ R. BORRELLO, 10TH CIRCUIT COURT JUDGE** requesting waiver of the hiring freeze and approval to fill the vacant position of Law Clerk/Bailiff.
-- Labor Relations **(2-21-5.7)**
- 2-21-32 CONTROLLER/CAO** requesting amendment of the FY 2017 General Fund Budget in the amount of \$30,000 to engage an Executive Search Firm to assist with the selection of an Equalization Director. *(Request amended in committee – See Board Report for final determination)*
-- Executive **(2-21-6.3)**

PUBLIC HEARING

2nd Call

At 5:12 p.m., Chairman Ruth announced the second call of a public hearing on the draft of the Saginaw County Hazard Mitigation Plan prepared by the Saginaw County Emergency Preparedness Council. There were no public comments. The Chair announced the hearing would remain open.

INITIATORY MOTIONS

Commissioner Stack moved, seconded by Commissioner O’Neal, to approve a Resolution opposing the State School Reform Office plans for school closures and the appointment of CEOs to Public Schools in Saginaw County. After discussion, the Chairman directed the Clerk to take a roll-call vote with the results as follows:

Yes: Stack, Kilpatrick, McInerney, Theisen, Hadsall, Krafft, O’Neal, Webster, and Ruth – 9

No: Harris – 1

Abstain: Dwan – 1

Total – 11.

Motion carried. (Resolution “F” listed under the regular order of business)



REPORTS OF COMMITTEES

1. **Human Services Committee – S. McInerney, Chair; J. Theisen, Vice-Chair**
None

2. **Courts and Public Safety Committee – C. Hadsall, Chair; K. Kilpatrick, Vice-Chair**
 - 2.1) **Animal Care Center**, re: Approval of Fiscal Sponsorship Agreement with Saginaw Community Foundation
 - 2.2) **10th Circuit Court – Family Division**, re: Approval of salary exception to place a returning employee at her previous salary status
 - 2.3) **Hon. Terry L. Clark, Chief Judge**, re: Approval to contract with Attorney Rodney J. O’Farrell to conduct a Feasibility Study in regard to the proper defense of indigent criminal defendants and funding in Saginaw County
 - ***Hadsall moved, seconded by Kilpatrick, to approve 2.1 through 2.3 leaving room for exceptions. There were no exceptions and the motion carried.***

FROM: COMMITTEE ON COURTS & PUBLIC SAFETY – 2.1

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-9, from Lisa Stoffel, Animal Care Center Director, requesting approval to enter in a Fiscal Sponsorship Agreement with Saginaw Community Foundation.

We met with Ms. Stoffel who discussed with committee the significant planned fundraising events coming up in the spring and summer of 2017. As the Animal Care Center progresses toward a better facility, for the animals and our community, it becomes necessary to obtain community involvement in its endeavors.

With regard to building a relationship with its donors, the Animal Care Center would like to establish a working agreement with a trusted community foundation as a central location for individuals and corporations to donate. Saginaw Community Foundation has a great deal of expertise in the areas of fundraising, grant writing, and marketing. By teaming together, it will be a more successful outcome for the Animal Care Center and Saginaw County as a whole.

We recommend approval to enter into a Fiscal Sponsorship Agreement with Saginaw Community Foundation.

Respectfully Submitted,

COMMITTEE ON COURTS & PUBLIC SAFETY

Cheryl M. Hadsall, Chair
Kathleen K. Dwan
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Amos O’Neal

FROM: COMMITTEE ON COURTS & PUBLIC SAFETY – 2.2

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-21, from Todd E. Borders, Deputy Court Administrator, 10th Circuit Court – Family Division, requesting a salary exception for a returning employee.

We met with Mr. Borders who discussed with committee that Laura Boulieuw was employed through the county as a Typist/Clerk at the 10th Circuit Court – Family Division from August 2012 to



August 2016. She discharged her own employment in August 2016 but returned in November 2016. There was discussion with her when she rehired that the court would advocate for her to retain her prior salary status. This was not completed, as the Deputy Court Administrator at that time has left her position and no longer works for Saginaw County.

The Court requests that a salary exception be made based on the following: (1) Laura has the experience and knowledge to aid the court with complex items; (2) She is a productive employee who embodies the qualities the court promotes and encourages; and (3) The court’s budget already includes her salary for fiscal year 2017. There would not need to be an adjustment in the budget.

We recommend approval of a salary exception for Laura Bouliew and the return of her previous salary status.

Respectfully Submitted,

COMMITTEE ON COURTS & PUBLIC SAFETY

Cheryl M. Hadsall, Chair
Kathleen K. Dwan
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Amos O’Neal

FROM: COMMITTEE ON COURTS & PUBLIC SAFETY – 2.3

FEBRUARY 21, 2017

Your committee considered Communication information provided by Attorney Barbara Klimasewski, Regional Manager of the Michigan Indigent Defense Commission for Saginaw County, regarding indigent defendants in criminal cases, effective assistance of counsel, and providing standards for the appointment of legal counsel.

We met with Ms. Klimasewski, who discussed with committee her role is to work within the criminal justice community to discuss the first set of indigent defense delivery system standards that have been approved by the Michigan Supreme Court, and to work with the local providers on compliance plans to improve indigent defense.

Ms. Klimasewski has had several meetings with the Court and Controller Robert Belleman in an effort to establish guidelines for the proper defense of indigent criminal defendants and funding in Saginaw County. In order to assist in this process, a feasibility study should be done regarding its Indigent Criminal Defense System and recommends hiring Attorney Rodney J. O’Farrell at the rate of \$150 per hour. The feasibility study will explore a Public Defender System, a Contract Defender System, and an Assigned Counsel System. Also, the feasibility study will develop a compliance plan that is required under the Act.

We recommend approval to hire Attorney Rodney J. O’Farrell to perform a feasibility study in establishing guidelines for the proper defense of indigent criminal defendants and funding in Saginaw County and to prepare a compliance plan.

Respectfully Submitted,

COMMITTEE ON COURTS & PUBLIC SAFETY

Cheryl M. Hadsall, Chair
Kathleen K. Dwan
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Amos O’Neal



3. **County Services Committee – C. Stack, Chair; C. Hadsall, Vice-Chair**
- 3.1) **Public Works**, re: Approval of Full Faith and Credit Resolution regarding a Drain Note for the Misteguay Creek Intercounty Drain Drainage District
 - 3.2) **Public Works**, re: Approval of Full Faith and Credit Resolution regarding a borrowing for the No. 9 Drain Drainage District
 - 3.3) **Maintenance**, re: Increase in the credit card limit issued to Bernard Delaney and Beth Capen to pay monthly invoices/bills of eighteen (18) participating vendors
 - 3.4) **Controller/CAO**, re: Approval of Amendment #1 to Agreement between the Department of Army and Saginaw County and to amend the FY 2017 Budget to include receipt of a \$275,000 grant from the MDEQ for the Saginaw River Deepening Feasibility Study
 - 3.5) **Birch Run Area Convention & Visitors Bureau**, re: Approval of Separate Management Agreement with Saginaw County for distribution of accommodation tax pursuant to County Ordinance #103
- ***Stack moved, seconded by Hadsall, to approve 3.1 through 3.5 leaving room for exceptions. Report 3.5 was accepted for discussion and the motion carried as to 3.1 – 3.4. Commissioner McInerney requested a roll-call vote on Board Report 3.5. Commissioner Theisen stated we should go by what our Civil Counsel advises and turn down the request. The Chairman directed the Clerk to take roll-call with results as follows:***

Yes: Stack, Hadsall – 2

No: Kilpatrick, McInerney, Theisen, Harris, Krafft, O’Neal, Webster, Dwan, and Ruth – 9

Total - 11 .

Motion failed as to 3.5.

FROM: COMMITTEE ON COUNTY SERVICES – 3.1

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-4 from Brian Wendling, Public Works Commissioner, requesting approval of a Full Faith and Credit Resolution regarding a Drain Note for the Misteguay Creek Intercounty Drain Drainage District.

We met with Mr. Wendling who informed the committee that this is an interim note to come due on September 1, 2018 and payable with bonds to be issued by the Drainage District for permanent financing of the project.

We recommend approval of a Full Faith and Credit Resolution regarding a Drain Note for the Misteguay Creek Intercounty Drain Drainage District. Resolution “A” is submitted under the regular order of business to accomplish same.

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair

Dennis H. Krafft



FROM: COMMITTEE ON COUNTY SERVICES – 3.2

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-22, from Brian Wendling, Public Works Commissioner, requesting approval of a Full Faith and Credit Resolution regarding a borrowing for the No. 9 Drain Drainage District.

We met with Mr. Wendling, who informed the committee that in order to pay for the costs of constructing the Project, the Public Works Commissioner has authorized and provided for the issuance of notes in the aggregate principal amount of not to exceed \$250,000 in anticipation of the collection of equal amount of special assessments against property and public corporations in the Drainage District.

We recommend approval of a Full Faith and Credit Resolution regarding a borrowing for the No. 9 Drain Drainage District. Resolution “B” is submitted under the regular order of business to accomplish same.

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair

Dennis H. Krafft

FROM: COMMITTEE ON COUNTY SERVICES – 3.3

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-5, from Bernard G. Delaney, Maintenance Director, requesting an increase in the Maintenance Department credit cards issued to himself and Beth Capen, Administrative Assistant at Maintenance, in order to pay the monthly invoices/bills of eighteen (18) participating vendors.

We met with Mr. Delaney who informed the committee that the Maintenance Department has been requested to participate in paying monthly invoices/bills by means of the County provided credit card. Eighteen (18) vendors have agreed to participate without any additional costs being incurred by the County. Mr. Delaney is requesting that the credit limits on Bernard Delaney and Beth Capen’s credit cards be increased to cover the monthly cost of \$160,285. That total is the maximum amount that would be due in August to cover high electrical costs. By paying with the credit card, the County receives money back as well as decreasing labor and material costs associated with paying by check.

We recommend approval of an increase in the Maintenance Department credit card limit issued to Bernard Delaney and Beth Capen in order to pay the monthly invoices/bills of eighteen (18) participating vendors.

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair

Dennis H. Krafft

FROM: COMMITTEE ON COUNTY SERVICES – 3.4

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-12, from Robert V. Belleman, Controller/CAO, requesting approval of Amendment #1 to the Agreement between the Department of Army and the County of Saginaw and to amend the FY 2017 Budget to include receipt of a \$275,000 grant from the



Michigan Department of Environmental Quality (MDEQ) for the Saginaw River Deepening Feasibility Study.

We met with Mr. Belleman who informed the committee that the County of Saginaw is acting as the Local Sponsor with the United States Army Corps of Engineers to evaluate the economic feasibility of deepening the Saginaw River from the mouth of the Saginaw Bay to the Sixth Street Turning Basin located in the City of Saginaw. Amendment #1 to the Agreement with the Department of the Army reflects the increase in project costs associated with the Saginaw River Deepening Feasibility Study. We recommend approval of Amendment #1 to the Agreement between the Department of Army and the County of Saginaw and to amend the FY 2017 Budget to include receipt of a \$275,000 grant from the Michigan Department of Environmental Quality (MDEQ) for the Saginaw River Deepening Feasibility Study.

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair
Kyle R. Harris
Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair
Dennis H. Krafft

~~**FROM: COMMITTEE ON COUNTY SERVICES – 3.5** **FEBRUARY 21, 2017**~~

~~Your committee considered Communication No. 2-21-24, from Jerry Preston, Birch Run Area Convention & Visitors Bureau, Inc., submitting information and requesting the County consider executing a separate Management Agreement for distribution of the accommodations tax pursuant to County Ordinance #103.~~

~~We met with Mr. Preston, who presented information on the Birch Run Area Convention & Visitors Bureau, Inc. as to its (1) Audit; (2) 990 Form; (3) Governance and Staff (updated); (4) Visitors Center; (5) Visitors Guide; (6) Monthly Calendar of Events; and (7) Draft Management Agreement. Discussion was held and a majority of the committee approved the matter be sent to the next meeting of the full Board of Commissioners.~~

~~We recommend approval to enter into a separate Management Agreement with the Birch Run Area Convention & Visitors Bureau, Inc. for distribution of accommodations tax pursuant to County Ordinance #103.~~

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair
Kyle R. Harris
Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair
Dennis H. Krafft

- 4. **Budget Audit Committee – D. Krafft, Chair; A. O’Neal, Vice-Chair**
 - 4.1) **Treasurer**, re: Approval of County Purchase of 2016 Delinquent Taxes
 - 4.2) **Commission on Aging**, re: Approval to utilize fund balance to repair/replace restrooms near the Home Delivered Meals area of the kitchen
 - 4.3) **Controller/CAO**, re: Approval to amend FY 2017 General Fund Budget by \$41,000 to cover costs associated with engaging Municipal Analytics to assist the County in preparing a 3-year Budget and related budget processes



- **Krafft moved, seconded by Dwan, to approve 4.1 through 4.3 leaving room for exceptions. There were no exceptions and the motion carried.**

FROM: COMMITTEE ON BUDGET/AUDIT -- 4.1

FEBRUARY 21, 2017

Your Budget/Audit Committee considered Communication No. 2-21-10 from Timothy M. Novak, County Treasurer, forwarding for approval the Resolution authorizing the borrowing for the County purchase of the 2016 Delinquent Taxes and the Resolution designating the County Treasurer as Agent for the County.

The notes will be sold as taxable issue this year, the same as has been done for the past 28 years. With the 2016 budgeted contribution of \$1,500,000 the Delinquent Tax Revolving Fund will have contributed \$52,308,857 to the General Fund since 1980.

The estimated borrowing amount is as follows:

County Spread (Real only) and Special Assessments	
TOTAL	\$ 178,273,645
90.5% Collections	\$ 161,337,649
<u>9.5% Delinquent</u>	<u>16,935,996</u>
Collections through May 2017	<u>(\$ 1,000,000)</u>
	\$ 15,935,996
Estimated County Purchase	\$ 15,500,000

We recommend the County purchase the 2016 Delinquent Taxes, as presented above. Under the proper order of business, the appropriate Resolutions will be submitted authorizing the borrowing and designating the County Treasurer as Agent for the County.

Respectfully submitted,

COMMITTEE ON BUDGET/AUDIT

Dennis H. Krafft, Chair

James G. Theisen

Carl E. Ruth

Amos O’Neal, Vice-Chair

Michael A. Webster

FROM: COMMITTEE ON BUDGET/AUDIT -- 4.2

FEBRUARY 21, 2017

Your Budget/Audit Committee considered Communication No. 2-21-20 from Karen Courneya, Commission on Aging Director, requesting the use of fund balance in the amount of \$6,000 to repair/replace the walls and fixtures in the restrooms in the Home Delivered Meals area of the kitchen.

We met with Ms. Courneya who indicated the County Health Department issued an observation complaint regarding a hole in the wall of the restroom near the Home Delivered Meal area of the kitchen at Commission on Aging. Due to the age of the building, and the fact that neither restroom in that area has undergone renovation, it is necessary to make repairs and replace fixtures to avoid a critical finding that would impact the Nutrition Program.



We recommend approval for the Commission on Aging to utilize fund balance in the amount of \$6,000 to make the necessary repairs to the restrooms, replace fixtures, and bring them into code compliance.

Respectfully submitted,

COMMITTEE ON BUDGET/AUDIT

Dennis H. Krafft, Chair
James G. Theisen
Carl E. Ruth

Amos O’Neal, Vice-Chair
Michael A. Webster

FROM: COMMITTEE ON BUDGET/AUDIT -- 4.3

FEBRUARY 21, 2017

Your Budget/Audit Committee considered Communication No. 2-21-13 from Robert V. Belleman, Controller/CAO, requesting amendment of the FY 2017 General Fund Budget by \$41,000 to cover costs associated with engaging Municipal Analytics to assist the County in preparing a 3 year Budget and related budget processes.

We met with the Controller who indicated the current budget process begins in April each year, with department heads completing their draft budget. The Controller and Finance Director review and make necessary adjustments to balance funds and submit a final draft to the Board in late May/early June. A Committee of the Whole is held in late June and department heads are invited to make requests if their recommended budget is different from the Controller’s recommended budget. The Budget/Audit Committee finalizes changes to the draft budget, submits it to the Board at its August meeting (laid on the table), and the County adopts an annual budget in September for the ensuing year.

The Controller further indicated department heads make periodic adjustments to their budgets throughout the year and the process begins again every April. By adopting a 3 year budget, with the Board approving revisions every six (6) months based on current estimates of revenues and projected expenditures, the Controller believes this would provide the necessary flexibility and stability to the County. Department heads would be expected to continuously monitor their current budget and identify future budget projections requiring additional resources or reduction in expenditures.

We recommend approval for the Controller to engage the services of Municipal Analytics in the amount of \$41,000 to assist the County in preparing a 3 year budget and related budget processes.

Respectfully submitted,

COMMITTEE ON BUDGET/AUDIT

Dennis H. Krafft, Chair
James G. Theisen
Carl E. Ruth

Amos O’Neal, Vice-Chair
Michael A. Webster

5. Labor Relations Committee – C. Stack, Chair; J. Theisen, Vice-Chair

- 5.1) **GLB Michigan Works!**, re: Waiver of County Policy #328 regarding County identification badges
- 5.2) **Maintenance**, re: Waiver of the hiring freeze for Utility Worker
- 5.3) **70th District Court**, re: Waiver of the hiring freeze for two (2) positions of Traffic Clerk/Cashier and one (1) position of Civil Clerk/Cashier
- 5.4) **Clerk**, re: Waiver of the hiring freeze for Circuit Court File Clerk
- 5.5) **Public Works**, re: Waiver of the hiring freeze for Deputy Public Works Commissioner



- 5.6) **Prosecutor**, re: Waiver of the hiring freeze for Appeals Specialist and Juvenile Specialist
- 5.7) **10th Circuit Court**, re: Waiver of the hiring freeze for Law Clerk/Bailiff

- **Stack moved, seconded by Theisen, to approve 5.1 through 5.7 leaving room for exceptions. There were no exceptions and the motion carried.**

FROM: COMMITTEE ON LABOR RELATIONS -- 5.1

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication No. 2-21-2 from Ed Oberski, CEO Great Lakes Bay Michigan Works!, requesting waiver of County Policy #328 regarding county identification badges.

We met with Mr. Oberski who informed the committee that of the 150 Great Lakes Bay Michigan Works! staff, only 12 are employed by Saginaw County. All 12 work out of its administrative office located in Midland. Saginaw County employs those 12 staff (its administrative team) as a part of the services it provides as the fiscal agent/administrative unit for Great Lakes Bay Michigan Works!. Since Mr. Oberski began as CEO in 2004, none of its Saginaw County employee staff wore Saginaw County ID badges nor have they ever been issued a Saginaw County ID badge.

We recommend waiver of County Policy #328 for the 12 Saginaw County employees that work at Great Lakes Bay Michigan Works!

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair

Susan A. McInerney

FROM: COMMITTEE ON LABOR RELATIONS -- 5.2

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication No. 2-21-7 from Bernard Delaney, Maintenance Director, requesting waiver of the hiring freeze and approval to fill the position of Utility Worker and allow the position to be posted to the public.

We met with Mr. Delaney who indicated this position is vital to the operation of the Maintenance Department. This position is responsible for changing lights, plumbing repairs, pick up and deliveries to all County Buildings, facility cleaning during normal business hours and additional duties such as painting and repair to office equipment.

We recommend waiver of the hiring freeze and authorize hiring a Utility Worker in the Maintenance Department and allow the position to be posted to the public.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair

Susan A. McInerney



FROM: COMMITTEE ON LABOR RELATIONS -- 5.3

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication Nos. 2-21-17 and 2-21-18 from Paula McGlown, District Court Administrator, requesting waiver of the hiring freeze and approval to fill the two (2) positions of Traffic Clerk/Cashier and one (1) position of Civil Clerk/Cashier in the 70th District Court.

We met with Ms. McGlown who indicated these positions are vital to the efficient operation of the 70th District Court.

We recommend waiver of the hiring freeze and authorize hiring two (2) Traffic Clerk/Cashiers and one (1) Civil Clerk/Cashier, in the 70th District Court.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair
Kyle R. Harris
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Susan A. McInerney

FROM: COMMITTEE ON LABOR RELATIONS -- 5.4

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication No. 2-21-25 from Michael J. Hanley, Saginaw County Clerk, requesting waiver of the hiring freeze and approval to fill the position of Circuit Court File Clerk (T08 Classification).

We met with Mr. Hanley who indicated this position is vital to the operation of the Records Division.

We recommend waiver of the hiring freeze and authorize hiring a Circuit Court File Clerk in the Saginaw County Clerk's Office.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair
Kyle R. Harris
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Susan A. McInerney

FROM: COMMITTEE ON LABOR RELATIONS -- 5.5

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication No. 2-21-26 from Brian J. Wendling, Public Works Commissioner, requesting waiver of the hiring freeze and approval to fill the position of Deputy Public Works Commissioner in the Public Works Department.

We met with Mr. Wendling who indicated this position is vital to the operation of Public Works as it is responsible for all accounts receivable and payable, invoices, payroll, bond payments, and assessments.

We recommend waiver of the hiring freeze and authorize hiring a Deputy Public Works Commissioner in the Public Works Department.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair
Kyle R. Harris
Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair
Susan A. McInerney



FROM: COMMITTEE ON LABOR RELATIONS -- 5.6

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication Nos. 2-21-28 and 2-21-29 from John A. McColgan, Jr., Saginaw County Prosecutor, requesting waiver of the hiring freeze and approval to fill the position of Appeals Specialist and Juvenile Specialist.

We met with Mr. McColgan who indicated these positions are vital to the efficient operation of the Prosecutor's Office.

We recommend waiver of the hiring freeze and authorize hiring an Appeals Specialist and Juvenile Specialist in the Saginaw County Prosecutor's Office.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair

Susan A. McInerney

FROM: COMMITTEE ON LABOR RELATIONS -- 5.7

FEBRUARY 21, 2017

Your Labor Relations Committee considered Communication No. 2-21-31 from the Hon. André Borrello, 10th Circuit Court Judge, requesting waiver of the hiring freeze and approval to fill the position of Law Clerk/Bailiff.

We met with Judge Borrello who indicated this position is essential to the operation of the courtroom.

We recommend waiver of the hiring freeze and authorize hiring a Law Clerk/Bailiff for the Hon. André Borrello, 10th Circuit Court Judge.

Respectfully submitted,

COMMITTEE ON LABOR RELATIONS

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Kirk W. Kilpatrick, Vice-Chair

Susan A. McInerney

6. **Executive Committee – C. Ruth, Chair**

6.1) **Controller**, re: Affirmation of the Vision Statement and Mission Statement and confirmation of the Board Consensus Priorities for FY 2017

6.2) **Controller**, re: Approval to amend the FY 2017 General Fund Budget in the amount of \$20,000 to cover costs associated with County-wide training opportunities

6.3) **Controller**, re: Approval to post the position of Equalization Director as an MMAO(3) and contract with an MMAO(4) if needed

- ***Krafft moved, seconded by McInerney, to approve 6.1 through 6.3 leaving room for exceptions. There were no exceptions and the motion carried.***



FROM: EXECUTIVE COMMITTEE -- 6.1

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-15 from Robert V. Belleman, Controller/CAO, requesting confirmation of Saginaw County's Vision Statement, Mission Statement, and Board Consensus Priorities.

We met with the Controller and discussion was held regarding the Board's Consensus Priorities, which include: (1) Unfunded Liability, (2) Economic Development, (3) Reduction in Crime Rate, (4) Jail Renovations, (5) Unified Technology Plan/Update, (6) Animal Care Center, and (7) Personnel Compensation Study. As these items continue to be in process, the committee agreed they should remain as Consensus Priorities for FY 2017.

We recommend affirmation of the Vision Statement and Mission Statement and confirmation of the Consensus Priorities for FY 2017.

Respectfully submitted,

EXECUTIVE COMMITTEE

Carl E. Ruth, Chair
Cheryl M. Hadsall
Dennis H. Krafft

Susan A. McInerney
Charles M. Stack

FROM: EXECUTIVE COMMITTEE -- 6.2

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-30 from Robert V. Belleman, Controller/CAO, requesting amendment of the FY 2017 General Fund Budget in the amount of \$20,000 for Personnel to cover costs associated with County-wide training opportunities.

We met with the Controller and discussion was held regarding training opportunities for County employees and lack of funding within departmental individual budgets. Providing these opportunities on site benefits the County by increasing employees' skills and knowledge, affording employees an opportunity to interact with their colleagues in a learning environment, and demonstrating to our insurer our commitment to supervisory training.

We recommend amendment of the FY 2017 General Fund Budget in the amount of \$20,000 for Personnel (101-22353) to cover costs associated with County-wide training opportunities.

Respectfully submitted,

EXECUTIVE COMMITTEE

Carl E. Ruth, Chair
Cheryl M. Hadsall
Dennis H. Krafft

Susan A. McInerney
Charles M. Stack

FROM: EXECUTIVE COMMITTEE -- 6.3

FEBRUARY 21, 2017

Your committee considered Communication No. 2-21-32 from Robert V. Belleman, Controller/CAO, requesting amendment of the FY 2017 General Fund Budget in the amount of \$30,000 to engage an Executive Search Firm to assist with the selection of an Equalization Director. *(Revised request at meeting to reduce the position of Equalization Director to a Level 3 from a Level 4 and contract with a Level 4 if needed)*

We met with the Controller and discussion was held regarding this item. Since the Board waived the hiring freeze and posted the position in November 2016, there have been no applications for the position of Equalization Director. Jim Totten, Equalization Director, advised the Controller that the lack of applications is most likely due to the pay level.



We recommend approval to post the position as a Michigan Advanced Assessing Officer (3) (MAAO (3)) as opposed to a Michigan Master Assessing Officer (4) (MMAO (4)) and contract with a Level 4 if needed.

Respectfully submitted,
EXECUTIVE COMMITTEE

Carl E. Ruth, Chair
Cheryl M. Hadsall
Dennis H. Krafft

Susan A. McInerney
Charles M. Stack

7. **Legislative Committee – K. Kilpatrick, Chair; S. McInerney, Vice-Chair**

None

8. **Intergovernmental Cooperation Committee – J. Theisen, Chair; C. Stack, Vice-Chair**

None

9. **Committee Compensation**

2-21-17.1) January 1 – January 14, 2017

2-21-17.2) January 15 – January 28, 2017

2-21-17.3) January 29 – February 11, 2017

- ***O’Neal moved, seconded by Stack, to approve 5.1, 5.2 and 5.3 leaving room for exceptions. There were no exceptions and the motion carried.***

COMMITTEE COMPENSATION - 2-21-17.1

February 21, 2017

I herewith submit for your approval the per diem to which members of this Board are entitled for attendance at Committee Meetings held January 1 - January 14, 2017

<u>Meeting</u>	<u>Date</u>	<u>Committee</u>	<u>Commissioner</u>	<u>Amount</u>	<u>Total Present</u>
1	01/03/17	Board Session - Organizational Dwan, Hadsall, Harris, Kilpatrick, Krafft, McInerney, O’Neal, Ruth, Stack, Theisen, Webster	All Present	\$550.00	11
2	01/04/17	Crime Prevention Council	Ruth	\$50.00	1
3	01/05/17	Board Session - Committee Assignments Dwan, Hadsall, Harris, Krafft, McInerney, O’Neal, Ruth, Stack, Theisen, Webster <i>Absent: Kilpatrick</i>	10 Present	\$500.00	10
4	01/09/17	Human Services Committee	McInerney Theisen O’Neal Ruth Hadsall	\$50.00 \$50.00 \$50.00 \$50.00 \$50.00	1 1 1 1 1



Board of Commissioners – February 21, 2017

5	01/11/17	County Services Committee	Stack	\$50.00	1
			Hadsall	\$50.00	1
			Harris	\$50.00	1
			Krafft	\$50.00	1
			Ruth	\$50.00	1
6	01/12/17	Budget Audit Committee	Krafft	\$50.00	1
			O'Neal	\$50.00	1
			Webster	\$50.00	1
			Ruth	\$50.00	1
7	01/12/17	Labor Relations Committee	Stack	\$50.00	1
			Theisen	\$50.00	1
			Harris	\$50.00	1
			McInerney	\$50.00	1
			Ruth	\$25.00	1
TOTAL				\$2,025.00	41

Respectfully submitted, Suzy Koeplinger, Board Coordinator (1-13-17)

COMMITTEE COMPENSATION - 2.21.17.2

February 21, 2017

I herewith submit for your approval the per diem to which members of this Board are entitled for attendance at Committee Meetings held January 15 - January 28, 2017

<u>Meeting</u>	<u>Date</u>	<u>Committee</u>	<u>Commissioner</u>	<u>Amount</u>	<u>Total Present</u>
1	01/16/17	HealthSource Advisory Board	Stack	\$50.00	1
2	01/17/17	Board Session Dwan, Hadsall, Harris, Kilpatrick, Krafft, McInerney, O'Neal, Ruth, Stack, Theisen, Webster	All Present	\$550.00	11
3	01/18/17	Castle Museum Board	Hadsall	\$50.00	1
4	01/18/17	Animal Control Advisory Council	Hadsall	\$25.00	1
5	01/19/17	Frankenmuth CVB	Krafft	\$50.00	1
6	01/19/17	Commission on Aging	Stack	\$50.00	1
7	01/24/17	Land Bank Authority	Ruth	\$50.00	1
8	01/24/17	Region VII Area Agency on Aging	Stack	\$5.00	1
9	01/25/17	GLB Regional CVB	Ruth	\$50.00	1
10	01/25/17	Saginaw Future Board	Ruth	\$25.00	1
11	01/26/17	9-1-1 Authority Board	McInerney	\$50.00	1
TOTAL				\$955.00	21

Respectfully submitted, Suzy Koeplinger, Board Coordinator (1-27-17)



COMMITTEE COMPENSATION - 2.21.17.3

February 21, 2017

I herewith submit for your approval the per diem to which members of this Board are entitled for attendance at Committee Meetings held January 29 - February 11, 2017

<u>Meeting</u>	<u>Date</u>	<u>Committee</u>	<u>Commissioner</u>	<u>Amount</u>	<u>Total Present</u>
1	02/01/17	Crime Prevention Council	Ruth	\$50.00	1
2	02/06/17	Northern Michigan Counties Association	Theisen	\$50.00	1
3	02/07/17	Courts & Public Safety Committee	Hadsall	\$50.00	1
			Kilpatrick	\$50.00	1
			Dwan	\$50.00	1
			O'Neal	\$50.00	1
			Ruth	\$50.00	1
4	02/08/17	County Services Committee	Stack	\$50.00	1
			Hadsall	\$50.00	1
			Harris	\$50.00	1
			Krafft	\$50.00	1
			Ruth	\$50.00	1
5	02/09/17	SMATS-Transportation	Stack	\$50.00	1
6	02/09/17	Budget/Audit Committee	Krafft	\$50.00	1
			O'Neal	\$50.00	1
			Theisen	\$50.00	1
			Webster	\$50.00	1
			Ruth	\$50.00	1
7	02/10/17	MAC Environmental & Regulatory Affairs/Lansing	Stack	\$50.00	1
TOTAL				\$950.00	19

Respectfully submitted, Suzy Koeplinger, Board Coordinator (2-10-17)

PUBLIC HEARING

3rd Call - Closing

At 5:32 p.m., Chairman Ruth announced the third and final call of a public hearing on the draft of the Saginaw County Hazard Mitigation Plan prepared by the Saginaw County Emergency Preparedness Council. There were no public comments. The Chairman announced the public hearing closed at 5:32 p.m.



RESOLUTIONS

RESOLUTION “A” BOARD OF COMMISSIONERS COUNTY OF SAGINAW

MISTEGUAY CREEK INTERCOUNTY DRAIN NOTE, SERIES 2015

At a regular meeting of the Board of Commissioners of the County of Saginaw, the State of Michigan (the "County"), held at Saginaw, Michigan, on the 21st day of February, 2017.

PRESENT: Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O’Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11

ABSENT: None

Commissioner Stack offered the following resolution and moved its adoption. The motion was seconded by Commissioner Theisen:

WHEREAS, proceedings have been taken by the Drainage Board for the Misteguay Creek Intercounty Drain for improvements to the Misteguay Creek Intercounty Drain (the “Project”) pursuant to a petition filed with the Saginaw County Public Works Commissioner under the provisions of Chapter 8 of the Drain Code of 1956, as amended (the “Drain Code”); and

WHEREAS, in order to refinance a note previously issued by the Misteguay Creek Intercounty Drain Drainage District (the “Drainage District”) in the principal amount of \$800,000 to pay for certain preliminary costs of acquiring and constructing the Project, the Drainage District issued a note on October 14, 2015 designated “Misteguay Creek Intercounty Drain Note, Series 2015” (the “Note”) in the principal amount of \$800,000, bearing interest at a rate of 1.49% per annum, and now maturing on March 1, 2017, in anticipation of bonds (the “Bonds”) to be issued by the Drainage District to provide the permanent financing for the Project; and

WHEREAS, 17.0% of the cost of the Project has been apportioned by the Drainage Board to the County of Genesee, 43.0% of such cost has been apportioned by the Drainage Board to the County of Saginaw (the “County”) and 40.0% of such cost has been apportioned by the Drainage Board to the County of Shiawassee; and

WHEREAS, by resolution adopted by the Board of Commissioners of the County of Saginaw on August 18, 2015, the County of Saginaw pledged its limited tax full faith and credit to the prompt payment of 43% of the principal of and interest due on the Note; and

WHEREAS, the Bonds will not be issued on or before March 1, 2017 and as a result, at the request of the Drainage Board, the purchaser of the Note has agreed to extend the maturity date of the Note from March 1, 2017 to September 1, 2018, bearing interest at a new rate of 1.89% per annum, provided that the County of Genesee, the County of Saginaw and the County of Shiawassee each pledge its limited tax full faith and credit to the Note as extended to the extent that the cost of the Project has been apportioned to each such county; and



21st day of February, 2017. Public notice of said meeting was given pursuant to and in compliance with Act No. 267, Public Acts of 1976, as amended.

IN WITNESS WHEREOF, I have hereunto affixed my official signature this 21st day of February, 2017.

Michael J. Hanley
Clerk, County of Saginaw

**RESOLUTION “B”
BOARD OF COMMISSIONERS
COUNTY OF SAGINAW**

NO. 9 DRAIN NOTES, SERIES 2017

At a regular meeting of the Board of Commissioners of the County of Saginaw, the State of Michigan (the "County"), held at Saginaw, Michigan, on the 21st day of February, 2017.

PRESENT: *Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O’Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11*

ABSENT: *None*

Commissioner Stack offered the following resolution and moved its adoption. The motion was seconded by Commissioner Theisen:

WHEREAS, proceedings have been taken by the Saginaw County Public Works Commissioner for the construction of improvements to the No. 9 Drain (the “Project”) under the provisions of Chapter 8 of the Drain Code of 1956, as amended, pursuant to a petition filed with the Public Works Commissioner; and

WHEREAS, in order to pay for the costs of constructing the Project, the Public Works Commissioner has authorized and provided for the issuance by the No. 9 Drain Drainage District (the “Drainage District”) of notes (the “Notes”) in the aggregate principal amount of not to exceed \$250,000.00, in anticipation of the collection of an equal amount of special assessments against property and public corporations (including the County of Saginaw) in the Drainage District, said special assessments having been duly confirmed by the Public Works Commissioner; and

WHEREAS, the Notes are to be designated “No. 9 Drain Notes, Series 2017,” and will bear interest at a rate not exceeding 6% per annum; and

WHEREAS, the Public Works Commissioner deems it advisable and necessary to obtain from this Board a resolution consenting to the pledge of the full faith and credit of the County on the Notes; and

WHEREAS, the Project is necessary to protect and preserve the public health and therefore it is in the best interest of the County of Saginaw that the Notes be sold.



BOARD REPORT 3.5 – MOTION FAILED
No Action on Resolution “C”

RESOLUTION “C”
BOARD OF COMMISSIONERS
COUNTY OF SAGINAW

**MANAGEMENT AGREEMENT WITH BIRCH RUN AREA CONVENTION AND VISITORS BUREAU
FOR DISTRIBUTION OF ROOM TAX FUNDS IN ACCORDANCE WITH
AMENDED SAGINAW COUNTY ORDINANCE #103**

RESOLUTION “D”
BOARD OF COMMISSIONERS
COUNTY OF SAGINAW

RESOLUTION OF AGENCY
PURSUANT TO SECTION 87c OF ACT 206

At a regular meeting of the Board of Commissioners of the County of Saginaw, the State of Michigan (the "County"), held at Saginaw, Michigan, on the 21st day of February, 2017.

PRESENT: Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O’Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11

ABSENT: None

Commissioner Krafft offered the following resolution and moved its adoption. The motion was seconded by Commissioner O’Neal:

WHEREAS, the Board of Commissioners of this County has heretofore adopted a resolution establishing the Saginaw County Delinquent Tax Revolving Fund, pursuant to Section 87b of Act No. 206, Public Acts of Michigan, 1893, as amended ("Act 206"); and

WHEREAS, this Fund has been designated as the 100% Tax Payment Fund (the "Fund") by the County Treasurer; and

WHEREAS, pursuant to Act 206, upon creation of the Fund the County Treasurer is to act as agent for the County to administer the Fund; and

WHEREAS, the Board of Commissioners of the County has adopted a Resolution to Borrow Against Anticipated Delinquent 2016 Real Property Taxes to continue the Fund for 2017.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE COUNTY OF SAGINAW, STATE OF MICHIGAN, as follows:

1. Pursuant to Section 87c of Act 206, the County Treasurer's office shall receive for delinquent tax administrative expenses in connection with the Fund and the issuance of General Obligation Limited Tax Notes, Series 2017 by the County such sums as are provided by law.



Commissioner Krafft offered the following resolution and moved its adoption. The motion was seconded by Commissioner Kilpatrick:

WHEREAS, the Board of Commissioners of the County of Saginaw (the "County") has heretofore adopted a resolution establishing the Saginaw County Delinquent Tax Revolving Fund (the "Fund") pursuant to Section 87b of Act No. 206, Public Acts of Michigan, 1893, as amended ("Act 206"); and

WHEREAS, the purpose of the Fund is to allow the Saginaw County Treasurer (the "County Treasurer") to pay from the Fund any or all delinquent real property taxes that are due and payable to the County, the State of Michigan and any school district, intermediate school district, community college district, city, township, special assessment district or other political unit for which delinquent tax payments are due; and

WHEREAS, it is hereby determined to be necessary for the County to borrow money and issue its notes for the purposes authorized by Act 206, particularly Sections 87c, 87d and 87g thereof; and

WHEREAS, it is estimated that the total amount of unpaid 2016 delinquent real property taxes (the "delinquent taxes") outstanding on March 1, 2017, will be approximately \$16,935,996 exclusive of interest, fees and penalties.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the County of Saginaw, State of Michigan, as follows:

Authorization of Borrowing

1. Pursuant to and in accordance with the provisions of Act 206, Public Acts of Michigan, 1893, as amended, and especially Sections 87c, 87d and 87g thereof, the County shall borrow the sum of not to exceed **Fifteen Million Five Hundred Thousand Dollars (\$15,500,000)** and issue its notes (the "notes") therefor for the purpose of continuing the Fund for the 2016 tax year. The exact amount to be borrowed shall not exceed the amount of delinquent taxes outstanding on March 1, 2017, exclusive of interest, fees and penalties. The County Treasurer shall designate the exact amount to be borrowed after the amount of the 2016 delinquent taxes outstanding on March 1, 2017, or the portion of the 2016 delinquent taxes against which the County shall borrow, has been determined.

Note Details

2. Pursuant to provisions of applicable law and an order of the County Treasurer, which order is hereby authorized, the notes may be issued in one or more series; shall be known as "General Obligation Limited Tax Notes, Series 2017" with a letter designation added thereto if the notes are issued in more than one series; shall be in fully registered form in denominations not exceeding the aggregate principal amounts for each maturity of the notes; shall be sold for not less than 98% of the face amount of the notes; shall bear interest at fixed or variable rates not to exceed the maximum interest rate permitted by applicable law; shall be dated, payable as to interest and in principal amounts, be subject to redemption in whole or in part prior to maturity, including any redemption premiums, and be subject to renewal, at such times and in such amounts, all as shall be designated in the order of the County Treasurer. Notes or portions of notes called for redemption shall not bear interest after the redemption date, provided funds are on hand with the note registrar and paying agent to redeem the same. Notice of redemption shall be given in the manner prescribed by the County Treasurer, including the



number of days' notice of redemption and whether such notice shall be written or published, or both. If any notes of any series are to bear interest at a variable rate or rates, the County Treasurer is hereby further authorized to establish by order, and in accordance with law, a means by which interest on such notes may be set, reset or calculated prior to maturity, provided that such rate or rates shall at no time be in excess of the maximum interest rate permitted by applicable law. Such rates may be established by reference to the minimum rate that would be necessary to sell the notes at par; by a formula that is determined with respect to an index or indices of municipal obligations, reported prices or yields on obligations of the United States or the prime rate or rates of a bank or banks selected by the County Treasurer; or by any other method selected by the County Treasurer.

Payment of Principal and Interest

3. The principal of and interest on the notes shall be payable in lawful money of the United States from such funds and accounts as provided herein. Principal shall be payable upon presentation and surrender of the notes to the note registrar and paying agent when and as the same shall become due, whether at maturity or earlier redemption. Interest shall be paid to the owner shown as the registered owner on the registration books at the close of business on such date prior to the date such interest payment is due, as is provided in the order of the County Treasurer. Interest on the notes shall be paid when due by check or draft drawn upon and mailed by the note registrar and paying agent to the registered owner at the registered address, or by such other method as determined by the County Treasurer.

Note Registrar and Paying Agent

4. The County Treasurer shall designate, and may enter into an agreement with, a note registrar and paying agent for each series of notes that shall be the County Treasurer or a bank or trust company that is qualified to act in such capacity under the laws of the United States of America or the State of Michigan. The County Treasurer may from time to time designate a similarly qualified successor note registrar and paying agent. Alternatively, the County Treasurer may serve as note registrar and paying agent if so designated by written order of the County Treasurer.

Disposition of Note Proceeds

5. The proceeds of the sale of the notes shall be deposited into a separate account in the Fund and shall be used to continue the Fund. The County Treasurer shall pay therefrom and from unpledged funds in the Fund, uncommitted funds in the County General Fund and/or any other legally available funds, the full amount of the delinquent tax roll against which the County has borrowed, delivered as uncollected by any tax collector in the County and that is outstanding and unpaid on or after March 1, 2017, in accordance with the provisions of Act 206. If the notes are sold at a premium, the County Treasurer shall determine what portion of the premium, if any, shall be deposited in the 2017 Collection Account established in Section 6 hereof.

2017 Collection Account

6. There is hereby established as part of the Fund an account (hereby designated the "2017 Collection Account") into which account the County Treasurer shall place delinquent taxes against which the County has borrowed, and interest thereon, collected on and after March 1, 2017, or such later date as determined by the County Treasurer, all County property



tax administration fees on such delinquent taxes, after expenses of issuance of the notes have been paid, any premium as determined pursuant to Section 5 hereof, and any amounts received by the County Treasurer from the County, the State of Michigan and any taxing unit within the County, because of the uncollectibility of such delinquent taxes. The foregoing are hereby established as funds pledged to note repayment. The County Treasurer shall designate the delinquent taxes against which the County shall borrow for each series of notes.

Note Reserve Fund

7. There is hereby authorized to be established by the County Treasurer a note reserve fund for the notes (the "2017 Note Reserve Fund") if the County Treasurer deems it to be reasonably required as a reserve and advisable in selling the notes at public or private sale. The County Treasurer is authorized to deposit in the 2017 Note Reserve Fund from proceeds of the sale of the notes, unpledged moneys in the Fund, uncommitted funds in the County General Fund and/or any other legally available funds, an amount not exceeding ten percent (10%) of the face amount of the notes.

Security for Payment of Notes

8. All of the moneys in the 2017 Collection Account and the 2017 Note Reserve Fund, if established, and all interest earned thereon, relating to a series of notes are hereby pledged equally and ratably as to such series to the payment of the principal of and interest on the notes and shall be used solely for that purpose until such principal and interest have been paid in full. When moneys in the 2017 Note Reserve Fund, if established, are sufficient to pay the outstanding principal of the notes and the interest accrued thereon, such moneys may be used to retire the notes. If more than one series of notes is issued, the County Treasurer by order shall establish the priority of the funds pledged for payment of each such series. In such case the County Treasurer may establish sub-accounts in the various funds and accounts established pursuant to the terms of this resolution as may be necessary or appropriate.

Additional Security

9. Each series of notes, in addition, shall be a general obligation of the County, secured by its full faith and credit, which shall include the County's limited tax obligation, within applicable constitutional and statutory limits, and its general funds. The County budget shall provide that if the pledged delinquent taxes and any other pledged amounts are not collected in sufficient amounts to meet the payments of principal and interest due on each series of notes, the County, before paying any other budgeted amounts, will promptly advance from its general funds sufficient moneys to pay that principal and interest. The County shall not have the power to impose taxes for payment of the notes in excess of constitutional or statutory limitations. If moneys in the 2017 Collection Account and the 2017 Note Reserve Fund, if established, are not sufficient to pay the principal of and interest on the notes, when due, the County shall pay the same in accordance with this Section, and may thereafter reimburse itself from the delinquent taxes collected.

Release of Pledge of 2017 Collection Account

10. Upon the investment of moneys in the 2017 Collection Account in direct non-callable obligations of the United States of America in amounts and with maturities that are sufficient to



pay in full the principal of and interest on the notes when due, any moneys in the 2017 Collection Account thereafter remaining may be released from such pledge created pursuant to Section 8 hereof and may be used to pay any or all delinquent real property taxes that are due the County, the State of Michigan and any school district, intermediate school district, community college district, city, township, special assessment district or other political unit to which delinquent tax payments are due for any year or for any other purpose permitted by law.

Sale of Notes

11. The County Treasurer is hereby authorized to offer the notes at public or private sale as determined by order of the County Treasurer and to do all things necessary to effectuate the sale, delivery, transfer and exchange of the notes in accordance with the provisions of this resolution. Notes of one series may be offered for sale and sold separately from notes of another series. If the notes are to be sold publicly, sealed proposals for the purchase of the notes shall be received by the County Treasurer for such public sale to be held at such time as shall be determined by the County Treasurer and notice thereof shall be published in accordance with law once in *The Bond Buyer*, which is hereby designated as being a publication printed in the English language and circulated in this State that carries as a part of its regular service, notices of sale of municipal bonds. Such notice shall be in the form prescribed by the County Treasurer.

The County Treasurer is hereby authorized to cause the preparation of an official statement for the notes for the purpose of enabling compliance with SEC Rule 15c2-12 (the "Rule") and to do all other things necessary to enable compliance with the Rule. After the award of the notes, the County will provide copies of a final official statement (as defined in paragraph (e)(3) of the Rule) on a timely basis and in reasonable quantity as requested by the successful bidder or bidders to enable such successful bidder or bidders to comply with paragraphs (b)(3) and (b)(4) of the Rule and the rules of the Municipal Securities Rulemaking Board. The County Treasurer is authorized to enter into such agreements as may be required to enable the successful bidder or bidders to comply with the Rule.

Continuing Disclosure

12. The County Treasurer is hereby authorized to execute and deliver in the name and on behalf of the County (i) a certificate of the County to comply with the requirements for a continuing disclosure undertaking of the County pursuant to paragraph (b)(5) or (d)(2) of the Rule, as applicable, and (ii) amendments to such certificate from time to time in accordance with the terms of such certificate (the certificate and any amendments thereto are collectively referred to herein as the "Continuing Disclosure Certificate"). The County hereby covenants and agrees that it will comply with and carry out all of the provisions of the Continuing Disclosure Certificate.

Execution and Delivery of Notes

13. The County Treasurer is hereby authorized and directed to execute the notes for the County by manual or facsimile signature and the County Treasurer shall cause the County seal or a facsimile thereof to be impressed or imprinted on the notes. Unless the County Treasurer shall specify otherwise in writing, fully registered notes shall be authenticated by the manual



signature of the note registrar and paying agent. After the notes have been executed and authenticated, if applicable, for delivery to the original purchaser thereof, the County Treasurer shall deliver the notes to the purchaser or purchasers thereof upon receipt of the purchase price. Additional notes bearing the manual or facsimile signature of the County Treasurer and upon which the seal of the County or a facsimile thereof is impressed or imprinted may be delivered to the note registrar and paying agent for authentication, if applicable, and delivery in connection with the exchange or transfer of fully registered notes. The note registrar and paying agent shall indicate on each note that it authenticates the date of its authentication. The notes shall be delivered with the approving legal opinion of Dickinson Wright PLLC.

Exchange and Transfer of Fully Registered Notes

14. Any fully registered note, upon surrender thereof to the note registrar and paying agent with a written instrument of transfer satisfactory to the note registrar and paying agent duly executed by the registered owner or his or her duly authorized attorney, at the option of the registered owner thereof, may be exchanged for notes of any other authorized denominations of the same aggregate principal amount and maturity date and bearing the same rate of interest as the surrendered note.

Each note shall be transferable only upon the books of the County, which shall be kept for that purpose by the note registrar and paying agent, upon surrender of such note together with a written instrument of transfer satisfactory to the note registrar and paying agent duly executed by the registered owner or his or her duly authorized attorney.

Upon the exchange or transfer of any note, the note registrar and paying agent on behalf of the County shall cancel the surrendered note and shall authenticate, if applicable, and deliver to the transferee a new note or notes of any authorized denomination of the same aggregate principal amount and maturity date and bearing the same rate of interest as the surrendered note. If, at the time the note registrar and paying agent authenticates, if applicable, and delivers a new note pursuant to this Section, payment of interest on the notes is in default, the note registrar and paying agent shall endorse upon the new note the following: "Payment of interest on this note is in default. The last date to which interest has been paid is [place date]."

The County and the note registrar and paying agent may deem and treat the person in whose name any note shall be registered upon the books of the County as the absolute owner of such note, whether such note shall be overdue or not, for the purpose of receiving payment of the principal of and interest on such note and for all other purposes, and all payments made to any such registered owner, or upon his or her order, in accordance with the provisions of Section 3 hereof shall be valid and effectual to satisfy and discharge the liability upon such note to the extent of the sum or sums so paid, and neither the County nor the note registrar and paying agent shall be affected by any notice to the contrary. The County agrees to indemnify and save the note registrar and paying agent harmless from and against any and all loss, cost, charge, expense, judgment or liability incurred by it, acting in good faith and without negligence hereunder, in so treating such registered owner.

For every exchange or transfer of notes, the County or the note registrar and paying agent may make a charge sufficient to reimburse it for any tax, fee or other governmental charge required



to be paid with respect to such exchange or transfer, which sum or sums shall be paid by the person requesting such exchange or transfer as a condition precedent to the exercise of the privilege of making such exchange or transfer.

The note registrar and paying agent shall not be required to transfer or exchange notes or portions of notes that have been selected for redemption.

Book Entry System

15. At the option of the County Treasurer and notwithstanding any provisions of this resolution to the contrary, the County Treasurer is hereby authorized to enter into an agreement with a custodian or trustee for the purpose of establishing a "book entry" system for registration of notes to be fully registered. Pursuant to the provisions of such agreement, the notes may be registered in the name of the custodian or trustee for the benefit of other persons or entities. Such agreement shall provide for the keeping of accurate records and prompt transfer of funds by the custodian or trustee on behalf of such persons or entities. The agreement may provide for the issuance by the custodian or trustee of certificates evidencing beneficial ownership of the notes by such persons or entities. For the purpose of payment of the principal of and interest on the notes, the County may deem payment of such principal and interest, whether overdue or not, to the custodian or trustee as payment to the absolute owner of such note. Pursuant to provisions of such agreement, the book entry system for the notes may be used for registration of all or a portion of the notes and such system may be discontinued at any time by the County. The note registrar and paying agent for the notes may act as custodian or trustee for such purposes.

Issuance Expenses

16. Expenses incurred in connection with the issuance of the notes, including without limitation any premiums for any insurance obtained for the notes, note rating agency fees, travel and printing expenses, fees for agreements for lines of credit, letters of credit, commitments to purchase the notes, remarketing agreements, reimbursement agreements, purchase or sales agreements or commitments, or agreements to provide security to assure timely payment of the notes, fees for the setting of interest rates on the notes and bond counsel, financial advisor, paying agent and registrar fees, all of which are hereby authorized, shall be paid by the County Treasurer from County property tax administration fees on the delinquent taxes, from any other moneys in the Fund not pledged to the repayment of notes and general funds of the County that are hereby authorized to be expended for that purpose.

Replacement of Notes

17. Upon receipt by the County Treasurer of satisfactory evidence that any outstanding note has been mutilated, destroyed, lost or stolen, and of security or indemnity complying with applicable law and satisfactory to the County Treasurer, the County Treasurer may execute or authorize the imprinting of the County Treasurer's facsimile signature thereon and thereupon, and if applicable, a note registrar or paying agent shall authenticate and the County shall deliver a new note of like tenor as the note mutilated, destroyed, lost or stolen. Such new note shall be issued and delivered in exchange and substitution for, and upon surrender and cancellation of, the mutilated note or in lieu of and in substitution for the note so destroyed, lost or stolen in compliance with applicable law. For the replacement of authenticated notes, the note registrar



and paying agent shall, for each new note authenticated and delivered as provided above, require the payment of expenses, including counsel fees, which may be incurred by the note registrar and paying agent and the County in the premises. Any note issued under the provisions of this Section in lieu of any note alleged to be destroyed, lost or stolen shall be on an equal basis with the note in substitution for which such note was issued.

Chargebacks

18. For any principal payment date of the notes on or after January 1, 2020, the delinquent taxes on property foreclosed and sold pursuant to the provisions of Act 206 and against which the County has borrowed shall, if necessary to ensure full and timely payment of principal of and interest on the notes when due, be charged back to the taxing jurisdictions in such manner as determined by the County Treasurer. The proceeds of such chargebacks shall be deposited in the 2017 Collection Account as security for payment of the notes as described in Section 8 hereof. The provisions of this Section shall not limit the authority of the County Treasurer under the laws of the State of Michigan to charge back delinquent taxes under other circumstances or at other times.

Purchase of Notes by County

19. All or any portion of the notes may be purchased or otherwise acquired by the County if the County Treasurer by order deems such purchase or acquisition to be in the best interest of the County. In such case, the County Treasurer is authorized to take such actions to effectuate the purchase or acquisition, including without limitation entering into an agreement to purchase or repurchase the notes. The purchase or other acquisition of notes by or on behalf of the County does not cancel, extinguish or otherwise affect the notes and the notes shall be treated as outstanding notes for all purposes of this resolution until paid in full.

Creation of Separate Delinquent Tax Revolving Fund

20. In accordance with Section 87b(1) of Act 206, there is hereby created a separate delinquent tax revolving fund for the 2016 delinquent taxes. The County Treasurer is hereby authorized to take such actions as determined by the County Treasurer to be necessary or desirable in connection with such separate delinquent tax revolving fund.

Issuance of Refunding Notes

21. The County shall refund all or part of the notes authorized hereunder and/or notes previously issued by the County to continue the Fund for prior tax years if and as authorized by order of the County Treasurer through the issuance of refunding notes (the "Refunding Notes") in an amount to be determined by order of the County Treasurer. Proceeds of the Refunding Notes may be used to redeem such notes and to pay issuance expenses of the Refunding Notes as authorized and described in Section 16 hereof. The County Treasurer shall have all the authority with respect to the Refunding Notes as is granted to the County Treasurer with respect to the notes by the other Sections hereof, including the authority to select a note registrar and paying agent, to apply to the Michigan Department of Treasury for approval to issue the Refunding Notes, if necessary, to cause the preparation of an official statement and to do all other things necessary to sell, execute and deliver the Refunding Notes. The Refunding Notes shall contain the provisions, shall be payable as to principal and interest and shall be



PRESENT: Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McLnerney, Amos O’Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11

ABSENT: None

Commissioner Stack offered the following resolution and moved its adoption. The motion was seconded by Commissioner O’Neal:

WHEREAS, Section 380.1280c of the Michigan School code represents legislation originally created to address the student achievement levels in low performing schools. It was created to address federal legislation known as “Race to the Top,” a part of the Federal “No Child Left Behind” legislation; and,

WHEREAS, This legislation outlined intervention models for schools identified as “Priority Schools” – schools who ranked in the bottom 5% of all schools across the state on a state identified measure. One intervention model is to allow the state created “School Reform Office” (SRO) and the state “School Reform Officer” to unilaterally put a school in a state school reform district or assign a CEO to the school with same powers as the state school reform district; and,

WHEREAS, Since the law was enacted, several things have been learned: (1) What research says relating to successful school turnaround; (2) The Federal “No Child Left Behind” legislation has been replaced with the federal ESSA Law which provides for new and different rules. (3) The State of Michigan has not qualified for any “Race to the Top” federal funding which was one of the reasons the current law was passed; and,

WHEREAS, The School Reform Office is in no position to create a state reform district that could successfully take over and turn around schools. The State of Michigan administration has recognized that state takeover models in education are by and large not successful, including the assignment of emergency managers to local school districts. Despite this knowledge, the State Reform Office has assigned an outside CEO to take over Michigan schools. The State of Michigan has appropriated \$5 million next year from the school aid fund to School Reform Office to help fund such endeavors; and,

WHEREAS, The State Reform Office has threatened to carelessly close schools across the state including Saginaw High, Jessie Loomis and Atkins Elementary Schools in Saginaw, Michigan. Local intermediate school districts have offered their services to work with local schools identified by the School Reform Office to create academic reform agreements as a way to work collaboratively with local schools to turn around student performance; and,

WHEREAS, The State School Reform Office sent a letter directly to parents and guardians on Friday, January 20, 2017. This communication did nothing more than create worry and fear for parents and did not provide adequate details on what the SRO process for a potential closure would look like. Further, it did not provide any legitimate options parents could choose from that were anywhere from 5 to 29 miles away from the schools the students currently attend. Many students walk to school or rely on public transportation, this it was especially troubling that the SRO provided no information for parents who do not own a vehicle and will not be able to transport their child such distances; and,

WHEREAS, Since receiving the letter from the SRO, State Representative Vanessa Guerra and staff, and Senator Kenneth Horn and staff, have visited the three (3) area schools targeted by the SRO. They met with superintendents, administrators, teachers, parents, grandparents and community members. They were present through each of the three (3) visits the SRO made to Saginaw High,



Jessie Loomis and Atkins Elementary Schools. They learned that while some of the difficulties can be attributed to leadership that has since been replaced, they also heard how deeply things like low teacher pay, lack of classroom resources and funding, and poorly implemented statewide assessments have contributed to the test scores the SRO so often refers to. These schools are committed to doing everything they can within their means to remove themselves from the priority list and turn these test scores around; and,

WHEREAS, They have visited each of the schools, and have seen firsthand that things ARE improving. The schools now have plans created by the teachers, administrators and outside experts that specifically address all aspects of improving student test scores and learning outcomes. Simply looking at test scores on a paper does not encompass the challenges faced by its students, particularly those living in poverty; and,

WHEREAS, the state has allowed a similar model for school districts identified as having financial challenges through recently passed “Early Warning Legislation.” Outside intervention of a CEO or the unilateral closing of schools will lead to a lack of community and staff engagement, and potential damage to the local school system through reputation and possible loss of students with accompanying fiscal impact.

NOW, THEREFORE, BE IT RESOLVED, that we, the Saginaw County Board of Commissioners, support Senator Ken Horn, Representative Vanessa Guerra, and the School District of the City of Saginaw in their endeavors to work with the SRO and oppose any school closures that will further disrupt the education of its children and the lives of its families and the community; and,

BE IT FURTHER RESOLVED that the SRO allow the School District of the City of Saginaw to work with its students, parents, and community to educate students for a better future in Saginaw and in the State of Michigan.

A vote on the foregoing resolution was taken and was as follows:

Yeas: Commissioners Hadsall, Kilpatrick, Krafft, McInerney, O’Neal, Ruth, Stack, Theisen, Webster - 9

Nays: Harris - 1

Abstain: Dwan - 1

TOTAL: 11

A sufficient majority having voted therefor, the Resolution was adopted.

STATE OF MICHIGAN)
)ss
COUNTY OF SAGINAW)

I, the undersigned, the duly qualified and acting Clerk of the Board of Commissioners of the County of Saginaw, the State of Michigan, do hereby certify that the foregoing is a true and complete copy of proceedings taken at a regular meeting of the Board of Commissioners of said County, held on the 21st day of February, 2017. Public notice of said meeting was given pursuant to and in compliance with Act No. 267, Public Acts of 1976, as amended.



IN WITNESS WHEREOF, I have hereunto affixed my official signature this 21st day of February, 2017.

Michael J. Hanley
Clerk, County of Saginaw

UNFINISHED BUSINESS

FROM: COMMITTEE ON COUNTY SERVICES – 3.2

FEBRUARY 21, 2017

~~JANUARY 17, 2017~~

Your committee considered Communication No. 1-17-16 from Katheryn A. Kelly, Register of Deeds, requesting approval to amend Resolution D of the Saginaw County Budget (Fee Schedule) to include the sale of Quit Claim Deed and Warranty Deed forms to the public for \$5.00.

We met with Ms. Kelly and Penny Klein, Deputy Register of Deeds, who indicated the office receives between 5 – 10 requests per day for these forms. Current practice includes sending customers to an outside print shop to purchase these forms for \$5.00. By selling the forms directly to the customer at the rate of five (5) per day, revenue would increase by a minimum of \$6,500 annually.

It is the recommendation of your committee to approve amendment of Resolution D of the Saginaw County Budget (Fee Schedule) to include the sale of Quit Claim Deed and Warranty Deed forms to the public for \$5.00.

Respectfully submitted,

COMMITTEE ON COUNTY SERVICES

Charles M. Stack, Chair

Kyle R. Harris

Carl E. Ruth

Cheryl M. Hadsall, Vice-Chair

Dennis H. Krafft

JANUARY 17, 2017 BOARD SESSION

Stack moved, seconded by Hadsall, to approve 3.1 and 3.2 leaving room for exceptions. Report 3.2 was excepted for discussion and the motion carried as to 3.1. Commissioner Theisen addressed his concerns related to the sale of Quit Claim and Warranty Deed forms by the Register of Deeds and taking business away from private industry. After discussion, Item 3.2 was postponed by Commissioner Theisen by Commissioner Privilege until the February 21, 2017 Board Session under Unfinished Business.

FEBRUARY 21, 2017 BOARD SESSION

Register of Deeds Kelly addressed the Board of Commissioners and discussion was held regarding availability of forms to customers and printing costs. After discussion, the motion carried.



PROCLAMATIONS

Proclamation

National Teen Dating Violence Awareness Month

You have the right to be safe from violence & emotional abuse.

Whereas, Everyone has the right to a safe and healthy relationship and to be free from abuse. February is National Teen Dating Violence Awareness and Prevention Month. This month provides an excellent opportunity for our County to demonstrate its commitment to ending teen dating violence and support the numerous victims and survivors who are among us. One in three teens in the U.S. is a victim of physical, emotional or sexual abuse from a dating partner. These violent relationships have serious consequences for victims – putting them at higher risk for substance abuse, eating disorders, risky sexual behavior, suicide and adult re-victimization; and,

Whereas, According to the Michigan State Police 2015 crime statistics of reported domestic violence incidents in Michigan, 11,326 included a victim between the ages of 11 and 19 while 27,079 incidents included young adults ages 20-29. Research tells us that most victims will never report the abuse they experience to anyone, and teenagers face increased barriers to reporting; and,

Whereas, Underground Railroad, Inc. in Saginaw, Michigan, serves all residents of Saginaw County who are victims of domestic violence, sexual assault, stalking and human slavery. In operation since 1977, Underground Railroad, Inc. is the only provider of emergency shelter, services, leadership and programs to end domestic and sexual violence in the community.

Now, Therefore, Be It Resolved, The Saginaw County Board of Commissioners hereby proclaims February 2017 as Teen Dating Violence Awareness and Prevention Month and calls upon the people of the County of Saginaw to spread the word about teen dating violence and educate our families and friends.

Respectfully Submitted,
Saginaw County
Board of Commissioners
Carl E. Ruth
Chair, District #10

Adopted & Presented: February 21, 2017

ELECTIONS

None

APPOINTMENTS

- Chairman Ruth appointed Mary Moylan (District #6) to the **Commission on Aging** for a term that expires December 31, 2018.
- Chairman Ruth re-appointed Leonard Ballosh to the **Region VII Area Agency on Aging Board** for a term that expires March 31, 2020.



ANNOUNCEMENTS BY THE CHAIR

- Chairman Ruth thanked everyone for attending the meeting on this beautiful February day.

COMMISSIONERS' AUDIENCES

- Commissioner Krafft invited everyone to the “Taste of Frankenmuth” on Thursday, March 9, 2017 from 5 p.m. – 8 p.m. sponsored by the Frankenmuth Rotary Club. This 26th annual event is held at both the Bavarian Inn Restaurant and Zehnder’s of Frankenmuth with over 30 vendors participating and tickets are \$20. Proceeds will go to the Cass River Levee Walk.
- Commissioner Dwan met with Dr. John Brandt, Principal, and toured Valley Lutheran High School in Saginaw Township. VLHS is preparing for a \$6.5 million capital improvement project that will result in four (4) new Science classrooms, among many other improvements. Phase II of the capital campaign will begin shortly with a goal of 100% private donations before breaking ground.
- Commissioner O’Neal gave accolades to Karen Courneya, Director at Commission on Aging, for a tour of the facility, luncheon, and providing services to seniors. He also thanked Lisa Stoffel and her staff at the Animal Care Center for a tour and the work they do for the animals in our county. Commissioner O’Neal also gave thanks to Saginaw Future on its 25th Anniversary and Annual Meeting luncheon and the great presentation by Mike Richardson, Nexteer Automotive’s President and Executive Board Director and Nexteer’s commitment to Saginaw County.

By Commissioner Stack, seconded by Commissioner Harris: That the Board adjourn. Carried.

Thereupon, the Board adjourned at 5:50 p.m.

CARL E. RUTH, CHAIRMAN

MICHAEL J. HANLEY, CLERK

The following chart is a list of all the local communities which have adopted, via resolution, the update of this Hazard Mitigation Plan.

Community	Resolution Approved
Albee Township	September 12, 2017
Blumfield Township	November 14, 2017
Brant Township	November 14, 2017
Bridgeport Charter Township	October 3, 2017
Buena Vista Township	November 27, 2017
Carrollton Township	September 25, 2017
Chapin Township	November 13, 2017
Chesaning Township	October 5, 2017
City of Frankenmuth	October 10, 2017
City of Saginaw	September 25, 2017
City of Zilwaukee	November 6, 2017
Frankenmuth Township	September 18, 2017
Fremont Township	September 11, 2017
James Township	September 11, 2017
Jonesfield Township	September 18, 2017
Kochville Township	September 18, 2017
Lakefield township	October 16, 2017
Maple Grove Township	September 18, 2017
MBS International Airport	December 21, 2017
Richland Township	October 10, 2017
Saginaw Charter Township	October 9, 2017
Saginaw County	August 15, 2017
Spaulding Township	September 19, 2017
St. Charles Township	October 2, 2017
Sawn Creek Township	November 13, 2017
Thomas Township	October 2, 2017
Tittabawassee Township	September 13, 2017
Village of Chesaning	September 19, 2017
Village of Merrill	September 11, 2017
Village of St. Charles	November 8, 2017
Village of Oakley	September 12, 2017

Resolution of Adoption
Saginaw County Hazard Mitigation Plan
ALBEE TOWNSHIP RESOLUTION 2017-3

A RESOLUTION OF THE ALBEE TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Albee Township Board recognizes the threat that natural hazards pose to people and property within Albee Township; and

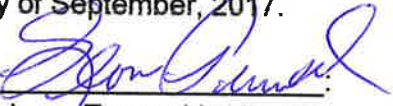
WHEREAS, the Albee Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

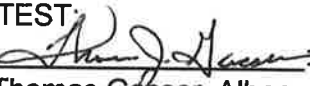
WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Albee Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Albee Township demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE ALBEE TOWNSHIP, MICHIGAN, THAT: Albee Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 12 day of September, 2017.

By 
Leon Turnwald, Albee
Township Supervisor

ATTEST
By 
Thomas Gasser, Albee
Township Clerk

At a meeting of the Township Board of the Township of Blumfield, held on the 14th day, November 2017 beginning at 7:30 pm, there were:

PRESENT: Reinbold, Roethlisberger, Daenzer, Frahm, Huber

ABSENT: None

The following resolution was made by Roethlisberger and supported by Frahm:

Resolution of Adoption of Saginaw County Hazard Mitigation Plan

WHEREAS, Blumfield Township recognizes the threat that natural hazards pose to people and property within Saginaw County; and

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the *2017 Saginaw County Hazard Mitigation Plan* in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the *2017 Saginaw County Hazard Mitigation Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Saginaw County from the impacts of future hazards and disasters; and


WHEREAS, adoption by Blumfield Township demonstrates their commitment to the hazard mitigation and achieving the goals outlines in the *2017 Saginaw County Hazard Mitigation Plan*.

NOW, THEREFORE, BE IT RESOLVED by the Blumfield Township Board of Trustees that Blumfield Township adopts the *2017 Saginaw County Hazard Mitigation Plan*.

CLERK'S CERTIFICATE

The undersigned, being the duly qualified and acting Clerk of the Township of Blumfield, Saginaw County, Michigan, hereby certifies that (1) the foregoing is a true and complete copy of a resolution duly adopted by the Township Board at a meeting held on November 14, 2017, at which meeting a quorum was present and remained throughout, (2) the original thereof is on file in the records in my office, (3) the meeting was conducted, and public notice thereof was given, pursuant to and in full compliance with the Open Meetings Act (Act No. 267), Public Acts of Michigan, 1976, as amended), and (4) minutes of such meeting were kept and will be or have been made available as required thereby.

DATED: November 14, 2017



Lisa Roethlisberger
Blumfield Township Clerk

Resolution of Adoption

Saginaw County Hazard Mitigation Plan

Saginaw County, Michigan
RESOLUTION NO. 2017-9

A RESOLUTION OF SAGINAW COUNTY ADOPTING THE *2017 Saginaw County Hazard Mitigation Plan*.

WHEREAS, Saginaw County recognizes the threat that natural hazards pose to people and property within Saginaw County; and

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the *2017 Saginaw County Hazard Mitigation Plan* in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the *2017 Saginaw County Hazard Mitigation Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Saginaw County from the impacts of future hazards and disasters; and

WHEREAS, adoption by Saginaw County demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the *2017 Saginaw County Hazard Mitigation Plan*.

NOW, THEREFORE, BE IT RESOLVED BY THE SAGINAW COUNTY BOARD OF COMMISSIONERS, MICHIGAN, THAT Saginaw County adopts the *2017 Saginaw County Hazard Mitigation Plan*.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 14 day of November, 2017.

By: Robert Fowler
(print name)

ATTEST:
By: Theresa Morris
(print name)

BRIDGEPORT CHARTER TOWNSHIP
RESOLUTION OF ADOPTION
SAGINAW COUNTY HAZARD MITIGATION PLAN
BRIDGEPORT TOWNSHIP MICHIGAN
RESOLUTION R-17-17

A RESOLUTION OF THE BRIDGEPORT TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Bridgeport Charter Township recognizes the threat that natural hazards pose to people and property within Bridgeport Township; and


WHEREAS, the Bridgeport Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bridgeport Township from the impacts of future hazards and disasters; and


WHEREAS, adoption by the Bridgeport Charter Township demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE BRIDGEPORT TOWNSHIP, MICHIGAN, THAT: Bridgeport Charter Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 3rd day of October, 2017.

By: 
Darlene Miller Clerk

ATTEST:

By: 
Augie Townsend - Supervisor

**Buena Vista Charter Township
Saginaw County Hazard Mitigation Plan
Resolution #2017-11-27**

A RESOLUTION OF BUENA VISTA CHARTER TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Buena Vista Charter Township Board of Trustees recognizes the threat that natural hazards pose to people and property within Saginaw County; and

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Buena Vista Charter Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by Buena Vista Charter Township Board of Trustees demonstrates a commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE BUENA VISTA CHARTER TOWNSHIP BOARD OF TRUSTEES, SAGINAW, MICHIGAN, THAT: The Board of Trustees adopts the 2017 Saginaw County Hazard Mitigation Plan this 27th day of November, 2017.

The foregoing resolution offered by Trustee McKinney and supported by Trustee Payton

Upon roll call vote the following voted:

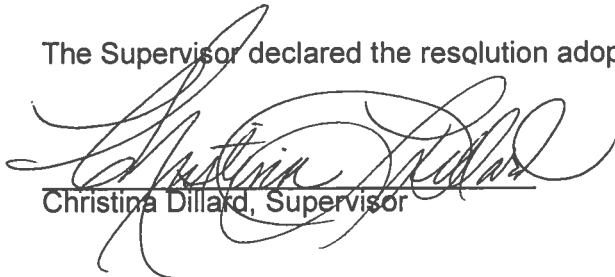
Ayes: Supervisor Dillard, Clerk Campbell, Treasurer Bibbs, Trustees' Payton and McKinney

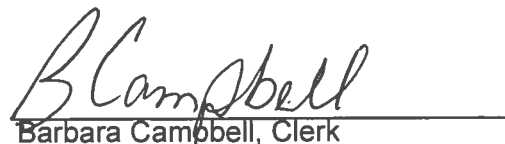
Nays: None

Abstentions: None

Absent: Trustees' Curry and Jernigan

The Supervisor declared the resolution adopted.


Christina Dillard, Supervisor


Barbara Campbell, Clerk

**CARROLLTON TOWNSHIP
Saginaw County, Michigan**

RESOLUTION #2017-10

At a regular meeting of the Board of Trustees of the Township of Carrollton, Saginaw County, Michigan held at the Municipal Building on September 25, 2017 at 5:30 p.m., the following resolution was offered by Supervisor Abney and supported by Treasurer Petrowski:

A Resolution Adopting the 2017 Saginaw County Hazard Mitigation Plan

WHEREAS, the Carrollton Township Board of Trustees recognizes the threat that natural hazards pose to people and property within Carrollton Township, and

WHEREAS, Carrollton Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000, and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Carrollton Township from the impacts of future hazards and disasters, and

WHEREAS, adoption by the Carrollton Township Board of Trustees demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW THEREFORE BE IT RESOLVED, that the Carrollton Township Board of Trustees adopts the 2017 Saginaw County Hazard Mitigation Plan.

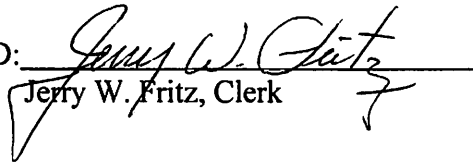
AYES: 5
NAYS: 0
ABSENT: 0

There being all ayes, the resolution was declared adopted.

CERTIFICATION

I, the undersigned, the duly qualified and acting Clerk of the Township of Carrollton, Saginaw County, Michigan, do hereby certify that the foregoing is a true and complete copy of Resolution #2017-10 adopted by the Carrollton Township Board at the meeting held on September 25, 2017.

IN WITNESS WHEREOF, I have hereunto attached my official signature.

SIGNED: 
Jerry W. Fritz, Clerk

DATE: September 25, 2017

**Resolution Of Adoption
Saginaw County Hazard Mitigation Plan**

Saginaw County, Michigan
Resolution #5-2017

A RESOLUTION OF THE SAGINAW COUNTY ADOPTING THE 2017 *Saginaw County Hazard Mitigation Plan*.

WHEREAS, Chapin Township Board recognizes the threat that the natural hazards pose to people and property within Saginaw County; and

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the *2017 Saginaw County Hazard Mitigation Plan* in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Saginaw County from the impacts of future hazards and disasters; and


WHEREAS, adoption by the Chapin Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE Saginaw County Board of Commissioners, Michigan, THAT Chapin Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 13th day of November, 2017.

By:  _____

ATTEST:

By:  _____

Resolution of Adoption Saginaw County Hazard Mitigation Plan

Chesaning Township, Michigan
RESOLUTION NO. 2017-005

A RESOLUTION OF THE TOWNSHIP OF CHESANING ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Chesaning Township Board recognizes the threat that natural hazards pose to people and property within Chesaning Township; and

WHEREAS, the Township of Chesaning has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Township of Chesaning from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Chesaning Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWNSHIP OF CHESANING MICHIGAN, THAT: The Chesaning Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of seven (7) in favor and none (0) against, and none (0) abstaining, this 5th day of October, 2017.

By: Robert Corrin

Robert Corrin, Supervisor

ATTEST:

By: Frances M. Kukulis

Frances Kukulis, Clerk

RESOLUTION NO. 2017- 91

A RESOLUTION TO ADOPT THE 2017 SAGINAW COUNTY
HAZARD MITIGATION PLAN

A RESOLUTION OF THE FRANKENMUTH CITY COUNCIL ADOPTING THE 2017
Saginaw County Hazard Mitigation Plan.

WHEREAS, the Frankenmuth City Council recognizes the threat that natural hazards
pose to people and property within the city of Frankenmuth; and

WHEREAS, the City of Frankenmuth has prepared a multi-hazard mitigation plan,
hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the
Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation
goals and actions to reduce or eliminate long-term risk to people and property in the
city of Frankenmuth from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Frankenmuth City Council demonstrates their
commitment to hazard mitigation and achieving the goals outlined in the 2017
Saginaw County Hazard Mitigation Plan.


NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF FRANKENMUTH,
MICHIGAN, THAT:

The Frankenmuth City Council adopts the 2017 Saginaw County Hazard Mitigation
Plan.

Action Approval

Date 10/10/17


GARY C. RUPPRECHT, MAYOR


PHILLIP W. KERNS, CLERK

ADOPTION OF THE 2017 SAGINAW COUNTY HAZARD MITIGATION PLAN

Moved by Mayor Pro Tem Kloc, seconded by Council Member Moore to adopt the following resolution:

WHEREAS: The City of Saginaw recognizes the threat that natural hazards pose to people and property within the City of Saginaw; and

WHEREAS: The City of Saginaw has prepared a multi-hazard mitigation plan, hereby known as the 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS: The 2017 Saginaw County Hazard Mitigation Plan identifies goals and actions to reduce or eliminate long-term risk to people and property in the City of Saginaw from the impacts of future hazards and disasters; and

WHEREAS: Adoption by the City of Saginaw demonstrates its commitment to hazard mitigation and achieving goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Saginaw adopt the 2017 Saginaw County Hazard Mitigation Plan.

Ayes: Nine
Nays: None
Absent: None
Abstain: None

RESOLUTION DECLARED ADOPTED

I, Janet Santos, City Clerk of the City of Saginaw, Michigan, do hereby certify that the foregoing is a true and complete copy of the resolution adopted by the City of Saginaw, Saginaw County, State of Michigan, at a public meeting held on September 25, 2017; the original thereof is on file in the records of my office; the meeting was conducted and public notice of said meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1976, as amended, and minutes of this meeting were kept and will be made available as required.



Janet Santos

Janet Santos, CMMC/MMC
City Clerk

Resolution of Adoption Saginaw County Hazard Mitigation Plan

Zilwaukee, Michigan
RESOLUTION NO. 11-01

A RESOLUTION OF THE CITY OF ZILWAUKEE ADOPTING THE 2017 Saginaw County Hazard Mitigation.

WHEREAS, The City of Zilwaukee recognizes the threat that natural hazards pose to people and property within the City of Zilwaukee; and

WHEREAS, the City of Zilwaukee has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of Zilwaukee from the impacts of future hazards and disasters; and


WHEREAS, adoption by the City; Zilwaukee demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF ZILWAUKEE, MICHIGAN, THAT: The City of Zilwaukee adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of in favor and against and abstaining, this 6th day of November, 2017.

By: 
Eugene C. Jolin, Mayor

ATTEST:

By: 
Richard C. DeLong, Clerk

Township of Frankenmuth

240 W. Genesee Street • P.O. Box 245 • Frankenmuth, MI 48734

RESOLUTION 2017-16

A RESOLUTION TO ADOPT THE 2017 SAGINAW COUNTY HAZARD MITIGATION PLAN

A RESOLUTION OF THE FRANKENMUTH TOWNSHIP BOARD OF TRUSTEES
ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Frankenmuth Township Board recognizes the threat that natural hazards
pose to people and property within Frankenmuth Township; and

WHEREAS, Frankenmuth Township has prepared a multi-hazard mitigation plan, hereby
known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster
Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals
and actions to reduce or eliminate long-term risk to people and property in Frankenmuth
Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Frankenmuth Township Board of Trustees demonstrates
their commitment to hazard mitigation and achieving the goals outlined in the 2017
Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY FRANKENMUTH TOWNSHIP,
MICHIGAN, THAT:

The Frankenmuth Township Board of Trustees adopts the 2017 Saginaw County Hazard
Mitigation Plan.

Action Approved


TIMOTHY HILDNER, SUPERVISOR

Date 9-18-17


LUCI VALONE, CLERK

**RESOLUTION OF ADOPTION
SAGINAW COUNTY HAZARD MITIGATION PLAN**

**Township of Fremont, Saginaw County
STATE OF MICHIGAN**

Resolution No.: 2017-2

A resolution of the Fremont Township Board adopting the 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Fremont Township Board recognizes the threat that natural hazards pose to people and property within Fremont Township; and

WHEREAS, the Fremont Township Board has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

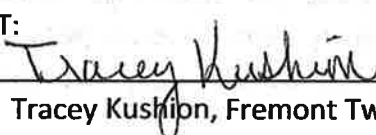
WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Fremont Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Fremont Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlines in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE FREMONT TOWNSHIP BOARD, SAGINAW COUNTY MICHIGAN, THAT: Fremont Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 11th day of September, 2017.

By: 
Donald LaClair, Fremont Twp. Supervisor

ATTEST:
By: 
Tracey Kushion, Fremont Twp. Clerk

JAMES TOWNSHIP

SAGINAW COUNTY, MICHIGAN

RESOLUTION NO. 2017-09-11

A RESOLUTION OF THE JAMES TOWNSHIP BOARD ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the James Township Board recognizes the threat that natural hazards pose to people and property within James Township; and

WHEREAS, the James Township Board has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in James Township from the impacts of future hazards and disasters; and

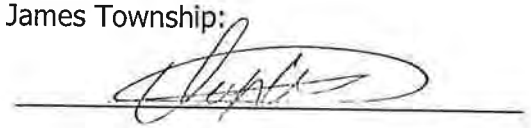
WHEREAS, adoption by the James Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE JAMES TOWNSHIP BOARD, SAGINAW COUNTY, MICHIGAN, THAT: James Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 4 in favor and 0 against, one member absent and 0 abstaining, this 11th day of September, 2017

The supervisor declared the resolution adopted.

Dated: 9/11/17

James Township:


THOMAS DIERICH, Clerk

CERTIFICATION

I, Thomas Dierich, the duly elected and acting clerk of James Township, hereby certify that the foregoing resolution was adopted by the township board by roll call vote at a regular meeting of the board held on the 11th day of September 2017, at which meeting a quorum was present; and that this resolution was ordered to take immediate effect.

Dated: 9/11/17



THOMAS DIERICH, Clerk

**Resolution of Adoption
Saginaw County Hazard Mitigation Plan**

A RESOLUTION OF JONESFIELD TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Jonesfield Township Board recognizes the threat that natural hazards pose to people and property within our community; and

WHEREAS, the township has participated in the preparation of a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Jonesfield Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Jonesfield Township Board demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE JONESFIELD TOWNSHIP BOARD, THAT:
The township adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of five board members in favor and none against, and none abstaining, this 18th day of September, 2017.

By:

Julie Foye, Township Clerk



ATTEST:

By:

Larry Tibbits, Township
Supervisor



**KOCHVILLE TOWNSHIP
SAGINAW COUNTY, MICHIGAN**

RESOLUTION NO. 17-22

A RESOLUTION OF THE TOWNSHIP OF KOCHVILLE ADOPTING THE 2017 SAGINAW COUNTY HAZARD MITIGATION PLAN

WHEREAS, Kochville Township, Saginaw County, Michigan (“Township”) recognizes the threat that natural hazards pose to people and property within Kochville Township; and

WHEREAS, Kochville Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000 ; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Kochville Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by Kochville Township demonstrates their commitment to the hazard mitigation and achieving the goals outline in the 2017 Saginaw County Hazard Mitigation Plan; and

THEREFORE, BE IT RESOLVED BY THE TOWNSHIP OF KOCHVILLE, that Kochville Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

The foregoing resolution was offered by board member Treasurer Brewster and supported by Supervisor Loiacano

Upon roll call vote, the following voted:


“Aye”- Supervisor Loiacano, Clerk Machata, Treasurer Brewster & Trustee Thon


“Nay” - None

“Abstained” - None

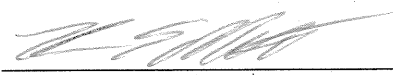
“Absent” – Trustee Ferrell

The foregoing Resolution was duly adopted at a regular meeting of the Kochville Township Board held on September 18, 2017.


James Loiacano
Supervisor of Kochville Township


Kevin Machata
Clerk of Kochville Township

I, Kevin Machata, Clerk of the Kochville Township, do hereby certify the foregoing to be a true copy of a resolution adopted by the Kochville Township Board at its regular meeting held on the September 18, 2017.


Kevin Machata
Clerk of Kochville Township

Resolution of Adoption

Saginaw County Hazard Mitigation Plan

LAKEFIELD TOWNSHIP MICHIGAN

RESOLUTION NO. _____

A RESOLUTION OF LAKEFIELD TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Lakefield Township Board recognizes the threat that natural hazards pose to people and property within Lakefield Township and

WHEREAS, Lakefield Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Lakefield Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Lakefield Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY LAKEFIELD TOWNSHIP MICHIGAN, THAT: Lakefield Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 16 day of October 2017.

By: Tracey Skodowski

(print name)

ATTEST:

By: Terry Orevia

(print name)

**Maple Grove Resolution of Adoption
Saginaw County Hazard Mitigation Plan**

Maple Grove, Michigan
RESOLUTION NO: 9-2017-1

A RESOLUTION OF THE MAPLE GROVE TOWNSHIP ADOPTING THE 2017
Saginaw County Hazard Mitigation Plan.

WHEREAS, the Maple Grove Township Board recognizes the threat that natural
hazards pose to people and property within Maple Grove Township; and

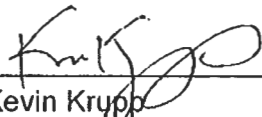
WHEREAS, the Maple Grove Township has prepared a multi-hazard mitigation plan,
hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the
Disaster Mitigation Act of 2000; and

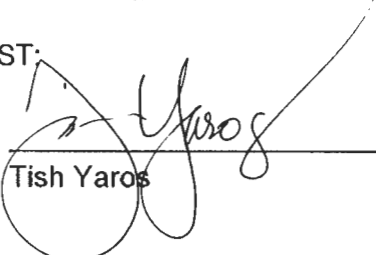
WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals
and actions to reduce or eliminate long-term risk to people and property in the Maple
Grove Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Maple Grove Township Board demonstrates their
commitment to the hazard mitigation and achieving the goals outlined in the 2017
Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE MAPLE GROVE TOWNSHIP,
MICHIGAN, THAT: Maple Grove Township Board adopts the 2017 Saginaw County
Hazard Mitigation Plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 18th day of
September, 2017.

By: 
Kevin Krupp

ATTEST:
By: 
Tish Yaros

Resolution of Adoption Saginaw County Hazard Mitigation Plan

MBS International Airport Commission
RESOLUTION NO. 121701

A RESOLUTION OF THE MBS INTERNATIONAL AIRPORT COMMISSION ADOPTING
THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the MBS International Airport Commission recognizes the threat that natural hazards pose to people and property within; and

WHEREAS, the MBS International Airport Commission has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property within MBS International Airport from the impacts of future hazards and disasters; and

WHEREAS, adoption by the MBS International Airport Commission demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE MBS INTERNATIONAL AIRPORT
COMMISSION MICHIGAN, THAT:

MBS International Airport Commission adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 8 in favor and 0 against, and 0 abstaining, this 21st day of
December, 2017.

By: 

Greg Branch, Chairman

Saginaw County Hazard Mitigation Plan

TOWNSHIP OF RICHLAND
SAGINAW COUNTY, MICHIGAN

RESOLUTION REGARDING THE SAGINAW COUNTY HAZARD MITIGATION PLAN

RESOLUTION NO. 10-2017

DATED: October 10, 2017

A RESOLUTION OF THE TOWNSHIP OF RICHLAND, SAGINAW COUNTY ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Richland Township Board of Trustee's recognizes the threat that natural hazards pose to people and property within Richland Township, and

WHEREAS, the Township of Richland has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 200; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Richland Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Richland Township Board of Trustee's demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWNSHIP OF RICHLAND, SAGINAW COUNTY, MICHIGAN, THAT: the Richland Township Board of Trustee's adopts the 2017 Saginaw County Hazard Mitigation Plan.

This RESOLUTION was offered by Board member David Knoll, supported by Board member Susan Neuenfeldt at a meeting on October 10, 2017. The members of the Township Board voted as follows:

The TOWNSHIP SUPERVISOR declared the RESOLUTION duly adopted.

Brian Frederick
Brian Frederick, Township Supervisor

CERTIFICATE

I hereby certify that the foregoing constitutes a true and complete copy of a resolution adopted at a regular meeting of the Richland Township Board held on October 10, 2017; that the meeting was conducted and public notice of the meeting was given pursuant to and in compliance with the Michigan Open Meetings Act; that a quorum of the Board was present and voted in favor of the resolution; and that the minutes of the meeting will be or have been made available as required by the Open Meetings Act.

Renee Herhold
Clerk, Renee Herhold
Township of Richland
Saginaw County, Michigan

**SAGINAW CHARTER TOWNSHIP
SAGINAW COUNTY, MICHIGAN**

**SAGINAW COUNTY HAZARD MITIGATION PLAN
RESOLUTION**

At a of a regular meeting of the Township Board of the Charter Township of Saginaw, County of Saginaw, State of Michigan, held on the 9th day of October, 2017, at 7:00 p.m.

PRESENT: Supervisor Braun, Clerk Wazny, Treasurer Gerhardt, Trustees
Connolly, Gorney, Howell, and Kelly

ABSENT: _____

The following is a resolution of the Saginaw Township adopting the 2017 Saginaw County Hazard Mitigation Plan and was offered by Gerhardt, and supported by Gorney:

WHEREAS, the Saginaw Township Board recognizes the threat that natural hazards pose to people and property within Saginaw Township; and

WHEREAS, the Saginaw Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Saginaw Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Saginaw Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outline in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE SAGINAW TOWNSHIP, MICHIGAN, THAT: Saginaw Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

The Supervisor declared the resolution adopted by vote of:

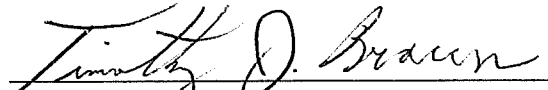
AYES: Supervisor Braun, Clerk Wazny, Treasurer Gerhardt, Trustees

Connolly, Gorney, Howell, and Kelly

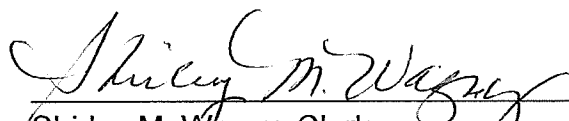
NAYS: _____

ABSENT: _____

Date: October 9, 2017



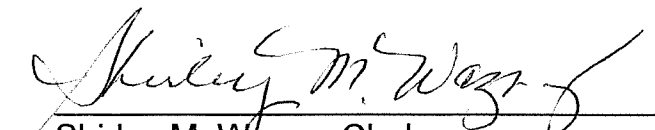
Timothy J. Braun, Supervisor



Shirley M. Wazny, Clerk

CERTIFICATION

I hereby certify that the attached is a true and complete copy of a resolution adopted by the Township Board of the Charter Township of Saginaw, County of Saginaw, State of Michigan, at a regular meeting held on the 9th day of October, 2017 and that public notice of said meeting was given pursuant to and in full compliance with Act No. 267, Public Acts of Michigan, 1976 and that minutes of the meeting were kept and will be or have been made available as required by said Act.



Shirley M. Wazny, Clerk

RESOLUTION "F"

COUNTY OF SAGINAW STATE OF MICHIGAN

SAGINAW COUNTY HAZARD MITIGATION PLAN

At a regular meeting of the Saginaw County Board of Commissioners held in the Board Chambers, Second Floor, of the Saginaw County Governmental Center of said Saginaw County on the 15th day of August, 2017 at 5:00 pm.

PRESENT: *Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O'Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11*

Commissioner Hadsall offered the following resolution and moved its adoption. The motion was seconded by Commissioner Kilpatrick.

WHEREAS, Saginaw County recognizes the threat that natural hazards pose to people and property within Saginaw County; and,

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the *2017 Saginaw County Hazard Mitigation Plan* in accordance with the Disaster Mitigation Act of 2000; and,

WHEREAS, the *2017 Saginaw County Hazard Mitigation Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk people and property in Saginaw County from the impacts of future hazards and disasters; and,

WHEREAS, adoption by Saginaw County demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the *2017 Saginaw County Hazard Mitigation Plan*.

NOW, THEREFORE, BE IT RESOLVED by the Saginaw County Board of Commissioners, that Saginaw County adopts the *2017 Saginaw County Hazard Mitigation Plan*.

Yeas: *Kathleen K. Dwan, Cheryl M. Hadsall, Kyle R. Harris, Kirk W. Kilpatrick, Dennis H. Krafft, Susan A. McInerney, Amos O'Neal, Carl E. Ruth, Charles M. Stack, James G. Theisen, Michael A. Webster – 11*

Nays: *None*

TOTAL: *11*

A sufficient majority having voted therefor, the Resolution was adopted.

STATE OF MICHIGAN)
) SS
COUNTY OF SAGINAW)

I, the undersigned, the duly qualified and acting County Clerk of the County of Saginaw, do hereby certify that the foregoing is a true and complete copy of a resolution adopted by a majority vote of the members elect at a regular meeting of the Saginaw County Board of Commissioners, held on August 15, 2017, the original of which is on file in my office. I further certify that notice of the meeting was given in accordance with the Open Meetings Act.



Michael J. Hanley
County Clerk

**Resolution of Adoption
Saginaw County Hazard Mitigation Plan**

A RESOLUTION OF THE SPAULDING TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Spaulding Township recognizes the threat that natural hazards pose to people and property within Spaulding Township; and

WHEREAS, the Spaulding Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Spaulding Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Spaulding Township demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE SPAULDING TOWNSHIP, MICHIGAN, THAT: Spaulding Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 19th day of September, 2017.

By: Mark Seamon
Mark Seamon
Spaulding Township Clerk

ATTEST:

By: Ed Masters
Ed Masters
Spaulding Township Supervisor

*Adoption moved by Don Sutto II
and supported by Tracie Prueter.*

Resolution of Adoption
Saginaw County Hazard Mitigation Plan

St. Charles Township, Saginaw
County Michigan
RESOLUTION NO. 2017-04

A RESOLUTION OF ST. CHARLES TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the St. Charles Township recognizes the threat that natural hazards pose to people and property within St. Charles Township; and

WHEREAS, St. Charles Township has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in St. Charles Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the St. Charles Township Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY ST. CHARLES TOWNSHIP, MICHIGAN, THAT: St. Charles Township Board adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 4 in favor and 0 against, and 1 abstaining, this 2nd day of October, 2017.

By: Tommy L Sargent
(print name) Tom Sargent, Township Supervisor

ATTEST:
By: Joseph A. Krawczyk
(print name) Joseph A. Krawczyk, Township Clerk

**Resolution of Adoption
Saginaw County Hazard Mitigation Plan**

Swan Creek Township, Saginaw County, Michigan
RESOLUTION NO. 02-2017

A RESOLUTION OF SWAN CREEK TOWNSHIP ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, Swan Creek Township Board of Trustees recognizes the threat that natural hazards pose to people and property within Saginaw County; and

WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Swan Creek Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by Swan Creek Township Board of Trustees demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE SWAN CREEK TOWNSHIP BOARD OF TRUSTEES, MICHIGAN, THAT Swan Creek Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

Adopted by a vote of 4 in favor and 0 against, and 0 abstaining in the 13th day of November 2017.

By: *Shirley M. Kuzinski*
Attest: *Sharon A. Sprang*

RESOLUTION 17-13
THOMAS TOWNSHIP, SAGINAW COUNTY, MICHIGAN
RESOLUTION OF ADOPTION, SAGINAW COUNTY HAZARD MITIGATION PLAN

At a regular meeting of the Thomas Township Board of Trustees, held on the 2nd day October, 2017 at 7:00 o'clock p.m. Michigan Time.

PRESENT: *Weise, Brosowski, Weber, Ryder-Petre, Monahan, Thayer, Sommers*

ABSENT: *None*

Thayer offered resolution 17-13, of the Thomas Township Board of Trustees adopting the 2017 Saginaw County Hazard Mitigation Plan. The following resolution was moved for adoption. The motion was seconded by *Ryder-Petre*.

WHEREAS, the Thomas Townships Board of Trustees recognizes the threat that natural hazards pose to people and property within Thomas Township; and

WHEREAS, Thomas Township has prepared a multi-hazard mitigation plan, hereby known as the 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Thomas Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Thomas Township Board of Trustees demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation plan

NOW, THEREFORE, BE IT RESOLVED that the Thomas Township Board of Trustees adopts the 2017 Saginaw County Hazard Mitigation Plan.

AYES: *Weise, Brosowski, Weber, Ryder-Petre, Monahan, Thayer, Sommers*

NAYS: None


ABSTAINED: None

ABSENT: None

This is a certified copy.


(MCL15.233)

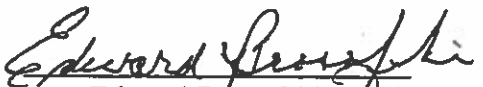
The Supervisor declares this resolution adopted;



Robert Weise, Supervisor

CERTIFICATE

I, EDWARD BROSOFSKI, the duly elected and acting Clerk of the Thomas Township Board of Trustees, hereby certify that the foregoing resolution was adopted by the Thomas Township Board of Trustees of said Township at the regular meeting of said Board held on October 2, 2017, at which meeting a quorum was present, by a roll call vote of said members and hereinafter set forth; that said resolution was ordered to take immediate effect.



Edward Brosowski, Clerk

This is a certified copy.


(MCL15.233)

R-17-17

**TITTABAWASSEE TOWNSHIP
SAGINAW COUNTY, STATE OF MICHIGAN**

**RESOLUTION FOR ADOPTION OF THE 2017
SAGINAW COUNTY HAZARD MITIGATION PLAN**

WHEREAS, the Township of Tittabawassee recognizes the threat that natural hazards pose to people and property within Tittabawassee Township; and

WHEREAS, the Township of Tittabawassee has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Tittabawassee Township from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Township of Tittabawassee demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWNSHIP OF TITTABAWASSEE, MICHIGAN, THAT:

Tittabawassee Township adopts the 2017 Saginaw County Hazard Mitigation Plan.

This RESOLUTION was offered by Board member Vasold, supported by Board member King at a meeting on September 12, 2017. The members of the Township Board voted as follows:


AYES: King, Metiva, Remius, Vasold, DuCharme, Neuenfeldt, Hayes

NAYS: None

ABSENT: None


Robert DuCharme, Clerk

I, Robert DuCharme, the duly qualified Clerk of Tittabawassee Township, Saginaw County, Michigan, do hereby certify that the foregoing is a true and complete copy of Resolution R-17-17 a resolution adopted by the Township Board of Tittabawassee Township, at a regular meeting held on September 12, 2017.



Robert DuCharme, Clerk

Date: 9-13-17 _____

RESOLUTION OF ADOPTION
SAGINAW COUNTY HAZARD MITIGATION PLAN

VILLAGE OF CHESANING, MICHIGAN
RESOLUTION 15-2017

A resolution of the Village of Chesaning adopting the 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Chesaning Village Council recognizes the threat that natural hazards pose to people and property within the Village of Chesaning; and

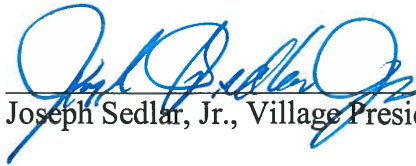
WHEREAS, the Village of Chesaning has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Village of Chesaning from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Chesaning Village Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE BE IT RESOLVED BY THE VILLAGE OF CHESANING, MICHIGAN, THAT the Chesaning Village Council adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 19th day of September, 2017.



Joseph Sedlar, Jr., Village President



Tina Powell, Village Clerk

Resolution of Adoption

Saginaw County Hazard Mitigation Plan

Village of Merrill, Michigan

Resolution No. 17-04

A RESOLUTION OF THE VILLAGE OF MERRILL ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Village of Merrill recognizes the threat that natural hazards pose to people and property within the Village of Merrill; and

WHEREAS, the Village of Merrill has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Merrill from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Village of Merrill demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE VILLAGE OF MERRILL, MICHIGAN, THAT; the Merrill Village Council adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 11th day of September, 2017.

By: Janice M Wazny, Clerk

ATTEST:

By: Penny I Church, Treasurer

Resolution # 17 - 12
To Adopt the Saginaw County Hazard Mitigation Plan

A RESOLUTION OF ST. CHARLES VILLAGE COUNCIL, ST. CHARLES, MICHIGAN ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, Village Council recognizes the threat that natural hazards pose to people and property within Saginaw County; and

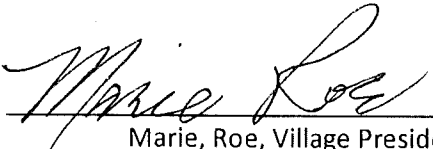
WHEREAS, Saginaw County has prepared a multi-hazard mitigation plan, hereby known as the 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Saginaw County, including the Village of St. Charles, from the impacts of future hazards and disaster; and

WHEREAS, adoption by Village Council demonstrates a commitment to hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE ST. CHARLES VILLAGE COUNCIL, ST. CHARLES, MICHIGAN, THAT Village Council adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 8th day of November, 2017.


Marie, Roe, Village President

ATTEST: 
Deanna Koehler, Village Clerk

Resolution of Adoption Saginaw County Hazard Mitigation Plan

A RESOLUTION OF THE Village of Oakley ADOPTING THE 2017 Saginaw County Hazard Mitigation Plan.

WHEREAS, the Oakley Village Council recognizes the threat that natural hazards pose to people and property within Village of Oakley; and

WHEREAS, the Village of Oakley has prepared a multi-hazard mitigation plan, hereby known as 2017 Saginaw County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2017 Saginaw County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Village of Oakley from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Oakley Village Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Saginaw County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE Village Of Oakley, MICHIGAN, THAT: The Oakley Village Council adopts the 2017 Saginaw County Hazard Mitigation Plan.

ADOPTED by a vote of 6 in favor and 0 against, and 0 abstaining, this 12th day of September, 2017.

By: Richard Fish,
Oakley Village President

Richard Fish 09-12-17

ATTEST:

By: Gretchen Schulte
Oakley Village Clerk

Gretchen Schulte