SAGINAW CHIPPEWA INDIAN TRIBE HAZARD MITIGATION PLAN

FEMA Approved Version

ACKNOWLEDGEMENTS

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William Vaught, Risk Management Manager
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Other Contributors

Julie Adams, Isabella County Homeland Security Planner
Mike Bower, Arenac County Emergency Management Coordinator
Bill Ernat, East Michigan Council of Governments Program Manager
Marc Griffis, Isabella County Emergency Management Director
Ryan Martin, Isabella County 911 Supervisor
Mitchell Oliver, Standish Area Fire Authority Fire Chief
Ed Rohn, Arenac County Emergency Management Coordinator

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Maps

ACRONYMS

ACE	Army Corps of Engineers
BCHAC	Bay County Hazard Advisory Committee
CDC	Center for Disease Control
CISMA	Cooperative Invasive Species Management Area
CMAS	Commercial Mobile Alert System
CMI	Crop Moisture Index
CRS	Community Rating System
CSXT	CSX Transportation

DHS	United State Department of Homeland Security
DOI	United States Department of Interior
EAP	Emergency Action Plan
EAS	Emergency Alert System
EF	Enhanced Fujita
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EMCOG	East Michigan Council of Governments
EMC	Emergency Management Coordinator
EMWIN	Emergency Managers Weather Information Network
EOC	Emergency Operations Center
EPZ	Emergency Planning Zone
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
HESR	Huron and Eastern Railway
HHS	United States Department of Health and Human Services
HMEP	Hazardous Materials Emergency Preparedness
HMTUSA	Hazardous Materials Transportation Uniform Safety Act
HS	Homeland Security
HSPD	Homeland Security Presidential Directive
IHS	Indian Health Services
IPAWS	Integrated Public Alert & Warning System
IWIN	Interactive Weather Information Network
KPH	Kilometers Per Hour
LEIN	Law Enforcement Information Network
LEPC	Local Emergency Planning Committee
LPT	Local Planning Team
MDA	Michigan Department of Agriculture
MDARD	Michigan Department of Agriculture & Rural Development
MDNR	Michigan Department of Natural Resources
MDOT	Michigan Department of Transportation
MIRIS	Michigan Resource Information System
MIWFPA	Michigan Interagency Wildland Fire Protection Association
MMR	Mobile Medical Response
MMRR	Mid-Michigan Railroad
MPH	Miles Per Hour
MPSC	Michigan Public Service Commission
MSP	Michigan State Police
MSP/EMHSD	Michigan State Police/Emergency Management Homeland Security Division

NA	Not Applicable
NCEI	National Center for Environmental Information
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NID	National Inventory of Dams
NIMS	National Incident Management System
NLSI	National Lightning Safety Institute
NOAA	National Oceanic and Atmospheric Administration
NRT	National Response Team
NTSB	National Transportation Safety Board
NWS	National Weather Service
OEM	Office of Emergency Management
PDD	Presidential Decision Directive
PEAS	Pollution Emergency Alerting System
RCRA	Resource Conservation and Recovery Act
RRTN	Regional Response Team Network
SARA	Superfund Amendments and Reauthorization Act
SNS	Strategic National Stockpile
TBD	To Be Determined
USDA	United States Department of Agriculture
USDOT	United State Department of Transportation
USDOT/OHMS	United States Department of Transportation, Office of Hazardous Materials Safety
USGS	United States Geological Survey
WMD	Weapons of Mass Destruction

The Saginaw Chippewa Indian Tribe Of Michigan

7500 SOARING EAGLE BLVD. MT. PLEASANT, MICHIGAN 4885 (989) 775-4000
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RESOLUTION NO. 22-066

WHEREAS: The Saginaw Chippewa Indian Tribe of Michigan ("Tribe") is a federally recognized sovereign Indian Tribe organized under a Constitution and By-Laws ratified by the Tribe on November 4, 1986, pursuant to Pub. L. 99-346; and

WHEREAS: The governing body of the Tribe is the Saginaw Chippewa Tribal Council ("Tribal Council"); and

WHEREAS: Article IV, Section l(e) of the 1986 Constitution provides that Tribal Council shall have authority "[t]o manage all economic affairs and enterprises of the Saginaw Chippewa Indian Tribe of Michigan."; and

WHEREAS: Under the Disaster Mitigation Act of 2000, state, local, and Indian Tribal governments are required to develop local hazard mitigation plans in order to be eligible for pre-disaster funding from the U.S. Federal Emergency Management Agency ("FEMA"); and

WHEREAS: The Tribe has experienced disasters that have damaged commercial, residential, and public properties; displaced citizens and businesses; closed streets and bridges; and presented general public health and safety concerns; and

WHEREAS: In 2018, the Tribe received funding from the FEMA Pre-Disaster Mitigation Grant Program to develop a hazard mitigation plan; and

WHEREAS: In 2019, the Tribe entered into an agreement with the East Michigan Council of Governments for hazard mitigation plan development services; and

WHEREAS: The Tribe, for the purpose of preparing a hazard mitigation plan, established an advisory committee consisting of representatives from the Tribe's departments and enterprises with hazard mitigation responsibilities, the Saginaw Chippewa Indian Tribe of Michigan Emergency Management Hazard Mitigation Committee (the "Advisory Committee"); and

WHEREAS: The Tribe, via the Advisory Committee and the services of the East Michigan Council of Governments, has prepared the Saginaw Chippewa Indian Tribe Hazard Mitigation Plan (the "Plan") which outlines the Tribe's options to reduce overall

damage and impact from natural hazards; and

WHEREAS: The Plan has been reviewed by stakeholders such as, Tribal residents; business owners; and partnering federal, state, and local agencies; and the Plan has been revised to address stakeholder input; and

WHEREAS: FEMA has reviewed a final draft of the Plan and approves the Plan's finalization and implementation by the Tribe.

NOW, THEREFORE, BE IT RESOLVED that the Saginaw Chippewa Indian Tribe of Michigan hereby adopts the Saginaw Chippewa Indian Tribe Hazard Mitigation Plan as an official plan of the Tribe.

BE IT FURTHER RESOLVED that the Saginaw Chippewa Indian Tribe of Michigan hereby establishes the Saginaw Chippewa Indian Tribe of Michigan Emergency Management Hazard Mitigation Committee (the "Committee") as a Tribal Council sanctioned committee, consisting of the following members:

a. Fire Chief - Tribe;
b. Police Chief - Tribe;
c. Public Relations Director - Tribe;
d. Planning Department Director - Tribe;
e. Environmental Manager - Tribe;
f. Safety Coordinator - Tribe;
g. Public Health Director - Tribe;
h. Security Manager - Soaring Eagle Casino and Resort;
1. Security Manager - Saganing Eagles Landing Casino; and
J. Any other member(s) duly appointed by Tribal Council.

BE IT FURTHER RESOLVED that the Committee is charged with superv1smg the implementation of the Plan's recommendations within the funding limitations as approved by the Tribal Council.

BE IT FURTHER RESOLVED that the Tribe's Planning Department Director shall serve as the facilitator of the Committee.

BE IT FURTHER RESOLVED that the Committee's facilitator shall convene the Committee at least once per year. The Committee shall monitor the implementation of the Plan and shall submit an annual written progress report to the Tribal Council which shall include the following:

a. A review of the Plan;
b. A review of any disasters or emergencies that occurred during the previous calendar year;
c. A review of the actions taken, including what was accomplished during the previous calendar year;
d. A discussion of any implementation problems;
e. Recommendations for new projects or revised action items in the Plan, which shall

be subject to review and approval by the Tribal Council prior to implementation.

BE IT FURTHER RESOLVED that the Chief or Sub Chief are hereby authorized to execute any documentation required concerning the Saginaw Chippewa Indian Tribe Hazard Mitigation Plan, for and on behalf of the Saginaw Chippewa Indian Tribe of Michigan.

BE IT FURTHER RESOLVED that this Resolution shall remain in effect until such time as rescinded or superseded by further action of the Tribal Council.

CERTIFICATION

The foregoing Resolution was duly adopted by the Saginaw Chippewa Tribal Council with a quorum being present during a Special Meeting on the 23rd day of March, 2022, by a vote of 11 for, 0 against, and 0 abstaining.

Theresa Jackson, Tribal Chief

Martha Wemigwans, Council Secretary

CHAPTER 1: INTRODUCTION

The Saginaw Chippewa Indian Tribe ("SCIT") reside on the Isabella Indian Reservation, which is located primarily in Isabella County, and several parcels of on- and off-reservation land in Standish Township, Arenac County, and off-reservation in Iosco County. The SCIT reside on 140,241 acres or 219.1 square miles between the sites in Isabella, Arenac, and Iosco Counties.

Access to the SCIT property is made possible through the U. S. Interstate Highway System as well as the national highway system, the State of Michigan trunkline highway system, and local roads. In Isabella County, north-south access is provided by US-127 in the central portion of the County. East-west access is provided by M-20 in the northern portion of the County. In Arenac County, north-south access is provided by I-75 on the western portion of the County, and US-23 in the middle portion and eastern portion of the County.

What is Hazard Mitigation?

Under the Disaster Mitigation Act of 2000, state, local, and Indian Tribal governments are required to develop local hazard mitigation plans in order to be eligible for pre-disaster funding from the Federal Emergency Management Agency (FEMA). The Saginaw Chippewa Indian Tribe Hazard Mitigation Plan ("Plan") was prepared in accordance with the FEMA documents: Tribal Mitigation Plan Review Guide, Tribal Mitigation Planning Handbook, and the Michigan State Police Emergency Management and Homeland Security Division (MSP/EMHSD) publication 207: Local Hazard Mitigation Planning Workbook.

Hazard Mitigation 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, human-related, and technological hazards. Hazard mitigation, along with preparedness, response, and recovery comprise the four phases of emergency management. There is a cyclical relationship between the four phases of emergency management; a community prepares for disaster, including hazard mitigation activities, and then responds to a disaster when it occurs. Following the response, there is a transition into the recovery process, during which hazard mitigation measures can be evaluated and adopted. This, in turn, improves the resilience of the community for the next incident, and so on. When successful, hazard mitigation will lessen future impacts to such a degree that succeeding occurrences will remain incidents and not become disasters.

Hazard mitigation strives to reduce the impact of hazards on people and property through the coordination of resources, programs, and authorities so that, at the very least, communities do not contribute to the increasing severity of the problem. When repairs and reconstruction are completed as quickly as possible to pre-disaster conditions, then pre-disaster conditions may simply result in a cycle of repeated damages. However, post-disaster repairs and reconstruction provide an opportunity to strengthen a community's resilience. Recovery projects can rebuild things in a safer manner, informed by the lessons of past disasters, so that future disasters will not have as much of an impact. Hazard mitigation is needed to ensure that such cycles are broken, that post-disaster repairs and reconstruction take place after damages are analyzed, and that sounder, less vulnerable conditions are produced.

Through a combination of regulatory, administrative, and engineering approaches, losses can be limited by reducing susceptibility to damage. Hazard mitigation provides the mechanism by which communities and individuals can break the cycle of damage, reconstruction, and damage again. Recognizing the importance of reducing community vulnerability to natural and technological hazards, the Tribe is actively

addressing the issue through the development and subsequent implementation of this plan. The many benefits to be realized from this effort – protection of the public health and safety, preservation of essential services, prevention of property damage, and preservation of the local economic base, to mention just a few – will help ensure that the SCIT remains a vibrant, safe, and enjoyable place in which to live, raise a family, and conduct business.

The Plan serves as the foundation for hazard mitigation activities within the community. Implementation of the plan's recommendations will assist in the reduction of injuries, loss of life, and destruction of property due to natural and technological hazards. The Plan provides a path toward continuous, proactive reduction of vulnerability to the most frequent hazards that result in repetitive and often severe social, economic, and physical damage. The ideal end-state would be the total integration of hazard mitigation activities, programs, capabilities, and actions into normal, day-to-day governmental functions and management practices.

The Tribe's Environmental Response Program Specialist, Planning Director, and the Saginaw Chippewa Indian Tribe Emergency Management Hazard Mitigation Committee (SCIT EM/HMC) worked with the East Michigan Council of Governments (EMCOG) staff to develop this Plan. The intent of the Plan is to work with those familiar with the SCIT to create an action plan to protect the health, safety, and economic interests of tribal residents through hazard mitigation, planning, awareness, and implementation.

This plan employs a broad perspective in examining multi-hazard mitigation activities and opportunities in the Reservation. Emphasis is placed on hazards which have resulted in threats to the public health, safety and welfare, as well as the social, economic and physical fabric of the community. This plan addresses such hazards as floods, tornadoes, severe winds, winter storms, wildfires, structural fires, hazardous material incidents, cyber-crimes, public health emergencies, infrastructure failures, and secondary technological hazards which result from natural hazard events. Each hazard is analyzed from a historical perspective, evaluated for potential risk, and considered for possible mitigative action. The plan also lays out the legal basis for planning and the tools to be used for its implementation.

The analysis of hazards makes use of community profile information that includes a description of community organizations and potential resources. The hazards have been identified as high, medium, moderate, and low priority based on their potential impact to the SCIT. This information is found in Table 4.1 on pages 71-72. For each of the hazards, the following is provided:

- Definition of the hazard;
- Description of the hazard;
- A review of the significant events of the Hazard as it has affected the Tribe; and
- Hazard overview

This plan is the culmination of the interdisciplinary and interagency planning effort that required the assistance and expertise of numerous agencies, organizations, and individuals. Without their technical assistance and contributions of time and ideas, this plan could not have been completed.

Executive Summary

The Saginaw Chippewa Indian Tribe Hazard Mitigation Plan was created to protect the health, safety, and economic interests of the Tribe's residents, businesses, and visitors by reducing the impacts of natural,

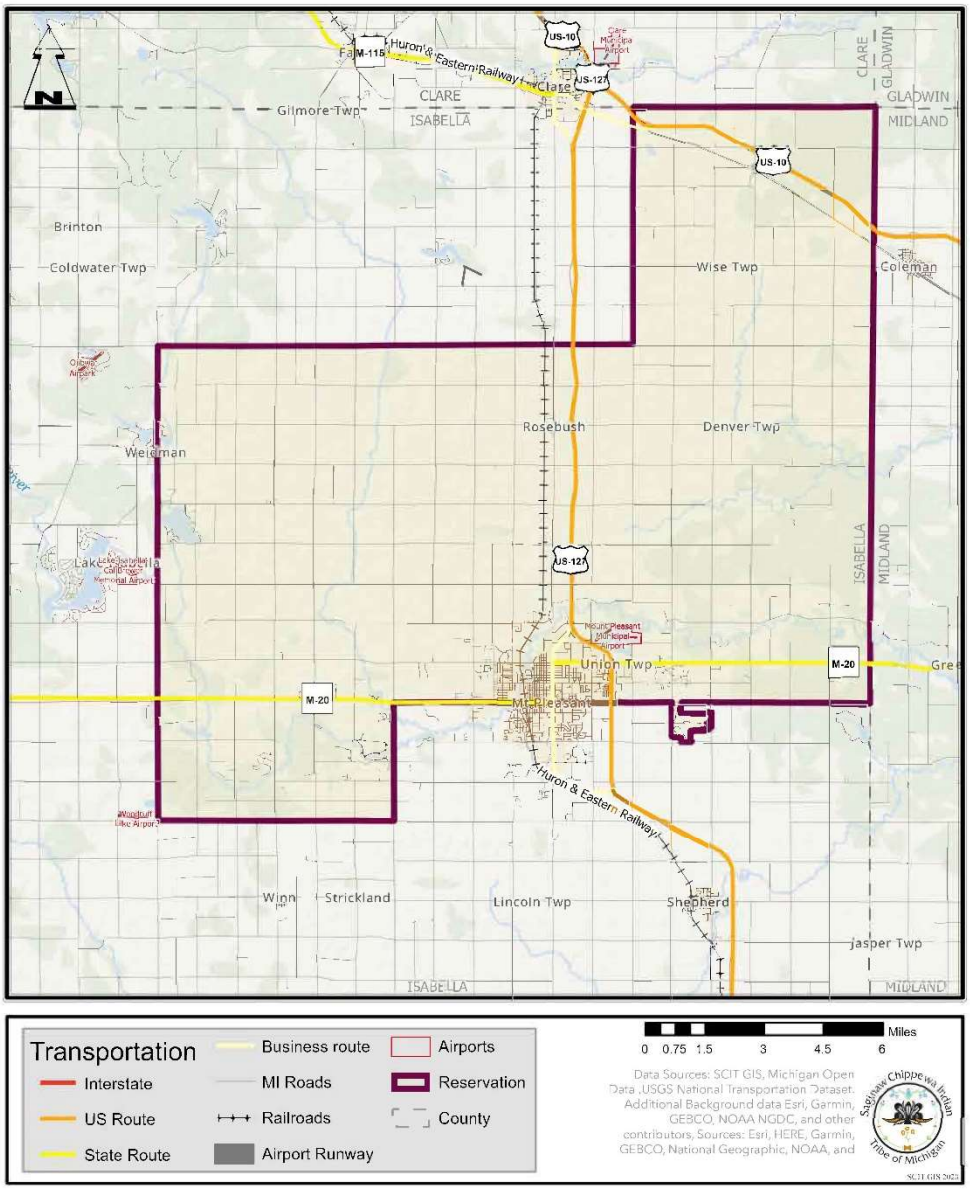
technological, and man-made hazards through hazard mitigation planning, awareness, and implementation. The plan serves as the foundation for hazard mitigation activities and actions within the Isabella Indian Reservation, the Saganing District, and other tribal properties. Implementation of recommendations will reduce loss of life, destruction of property, and economic losses due to natural, societal, and technological hazards. The plan provides a path toward continuous, proactive reduction of vulnerability to hazards which result in repetitive and often times severe social, economic, and physical damage. The ideal end state is full integration of hazard mitigation concepts into day-to-day governmental and business functions and management practices.

Certain information that is considered confidential or too sensitive for widespread public distribution has been kept out of this document and will only be distributed at the discretion of the SCIT Emergency Management Department.

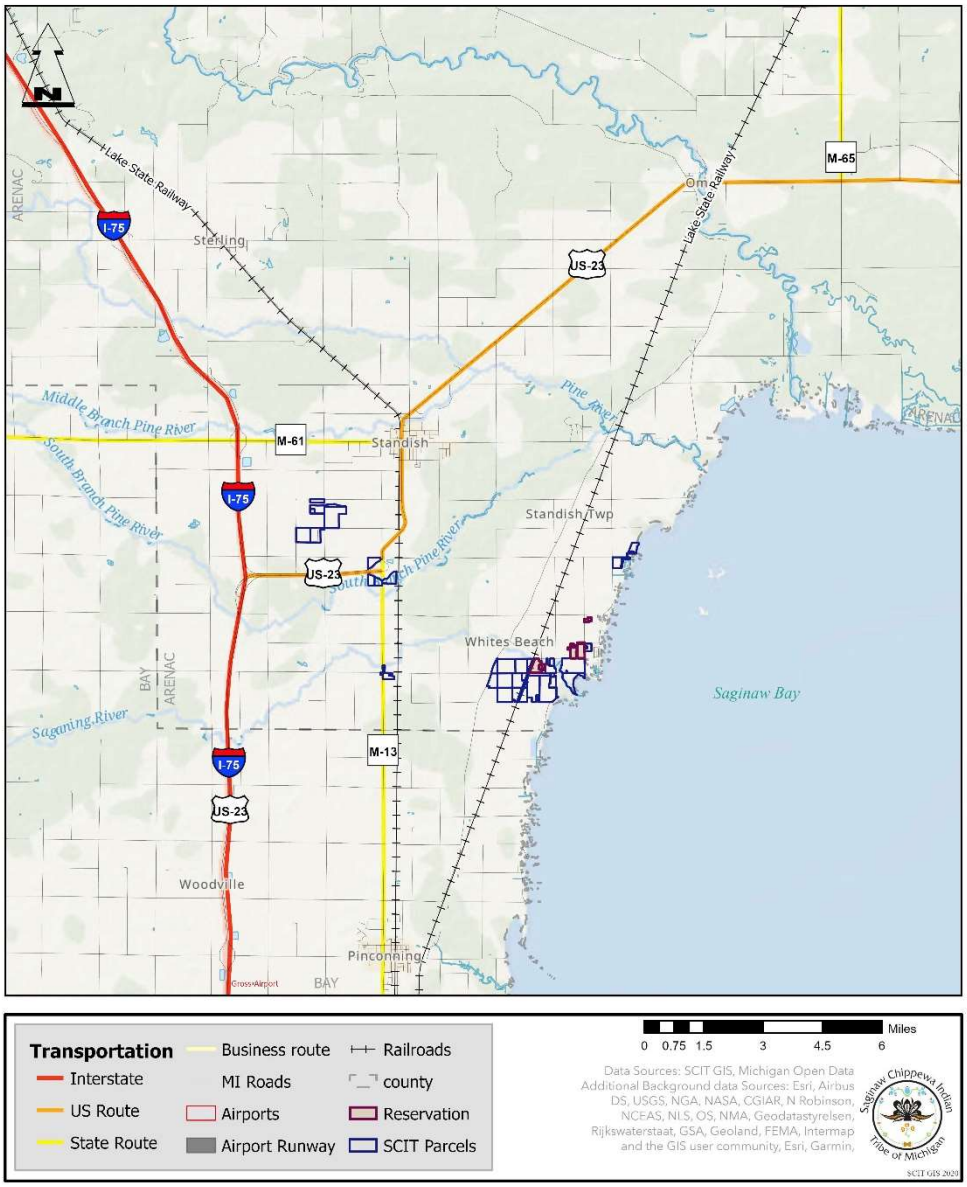
Maps of the Saginaw Chippewa Indian Tribe Reservation and other property in trust to the Tribe are found on the following pages.

Isabella Reservation

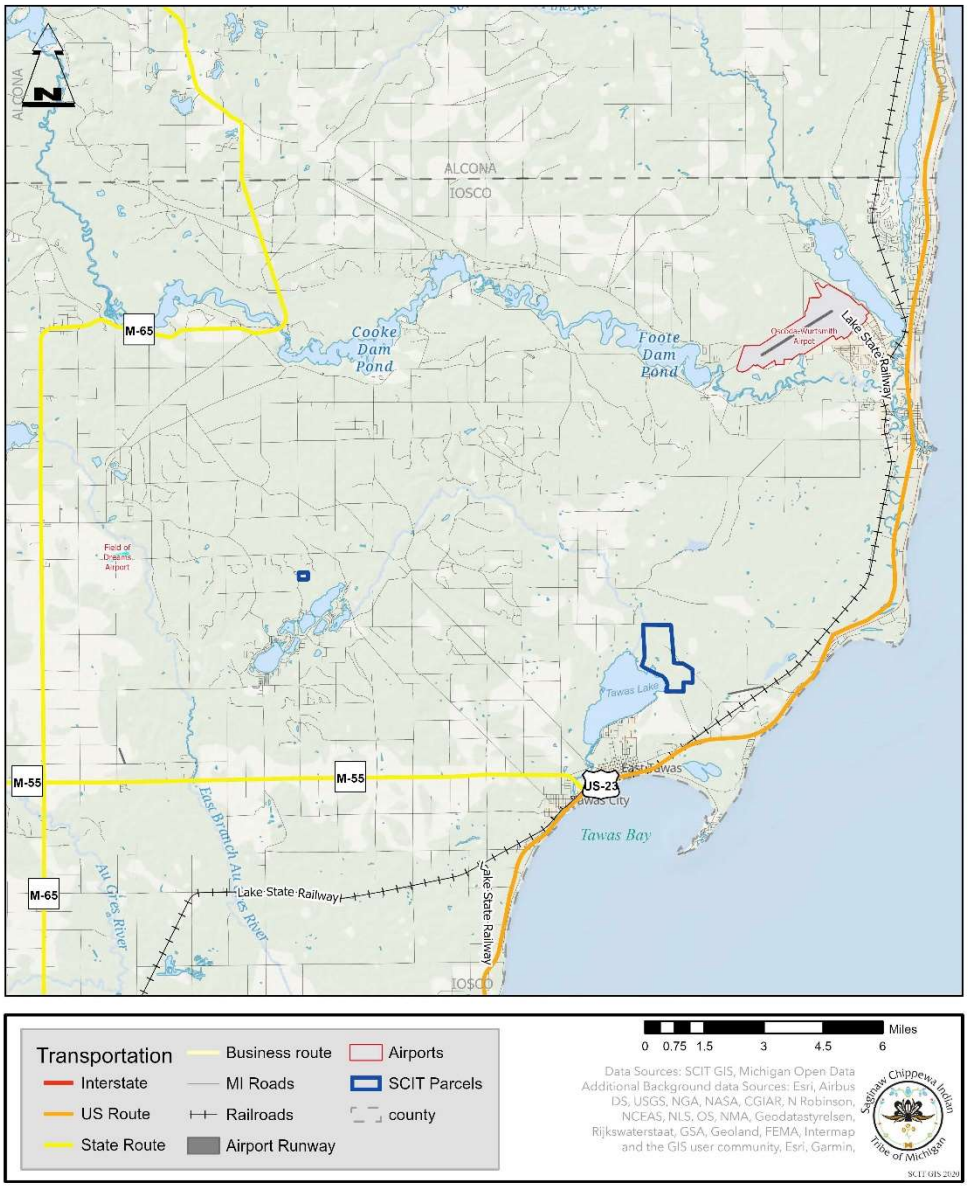
Map 1.1



Saganing District
Arenac County
Map 1.2



Saganing District
Iosco County
Map 1.3



CHAPTER 2: THE PLANNING PROCESS

The Saginaw Chippewa Indian Tribe (SCIT) was awarded a grant from FEMA in 2018 to create a Hazard Mitigation Plan ("Plan"). After an RFP process where no proposals were received, FEMA approved the hiring of East Michigan Council of Governments (EMCOG) as the consultant to assist in the creation of the Plan. In May of 2019, the SCIT Emergency Management staff met with EMCOG staff to discuss the planning process. At that meeting, EMCOG staff recommended a process that would be utilized to create the Plan, including the hosting of a public meeting to begin the planning process and the hosting of multiple meetings open to the public with an advisory committee to guide the consultant in the process. The SCIT staff was advised that the described process had been used in the successful approval of other Hazard Mitigation Plans in the region.

The SCIT Emergency Management Staff members consisted of Don Seal, Planning Director, Troy Techlin, Environmental Response Program Manager, Sally Kniffen, Environmental Strategist, and Jennifer Seibt, Environmental Resource Technician, with Troy being the primary contact person for the Tribe. They sent out requests to all the SCIT departments, including the Tribal Council, and to the Arenac, Iosco, and Isabella County Emergency Management staffs, to attend the regularly scheduled meetings and to provide the historical background for the SCIT as it pertained to hazardous events and mitigation efforts. Ultimately representatives from the various SCIT departments were named as members to the advisory committee.

Notices for all the meetings were sent to the advisory committee members, including calendar meeting reminders along with their meeting packets, one week prior to the meeting. Prior to the pandemic, notices for the meetings, including the public hearing, were posted at the location of the meeting, as well as on the SCIT Facebook page and on the SCIT member website page. Prior to the pandemic, meetings were located either at the Public Safety Building on the Isabella Reservation or at the Tribal Center adjacent to the Saganing Eagles Casino. During the pandemic, meetings were virtual and meeting notices were posted on the SCIT Facebook page and the Tribal member website page, for the general public to participate should they wish to do so. The general public includes members of the Saginaw Chippewa Indian Tribe of Michigan (SCIT), workers for the SCIT, and anyone who would visit the website.

Through the series of open meetings to the public, the SCIT Emergency Management Staff and EMCOG staff directed the advisory committee members and other individuals in attendees for an assessment of the existing conditions in order to determine what hazards created the most impact to the SCIT, the risk and vulnerability associated with each hazard, and measures to mitigate the hazards' impact to the SCIT. As the advisory committee members were employed at both the Isabella Reservation (Isabella County) location and the Saganing District location (Arenac and Iosco County), meeting locations were alternated between the two locations. (Beginning in April of 2020 and through October 2021 meetings were virtual due to the COVID-19 virus.)

The advisory committee members were provided meeting packets, that included, meeting agendas and any accompanying memos for each meeting. The following table (Table 2.1) identifies the meeting dates, locations, and subject matter for the SCIT advisory committee meetings. At the end of this chapter, there are two tables identifying the agencies/departments represented at the meetings (Table 2.2) and the individuals at the meetings (Table 2.3). Appendix A beginning on page 147 includes the sign-in sheets for all the meetings in conjunction with this process, including the virtual meetings that were held beginning in 2020.

To further promote the creation of the Plan, a residential questionnaire was also utilized to gain feedback from tribal members not originally contacted to participated on the advisory committee. The survey was made available to the tribal members on the SCIT website and was available on departmental bulletin boards. The survey was available for 3 months to the residents. This residential survey, as well as the final tabulation of the responses can be found in Appendix B, beginning on page 170.

Saginaw Chippewa Indian Tribe (SCIT)
County Hazard Mitigation Advisory Committee Meeting Schedule/ Discussion Topic

Table 2.1

Meeting Date	Meeting Location	Discussion Topic(s)
6-13-19	Isabella Reservation Tribal Center Mount Pleasant, MI	Public meeting to advise the Saginaw Chippewa Indian Tribe (SCIT) members of the creation of the Hazard Mitigation Plan and the process that will be used to complete the Plan.
6-19-19	Saganing District Tribal Center 2690 Worth Rd. Standish, Michigan	This was the first meeting of the Saginaw Chippewa Indian Tribe Emergency Management/Hazard Mitigation Committee (SCIT EM/HMC). The SCIT EM/HMC was advised of the process that will be used to create the plan. They then reviewed the list of hazards as identified by the State of Michigan and identified the hazards as identified by Isabella and Arenac Counties as the hazards impacting the SCIT.
7-31-19	Public Safety Multi-Purpose Room 6954 E. Broadway Rd Mt Pleasant, Michigan	The SCIT EM/HMC began the risk assessment process. Like hazards were combined to quicken the process. (Events occurring during a thunderstorm were combined as an example.) With representatives from both the Isabella Reservation and the Saganing District present, several of the hazards posed different risks for the two districts. It was decided that the higher risk assessment for either location would be the chosen assessment. As there were numerous discussions on multiple factor assessments, only half of the hazards were completed.
8-28-19	Saganing District Tribal Center 2690 Worth Rd. Standish, Michigan	The risk assessment was completed at this time. Scrap tire fires were deemed to be a non-hazard with the elimination of dump sites for tires. EMCOG staff spoke with SCIT after meeting to discuss procedures and the general approval process. It was suggested at that time to submit chapters to FEMA upon their completion for feedback.

Meeting Date	Meeting Location	Discussion Topic(s)
9-25-19	Public Safety Multi-Purpose Room 6954 E. Broadway Rd Mt Pleasant, Michigan	The risk assessment table was reviewed by the SCIT EM/HMC, and they made several modifications based on recent history with the hazards. The changes included dropping nuclear attack to the bottom, dropping invasive species, and raising well/pipeline incidents to below tornadoes. The vulnerability assessment was completed at this meeting as well. Criteria was established to prioritize the hazards. The criteria were as follows: risk, vulnerability, probable occurrence, and ability to be mitigated.
10-30-19	Saganing District Tribal Center 2690 Worth Rd. Standish, Michigan	The hazards were prioritized based on the criteria selected at the September meeting. The goals and objectives were then discussed, and examples of goals and objectives were provided to the SCIT EM/HMC. It was suggested that the SCIT EM/HMC look at the goals and objectives of the county plans for the two districts as the goals and objectives should not be contradictory in nature. It was then suggested that with the poor attendance over the last several months, that recruitment for additional attendees should be considered. It was also suggested that the County Emergency Manager Isabella and Arenac Counties be contacted to attend as well.
11-20-19	Public Safety Multi-Purpose Room 6954 E. Broadway Rd Mt Pleasant, Michigan	The SCIT EM/HMC opened the meeting with a discussion on the prioritization of hazards to address. There were no changes from the previous meeting. The goals and objectives were then discussed and the goals and objectives from Arenac County's draft plan were chosen as a beginning point. Modifications to the goals and objectives were made and they were accepted as presented. The committee members were then asked to identify significant hazardous events that have occurred in the recent past. The identification of these events may be useful in identifying projects to include in the Plan.
1-29-20	Saganing District Tribal Center 2690 Worth Rd. Standish, Michigan	The goals and objectives were presented from the 11-20-19 meeting and approved by the SCIT EM/HMC. EMCOG staff opened up a dialog on hazardous events that have occurred in the recent past and asked the members to cite specific events and bring them to the next meeting. The SCIT EM/HMC then began to discuss the list of alternative strategies, as identified in the 2019 State of Michigan Hazard Mitigation Plan. The purpose of this exercise was to identify those actions that may be appropriate to utilize to mitigate future hazardous events. Dam failure was identified as a potential project, but all dams on tribal property are privately owned. EMCOG Staff was asked to find out if private dams could be a project list item.

Meeting Date	Meeting Location	Discussion Topic(s)
2-26-20	Public Safety Multi-Purpose Room 6954 E. Broadway Rd Mt Pleasant, Michigan	EMCOG staff asked for input on other significant events from the SCIT EM/HMC. Alternative strategies were then continued from the previous meeting and were completed. Hazard priorities were then reviewed and compared for the two districts. Several changes were made for each of the districts as their priorities were not consistent for both districts as the Saganing District is located on the shores of Saginaw Bay, an arm of Lake Huron, and shoreline events are important to the District; whereas the Isabella Reservation does not border Lake Huron. After the meeting, SCIT IT staff met with EMCOG staff on the mapping needs for the Plan.
4-29-20	Virtual Meeting Room	Due to the COVID-19 pandemic, meetings were no longer allowed to be in person and were changed to virtual meetings. Alternative strategies list was reviewed and approved by the SCIT EM/HMC. The discussion then went to hazard priorities and it was recommended by EMCOG staff that any hazard that had a low priority (high, medium, moderate, and low priorities) not be addressed in the Plan. It was also suggested that fog and special events be reclassified. Fog was changed to a moderate priority for Isabella.
5-27-20	Virtual Meeting Room	Only four people were in attendance including the EMCOG staff person and Troy Techlin, the SCIT staff contact person for the creation of the Plan. No actions were taken; however, the two people in attendance did offer some significant events to include in the Plan.
6-24-20	Virtual Meeting Room	Due to the small turnout, the meeting was cancelled, and a special meeting was scheduled for 7-1 to discuss the community profile section of the Plan.
7-1-20	Virtual Meeting Room	The meeting was held to discuss the Chapter 3: Community Profile of the SCIT Hazard Mitigation Plan. The SCIT employees present were able to provide information on agencies and organizations that should be included in the resource section. In addition, SCIT EM/HMC members were identified by district, Isabella, Saganing, or both for the Plan as it is important that their representation is identified in the Plan.
7-28-20	Virtual Meeting Room	The alternative strategies were presented. No changes were made. The residential survey was discussed, and it was agreed that the tribal members would be given an opportunity to complete it first. Results would be reviewed after 30 days to determine what additional actions would be needed. Significant hazardous events were then sought by the SCIT EM/HMC members who identified 6 events. The SCIT EM/HMC then began on identifying potential projects for the action list. A total of 22 potential projects were identified.

Meeting Date	Meeting Location	Discussion Topic(s)
8-25-20	Virtual Meeting Room	The SCIT EM/HMC began discussing significant hazardous events and added several more to the list, including COVID-19. (A lengthy discussion followed on what mitigation activities were in place.) The SCIT EM/HMC then continued the discussion from the July meeting on potential projects for the action list. Six new projects were identified, for a total of 28 projects.
9-29-20	Virtual Meeting Room	The meeting addressed the identification of goals and objectives for each of the potential projects for the action list. One additional objective was created; Maintain/protect tribal property, including natural flora and fauna. It was discussed that the Tribal Council would be identifying the top three projects in the action list.
10-27-20	Virtual Meeting Room	The Tribal Council did not identify the top three projects of the action list, as they believed that the SCIT EM/HMC would be better suited to do this as they created the list. Two new projects were added to the action list, and one project was eliminated to bring the total to 29 projects. The discussion then centered on the prioritization of projects, and it was determined that the top priority in choosing projects would be the saving of human life. All projects that addressed this factor would be given a high priority. The second factor would be project impact and third criteria would be cost-benefit. A total of 15 projects met the first criteria and of these 15, five were identified to be high priority.
11-24-20	Virtual Meeting Room	The objective created in September was modified as follows: "Maintain/protect tribal residents and tribal property, including flora and fauna." With this change, the number of high priority projects was changed from five to ten. The SCIT EM/HMC began to identify the project criteria for the high priority projects, inserting location, lead agency, participating agencies, hazards addressed, and benefits.
1-26-21	Virtual Meeting Room	The SCIT EM/HMC continued with the identification of project information for the medium and moderate priority projects. They identified location, lead agency, participating agencies, hazards addressed, and benefits.
2-23-21	Virtual Meeting Room	The SCIT EM/HMC began discussing the potential funding sources, project cost, and schedule for the project list. They got through 15 projects. Based on the scheduling of projects, several high priority projects do not appear to be ready to begin in the near future, so the committee agree to reassess the priority of project upon completing the project information.

Meeting Date	Meeting Location	Discussion Topic(s)
3-30-21	Virtual Meeting Room	Ms. Lorena Reyes, FEMA representative, was in attendance at the invite of SCIT staff. The first item on the agenda was the discussion on invasive species. (Bill Ernat and Troy Techlin virtually met with Chase Stevens on invasive species, as he is the person putting the plan to address them.) A project to ~~a~~ develop a plan to address the invasive species was added to the list of projects. The SCIT EM/HMC then completed entering the data for the bullet points initiated in February. FEMA Representative Lorena Reyes offered a few suggestions for the Plan to aid in the approval.
4-27-21	Virtual Meeting Room	The SCIT EM/HMC was provided the list of projects with several missing data points and no priorities identified for any of the projects. They filled in the missing data points and reevaluated the priorities for all the projects. After prioritizing the projects, the SCIT EM/HMC then decided that the high and medium priority projects will be included in the plan (Chapter 5) and all the projects will be included in the appendices. They then reviewed the review process chapter (Chapter 6) of the plan. No changes were made. FEMA Representative Reyes then offered several suggestions on the Plan. She offered FEMA does not worry about the number of projects identified in the Plan, but that the projects should be addressing the natural hazards that pose a risk to the SCIT.
10-26-21	Virtual Meeting Room	Prior to the SCIT EM/HMC meeting, the members were provided a copy of the Hazard Mitigation Plan draft. They were asked to provide comments prior to the meeting. At the meeting, Bill Ernat asked if there were any questions on the Plan or if there were any questions. There were none. Bill then provided an overview of the approval process and said that the next step would be to have a public hearing to present the Plan. Troy Techlin said the hearing would be before the Council and said that Bill should attend. Bill said that the SCIT EM/HMC would not meet again unless there were major changes requested by FEMA. Bill thanked everyone for their time and effort in the planning process.

This planning process also included the review of the multiple planning and preparedness documents utilized by the SCIT, such as: standard operating procedures for the casinos and hotels, health department procedures, tribal operations procedures, etc.; the 2019 State of Michigan Hazard Mitigation Plan, the 2016 Isabella County Hazard Mitigation Plan, the Iosco County Hazard Mitigation Plan, and the draft of the Arenac County Hazard Mitigation Plan. Through the process, other informational sources were also used, such as: U.S. Census, National Weather Service, Michigan Department of Transportation, and the Michigan Department of Natural Resources.

Prior to the initiation of the development of the Hazard Mitigation Plan, hazard mitigation was not included or addressed in other previously approved plans/documents. Hazard mitigation goals and objectives will be incorporated into these plans/documents as they are updated in the future. Additionally, the SCIT which has very limited participation in other FEMA programs, including the National Flood Insurance Program (NFIP), will be researching opportunities to participate in these programs in the future.

Throughout the planning process, chapters, upon their completion, would be reviewed by various committee members. After gaining approval, several chapters were sent to FEMA representatives for preliminary review and comments. This process is very beneficial on several levels, FEMA staff can identify missing information or shortcomings in the chapters as they are submitted and provide feedback to strengthen the overall plan, and it is anticipated to reduce the review time when the final draft of the Plan is submitted, based on the previous comments from FEMA staff.

In September, FEMA requested the rough draft of the Plan for preliminary review. After this was sent, SCIT EM/HMC members provided additional feedback on the rough draft. Changes were made accordingly and the final SCIT HM/HMC meeting was sent for the October meeting. At that meeting, the approval process was discussed and finalized.

After the SCIT EM/HMC approved the Plan, a public hearing was set up for a presentation to the Tribal Council. A thirty-day comment period followed the presentation to the Tribal Council. Only one question was asked by a Tribal Council Member, which was to identify the high prioritized hazards. Those hazards were identified. During that time only one comment was received. That comment provided suggestions to formatting the Plan, spelling corrections, and page numbering corrections. No other comments were received.

Saginaw Chippewa Indian Tribe (SCIT)
Hazard Mitigation Advisory Committee Attendance Table
Table 2.2

Participating Agency or Department	Meeting Dates																						
	6-13-19	6-19	7-31	8-28	9-25	10-30	11-20	1-29-20	2-26	4-29	5-27	6-24	7-1	7-28	8-25	9-29	10-27	11-24	1-26-21	2-23	3-30	4-27	10-26
EMCOG	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SCIT-Emergency Mgmt.	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SCIT-Environmental	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SCIT-Facilities-Isabella																							
SCIT-Facilities-Saganing		X		X				X	X					X	X	X	X	X		X		X	X
SCIT-Fire-Isabella		X			X			X		X	X		X		X		X	X	X	X			
SCIT-Grants																							
SCIT-IT					X				X						X					X			
SCIT-Marina-Saganing		X																					
SCIT-Migizi/Retail Manager		X																					
SCIT-NIMKEE Health	X	X	X	X	X		X	X	X	X					X	X			X			X	
SCIT-Planning Dept.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SCIT-Police		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X
SCIT-Public Relations														X	X	X		X	X	X	X	X	X
SCIT-Quality Assurance																							
SCIT-Safety		X	X		X									X	X	X		X	X	X	X	X	X

Participating Agency or Department	Meeting Dates																					
	6-13-19	6-19	7-31	8-28	9-25	10-30	11-20	1-29-20	2-26	4-29	5-27	6-24	7-1	7-28	8-25	9-29	10-27	11-24	1-26-21	2-23	3-30	4-27	10-25
SCIT-Risk Management		X	X		X									X	X	X		X	X				
SCIT-Security-Isabella			X		X		X	X	X														
SCIT-Security-Saganing		X	X	X	X	X			X	X								X	X		X	X	X
SCIT-Surveillance-Isabella			X	X	X			X	X	X					X								
SCIT-Surveillance-Saganing																							
SCIT-Tribal Center-Saganing		X																					
SCIT-Tribal Council/Administration																				X	X		
SCIT-Water Treatment Plant-Isabella			X	X	X	X	X	X	X														
SCIT-Waste Water Treatment Plant-Saganing		X	X	X																			
SCIT-Utilities			x														X		X	X			X
Arenac County						X									X	X				X	X		
Isabella County							X							X		X	X	X	X	X	X		X
Standish Fire Authority						X																	
FEMA																					X	X	

EMCOG-East Michigan Council of Governments
SCIT-Saginaw Chippewa Indian Tribe

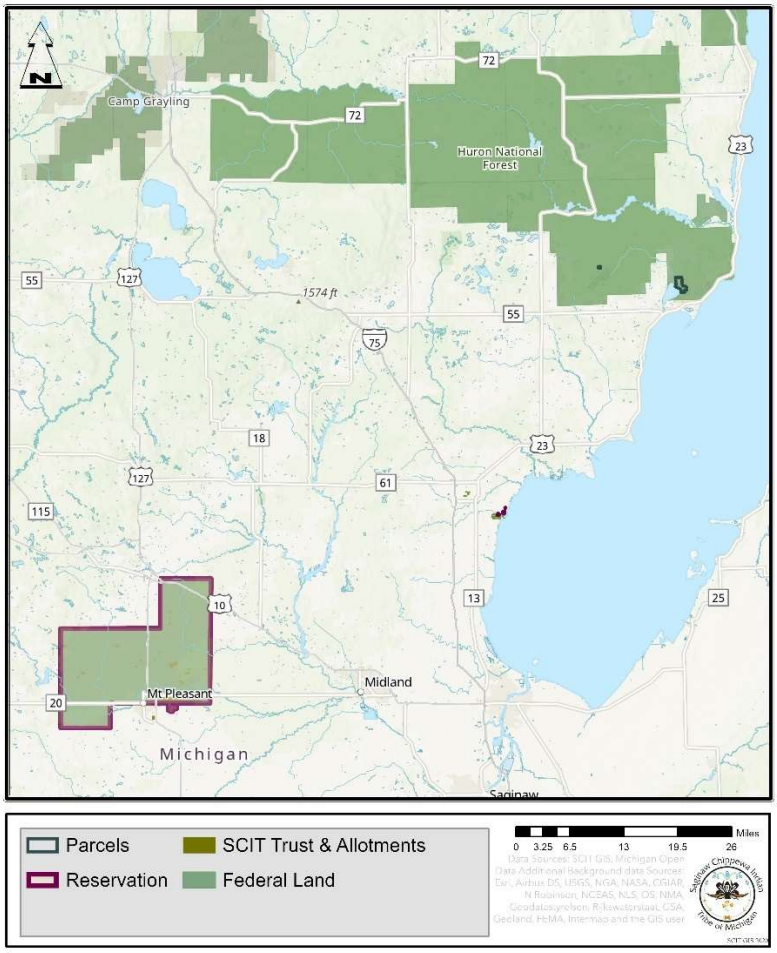
Saginaw Chippewa Indian Tribe
Advisory Committee Attendance Table
Table 2.3

Person	Agency/Department	Number of Meetings Attended
Julie Adams	Isabella County-Homeland Security Planner	**7**
Harry Ambs	**SCIT-Police Chief**	**19**
Mike Bowers	Arenac County Emergency Management Coordinator	4
Dave Bryant	SCIT-Saganing Security	4
Ed Bryant	SCIT-Saganing Surveillance Manager	1
Fred Cantu	**SCIT-Fire Chief/Emergency Manager**	**12**
David Chatfield	**SCIT-Safety Coordinator**	**11**
Anthony Clark	**SCIT-Surveillance Director**	**7**
Frank Cloutier	**SCIT-Public Relations Director**	**9**
Rebecca Cogswell	**SCIT-Nimkee Healthy Start Maternal Child Nurse**	**4**
Michelle Colwell	**SCIT-Office Manager, Tribal Administration**	**2**
Luke Dixon	SCIT-Saganing Police Sergeant	4
Bill Ernat	East Michigan Council of Governments-Program Manager	23
Marc Griffis	Isabella County-Emergency Management Director	3
Rick Hamilton	**SCIT-IT Service Manager**	**2**
Phil Jackson	**Environmental Resource Technician**	**5**
Joe Johnson	SCIT-Isabella Water Operator Supervisor	7
Walt Kennedy	**SCIT-Nimkee Public Health**	**4**
Sally Kniffen	**SCIT-Environmental Specialist**	**9**
Breanna Knudsen	**Environmental Response Program Specialist**	**1**
Pete Kopp	SCIT-Saganing Facilities Central Plant	1
Ryan Martin	Isabella County 911 Administrative Supervisor	1
Michael McCreery	**SCIT-Natural Resources Specialist**	**2**

Person	Agency/Department	Number of Meetings Attended
Timothy Nelson	SCIT-Saganing Outreach/Tribal Center-Manager	1
Mitchell Oliver	Standish Area Fire Authority (SAFA)-Fire Chief	1
Stacy Pamame	SCIT-Saganing Marina Manager	1
Carey Pauquette	**SCIT-Environmental Manager**	**3**
Michael Peruski	SCIT-Saganing Security Manager	11
Shannon Peters	**SCIT-Utilities Director**	**5**
Kelly Pilarski	**SCIT-GIS**	**2**
Lorena Reyes	FEMA Representative	2
Ed Rohn	Arenac County-EM Coordinator	1
Don Seal	**SCIT-Planning Director**	**20**
Jennifer Seibt	**SCIT-Natural Resource Specialist**	**11**
Sue Sowmick	**SCIT-Nimkee Public Health Nurse**	**6**
Dan Stark	SCIT-Saganing Security	2
Troy Techlin	**SCIT-Environmental Response Program Specialist**	**21**
Theresa Teeter	**SCIT-Migizi-Retail Manager**	**1**
William Vaught	Risk Management Manager	2
Paul Walker	SCIT-Saganing Casino Facilities Manager	12
Jonas Wilcox	SCIT-Saganing Water Treatment Manager	2
Dave Winegardner	SCIT-Isabella Security Manager	4
Charles Wright	SCIT-Isabella Wastewater Treatment Plant Operator	4

SCIT-Saginaw Chippewa Indian Tribe
Isabella-Serving Isabella Reservation
Saganing- Serving Saganing District
Bold Print-Serving Both Districts

CHAPTER 3: COMMUNITY PROFILE



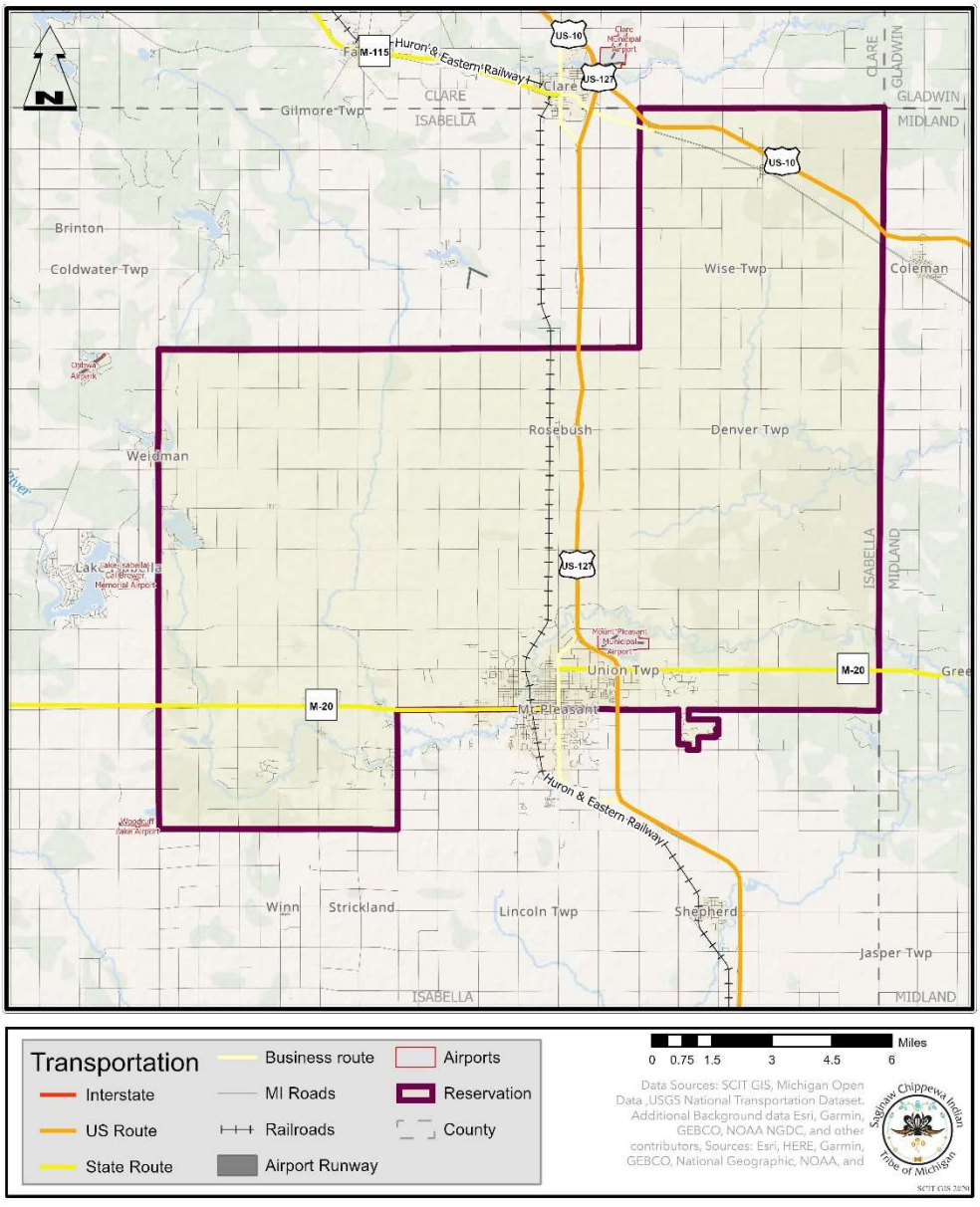
The Saginaw Chippewa Indian Tribe of Michigan (SCIT) is comprised of three bands of Ojibway (Saginaw, Black River, and Swan Creek), all of whom lived in the area now occupied by the State of Michigan. In 1855 and 1864 the SCIT signed two treaties with the U.S. Government, establish the Isabella Reservation totaling over 130,000 acres (over 200 square miles). This land was then divided into privately-owned allotments to establish a permanent home for the SCIT tribal members. By 1934 only a handful of these allotments were owned by tribal members, as many of the allotments were sold by the tribal members to the lumber community. In 1934 the Indian Reorganization Act (IRA) was passed, which sought to improve conditions for tribes in the United States. In 1937, after the tribe adopted a constitution and elected a tribal council the tribe acquired 500 acres east of Mt Pleasant to establish a land based for the tribal members.

The Isabella Reservation is located entirely within Isabella County, which is located in center of Michigan's Lower Peninsula. The Saganing District is located in Arenac and Iosco Counties, which are located in eastern mid-Michigan on Saginaw Bay, an arm of Lake Huron. Much of the SCIT's property is located in counties that are primarily rural; however, the SCIT members are reliant on the commercial success of the SCIT's commercial enterprises, Soaring Eagle Casino and Resort, Soaring Eagle Waterpark

and Hotel, and Saganing Eagles Landing Casino and Hotel. On page 22 is Table 3.1 identifying the different SCIT business enterprises and their number of employees.

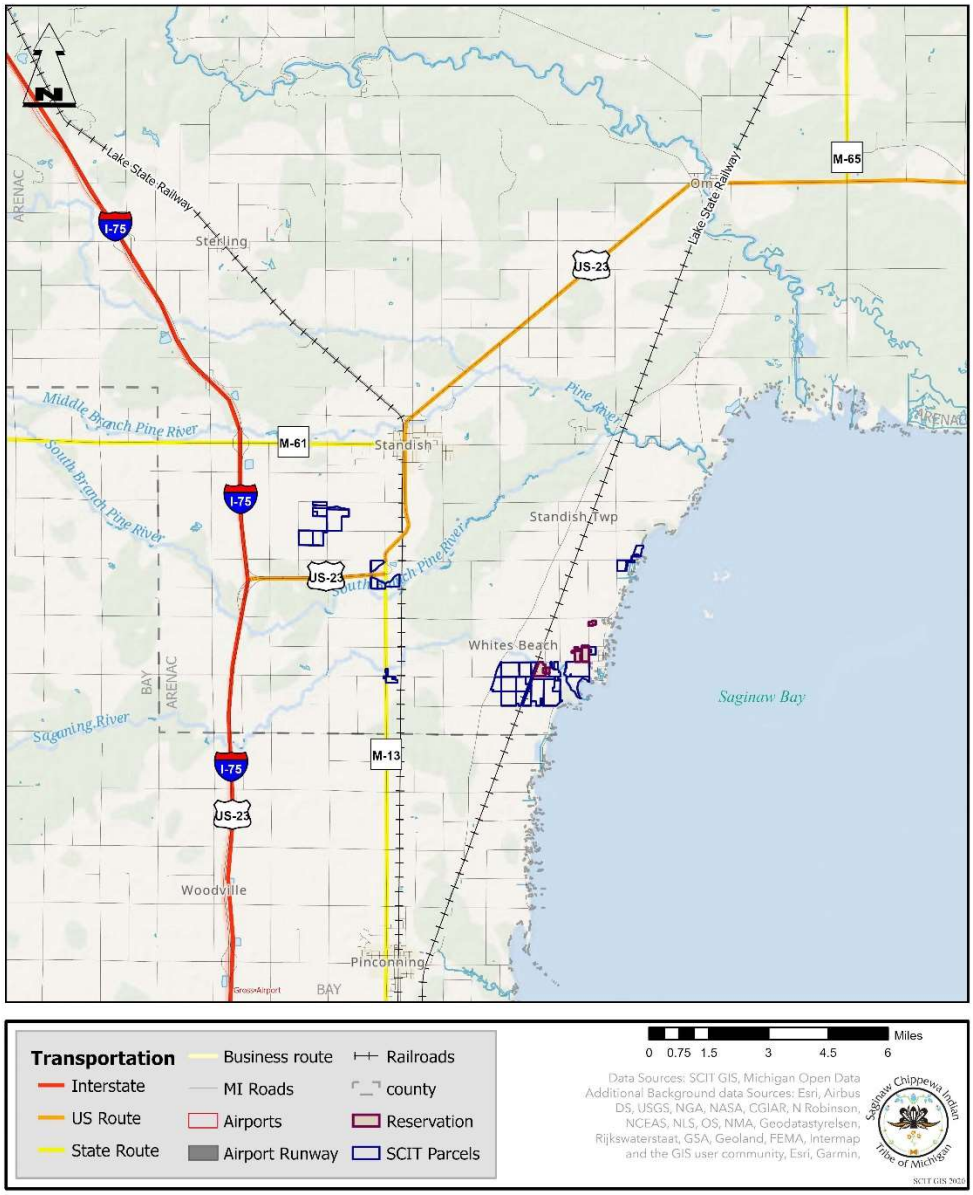
Isabella Reservation

Map 3.1

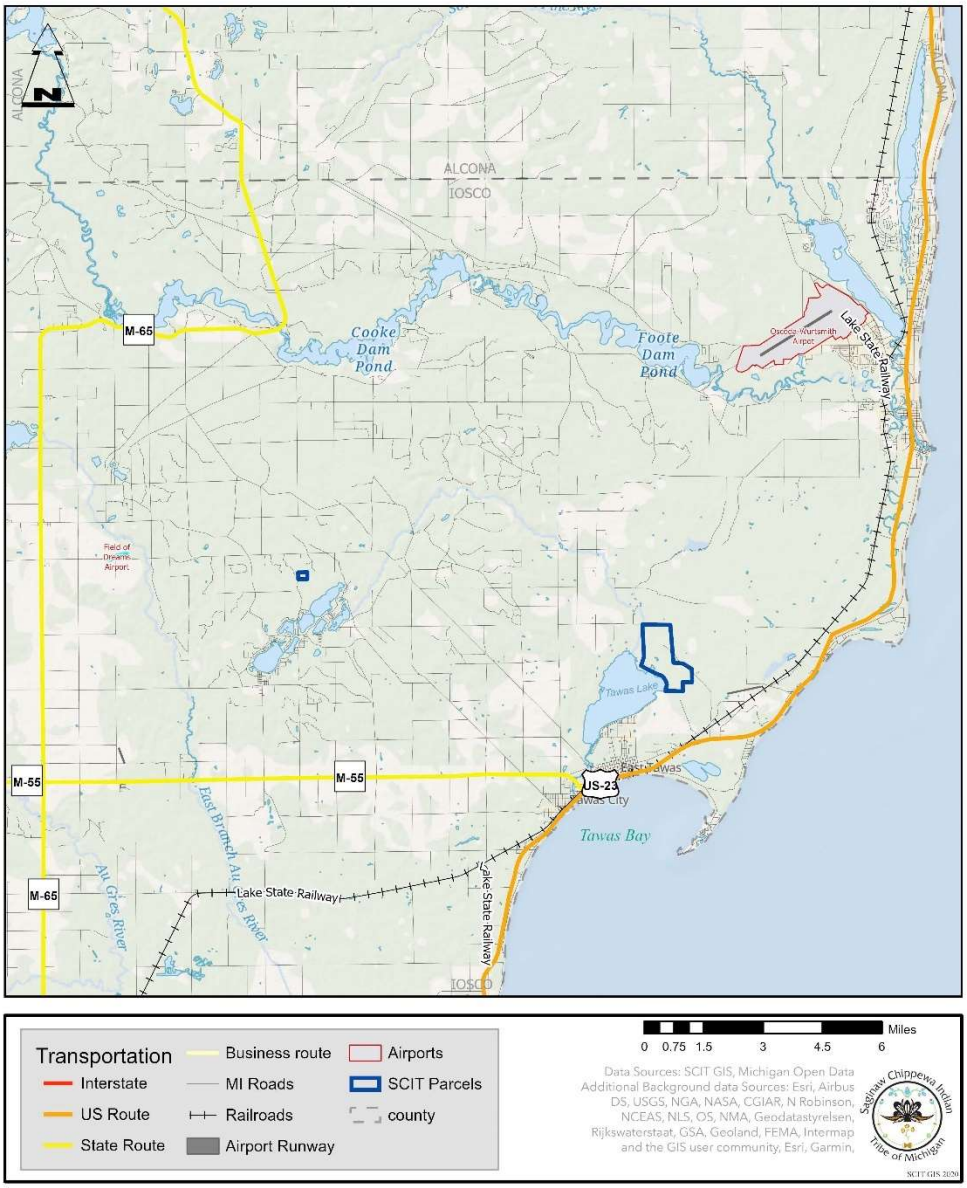


Saganing District-Arenac County

Map 3.2



Saganing District-Iosco County
Map 3.3



The Saginaw Chippewa Indian Tribe (SCIT) had a moderate increase in population from 2015 to 2021. The total tribal population in 2015 was 3,746 and the population from February 2021 was 3,951 for an increase of 205 members or 5.5 percent. In addition, the tribal members living on the Isabella Reservation and the Saganing District reservation properties also increased from 1,493 in 2015 to 1,650 in 2021 for an increase of 157 or 10.5 percent.

SAGINAW CHIPPEWA INDIAN TRIBE
Top Employers
TABLE 3.1

Company Name	Location	# of Employees
Soaring Eagle Casino and Resort	Isabella Reservation	1170
Saganing Eagle Landing Casino and Hotel	Saganing District	398
Tribal Operations and Government	Isabella Reservation and Saganing District	648
Migizi Economic Development Company	Isabella Reservation and Saganing District	245

LAND USE
The Saginaw Chippewa Indian Tribe (SCIT) does not have an approved land use plan. There are internal maps use for land management purposes, but no formal land use plan or future land use plan has been formally approved by the Council and therefore, no maps are available at this time.

TOPOGRAPHY
The Isabella Reservation, located in Isabella County has moderately rolling hills throughout the reservation. Elevations changes are moderate as there are multiple rivers and streams throughout the Reservation. The elevation varies approximately 150 feet within the Reservation area.

The Saganing District located in Arenac and Iosco Counties has a much flatter terrain and is located on the shores of Saginaw Bay, an arm of Lake Huron. The primary Saganing District property is located in Arenac County and abuts Saginaw Bay. Other parcels in Arenac County are further inland and slightly higher in elevation. The larger of the two parcels in Iosco County borders Lake Tawas the third largest body of water in Iosco County. Both parcels are inland from Saginaw Bay.

On the following pages are the tables identifying the features on the three maps, which are located immediately following the tables.

BATHYMETRIC FEATURES

- Area exposed at mean low tide; sounding datum line***
- Channel***
- Sunken rock***

BOUNDARIES

- National
- State or territorial
- County or equivalent
- Civil township or equivalent
- Incorporated city or equivalent
- Federally administered park, reservation, or monument (external)
- Federally administered park, reservation, or monument (internal)
- State forest, park, reservation, or monument and large county park
- Forest Service administrative area*
- Forest Service ranger district*
- National Forest System land status, Forest Service lands*
- National Forest System land status, non-Forest Service lands*
- Small park (county or city)

BUILDINGS AND RELATED FEATURES

- Building
- School; house of worship
- Athletic field
- Built-up area
- Forest headquarters*
- Ranger district office*
- Guard station or work center*
- Racetrack or raceway
- Airport, paved landing strip, runway, taxiway, or apron
- Unpaved landing strip
- Well (other than water), windmill or wind generator
- Tanks
- Covered reservoir
- Gaging station
- Located or landmark object (feature as labeled)
- Boat ramp or boat access*
- Roadside park or rest area
- Picnic area
- Campground
- Winter recreation area*
- Cemetery

COASTAL FEATURES

- Foreshore flat
- Coral or rock reef
- Rock, bare or awash; dangerous to navigation
- Group of rocks, bare or awash
- Exposed wreck
- Depth curve; sounding
- Breakwater, pier, jetty, or wharf
- Seawall
- Oil or gas well; platform

CONTOURS

Topographic

- Index
- Approximate or indefinite
- Intermediate
- Approximate or indefinite
- Supplementary
- Depression
- Cut
- Fill
- Continental divide

Bathymetric

- Index***
- Intermediate***
- Index primary***
- Primary***
- Supplementary***

CONTROL DATA AND MONUMENTS

- Principal point**
- U.S. mineral or location monument
- River mileage marker

Boundary monument

- Third-order or better elevation, with tablet
- Third-order or better elevation, recoverable mark, no tablet
- With number and elevation

Horizontal control

- Third-order or better, permanent mark
- With third-order or better elevation
- With checked spot elevation
- Coincident with found section corner
- Unmonumented**

CONTROL DATA AND MONUMENTS – *continued*

Vertical control

- Third-order or better elevation, with tablet — BM 5280
- Third-order or better elevation, recoverable mark, no tablet — 528
- Bench mark coincident with found section corner — BM 5280
- Spot elevation — 7523

GLACIERS AND PERMANENT SNOWFIELDS

- Contours and limits
- Formlines
- Glacial advance
- Glacial retreat

LAND SURVEYS

Public land survey system

- Range or Township line
  - Location approximate
  - Location doubtful
  - Protracted
  - Protracted (AK 1:63,360-scale)
- Range or Township labels — R1E T2N R3W T4S
- Section line
  - Location approximate
  - Location doubtful
  - Protracted
  - Protracted (AK 1:63,360-scale)
- Section numbers — 1 - 36
- Found section corner
- Found closing corner
- Witness corner — WC
- Meander corner — MC
- Weak corner*

Other land surveys

- Range or Township line
- Section line
- Land grant, mining claim, donation land claim, or tract
- Land grant, homestead, mineral, or other special survey monument
- Fence or field lines

MARINE SHORELINES

- Shoreline
- Apparent (edge of vegetation)***
- Indefinite or unsurveyed

MINES AND CAVES

- Quarry or open pit mine
- Gravel, sand, clay, or borrow pit
- Mine tunnel or cave entrance
- Mine shaft
- Prospect — X
- Tailings — Tailings
- Mine dump
- Former disposal site or mine

PROJECTION AND GRIDS

- Neatline — 39°15′ 90°37′30″
- Graticule tick — 55′
- Graticule intersection
- Datum shift tick

State plane coordinate systems

- Primary zone tick — 640 000 FEET
- Secondary zone tick — 247 500 METERS
- Tertiary zone tick — 260 000 FEET
- Quaternary zone tick — 98 500 METERS
- Quintary zone tick — 320 000 FEET

Universal transverse metcator grid

- UTM grid (full grid) — 273
- UTM grid ticks* — 269

RAILROADS AND RELATED FEATURES

- Standard gauge railroad, single track
- Standard gauge railroad, multiple track
- Narrow gauge railroad, single track
- Narrow gauge railroad, multiple track
- Railroad siding
- Railroad in highway
  Railroad in road
  Railroad in light duty road*
- Railroad underpass; overpass
- Railroad bridge; drawbridge
- Railroad tunnel
- Railroad yard
- Railroad turntable; roundhouse

RIVERS, LAKES, AND CANALS

- Perennial stream
- Perennial river
- Intermittent stream
- Intermittent river
- Disappearing stream
- Falls, small
- Falls, large
- Rapids, small
- Rapids, large
- Masonry dam
- Dam with lock
- Dam carrying road

RIVERS, LAKES, AND CANALS – *continued*

- Perennial lake/pond
- Intermittent lake/pond
- Dry lake/pond
- Narrow wash
- Wide wash
- Canal, flume, or aqueduct with lock
- Elevated aqueduct, flume, or conduit
- Aqueduct tunnel
- Water well, geyser, fumarole, or mud pot
- Spring or seep

ROADS AND RELATED FEATURES

Please note: Roads on Provisional-edition maps are not classified as primary, secondary, or light duty. These roads are all classified as improved roads and are symbolized the same as light duty roads.

- Primary highway
- Secondary highway
- Light duty road
- Light duty road, paved*
- Light duty road, gravel*
- Light duty road, dirt*
- Light duty road, unspecified*
- Unimproved road
- Unimproved road*
- 4WD road
- 4WD road*
- Trail
- Highway or road with median strip
- Highway or road under construction
- Highway or road underpass; overpass
- Highway or road bridge; drawbridge
- Highway or road tunnel
- Road block, berm, or barrier*
- Gate on road*
- Trailhead*

SUBMERGED AREAS AND BOGS

- Marsh or swamp
- Submerged marsh or swamp
- Wooded marsh or swamp
- Submerged wooded marsh or swamp
- Land subject to inundation

SURFACE FEATURES

- Levee
- Sand or mud
- Disturbed surface
- Gravel beach or glacial moraine
- Tailings pond

TRANSMISSION LINES AND PIPELINES

- Power transmission line; pole; tower
- Telephone line
- Aboveground pipeline
- Underground pipeline

VEGETATION

- Woodland
- Shrubland
- Orchard
- Vineyard
- Mangrove

* USGS-USDA Forest Service Single-Edition Quadrangle maps only.
In August 1993, the U.S. Geological Survey and the U.S. Department of Agriculture's Forest Service signed an Interagency Agreement to begin a single-edition joint mapping program. This agreement established the coordination for producing and maintaining single-edition primary series topographic maps for quadrangles containing National Forest System lands. The joint mapping program eliminates duplication of effort by the agencies and results in a more frequent revision cycle for quadrangles containing National Forests. Maps are revised on the basis of jointly developed standards and contain normal features mapped by the USGS, as well as additional features required for efficient management of National Forest System lands. Single-edition maps look slightly different but meet the content, accuracy, and quality criteria of other USGS products.

** Provisional-Edition maps only.
Provisional-edition maps were established to expedite completion of the remaining large-scale topographic quadrangles of the conterminous United States. They contain essentially the same level of information as the standard series maps. This series can be easily recognized by the title "Provisional Edition" in the lower right-hand corner.

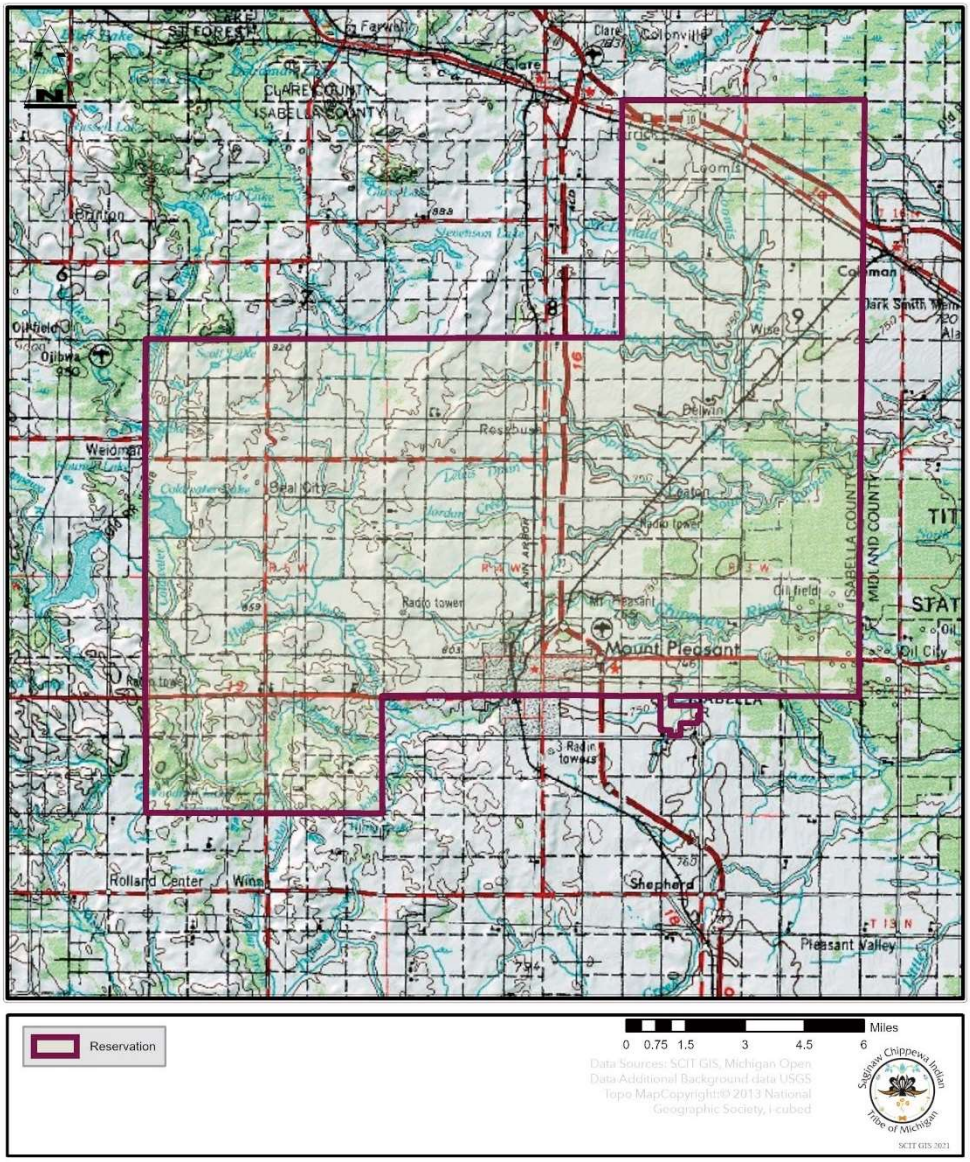
*** Topographic Bathymetric maps only.

Topographic Map Information

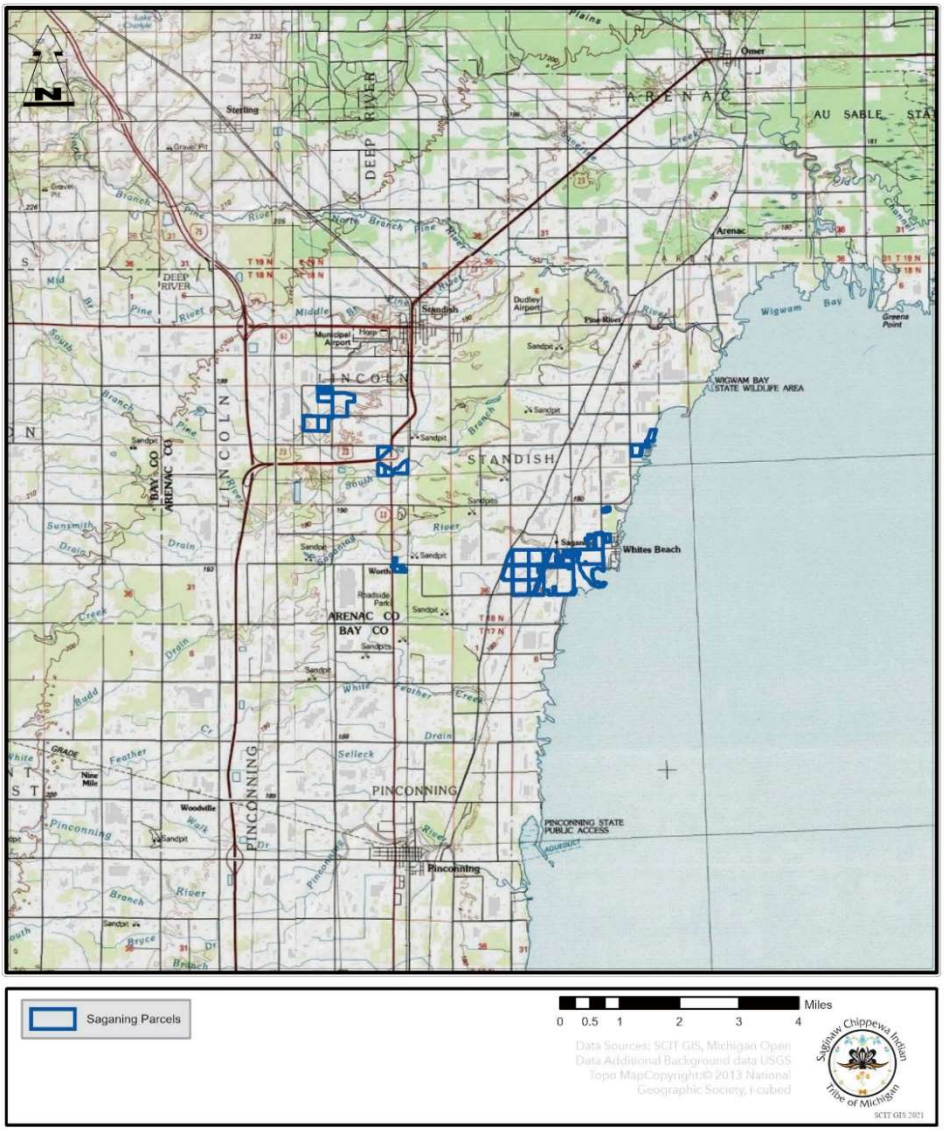
For more information about topographic maps produced by the USGS, please call:
1-888-ASK-USGS or visit us at http://ask.usgs.gov/

ISBN 0-607-96942-3
9 780607 969429

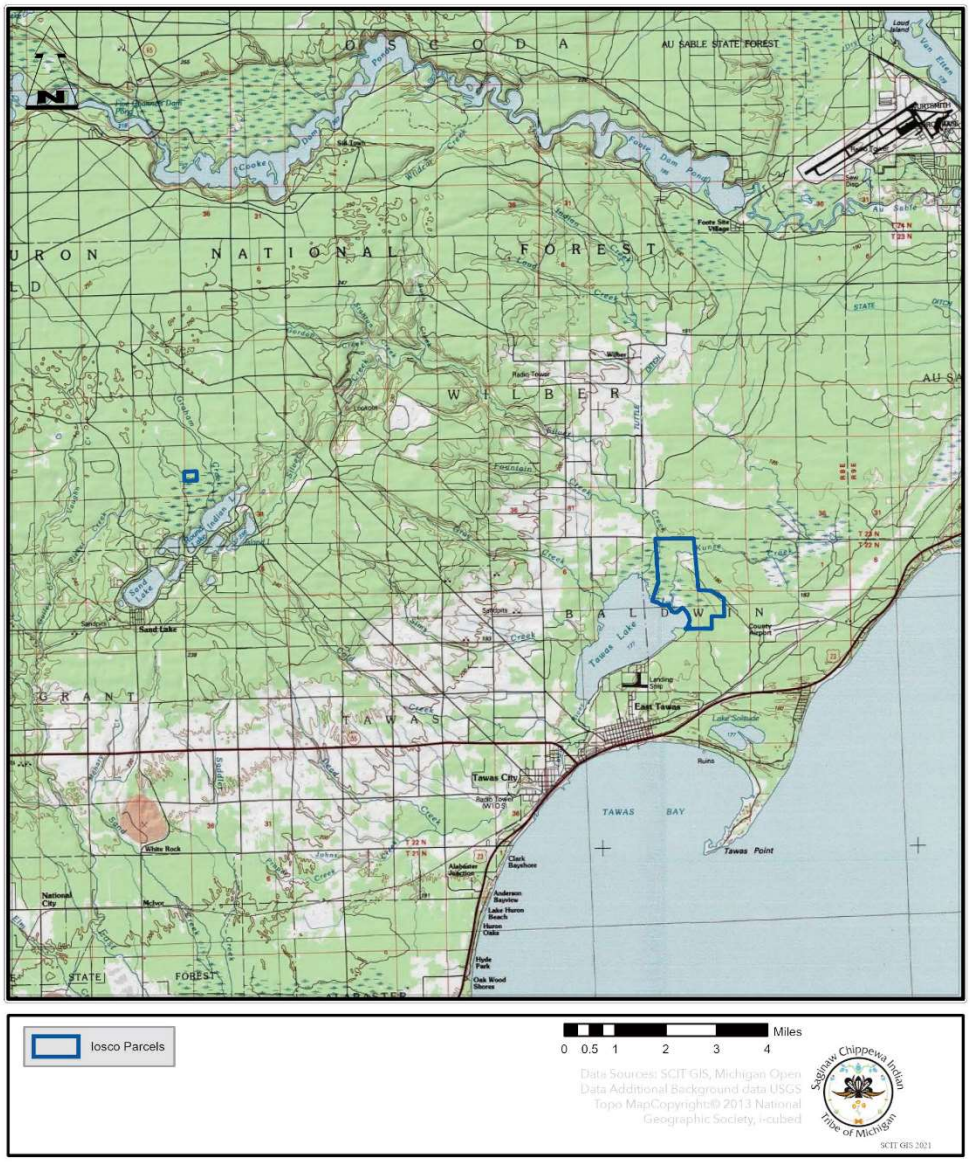
Isabella Reservation
Topographical Map
MAP 3.4



Saganing District-Arenac County
Topographical Map
MAP 3.5



Saganing District-Iosco County
Topographical Map
MAP 3.6



SOILS[1]

The Soil Surveys of Isabella County and Arenac County Michigan identify soils across their respective counties. Maps 3.4, 3.5, and 3.6 identify the locations of the soil, which are described below. The soil maps provide a broad perspective of the soils, but due to the small scale it is not good for site specific soils. The Soil Survey Manual of the Isabella and Arenac Counties can be referred to for further details. Below are the soil types and their classifications.

Belleville Series-deep, poorly drained soils in drains and depressions on glaciated uplands. The slope ranges from 0 to 2 percent.

Blue Lake Series-well drained soils on moraines and outwash plains and are moderately or rapidly moderately permeable. The slopes range from 0 to 70 percent.

Coloma Series-deep, somewhat excessively drained, rapidly permeable soils in drains and depressions on glaciated uplands. The slope ranges from 0 to 45 percent.

Essexville Series-poorly drained, rapidly permeable soils. The slopes range from 0 to 2 percent.

Granby Series-very deep, poorly drained or very poorly drained soils on sandy outwash on outwash plains, lake plains, and glacial drainageways. The slopes range from 0 to 3 percent.

Graycalm Series-somewhat excessively drained, rapidly permeable soils on outwash plains, till plains, and moraines. The slopes range from 0 to 35 percent.

Guelph Series-deep, well drained, moderately permeable soils on moraines and till plains. The slope ranges from 1 to 12 percent.

Houghton Series-very poorly drained soils on lowlands and flood plains. The slope ranges from 0 to 1 percent.

Ithaca Series-deep, somewhat poorly drained, moderately slowly permeable soils on till plains and moraines. The slope ranges from 0 to 4 percent.

Kingsville Series-deep, poorly drained, rapidly permeable soils in drains and depressions on glaciated uplands. The slope ranges from 0 to 2 percent.

Londo Series-somewhat poorly drained, moderately permeable or moderately slowly permeable soils on uplands and low knolls and ridges on moraines and till plains. The slopes range from 0 to 4 percent.

Marlette Series-deep, well drained, moderately slowly permeable soils on moraines and till plains. The slope ranges from 2 to 20 percent.

Mecosta Series-deep, somewhat excessively drained soils on streams terraces and outwash plains. The slope ranges from 0 to 3 percent.

Nester Series-well drained and moderately drained, moderately slowly permeable soils on moraines and till plains. The slopes range from 2 to 18 percent.

Parkhill Series-deep, poorly drained soils in depressions on till plains, till plains, modified by glacial lake waters, and moraines. The slope ranges from 0 to 2 percent.

Perinton Series-deep, well drained, moderately slowly permeable soils on till plains and moraines. The slope ranges from 2 to 18 percent.

Remus Series-deep, well drained, moderately permeable soils on till plains and moraines. The slopes

range from 1 to 35 percent.

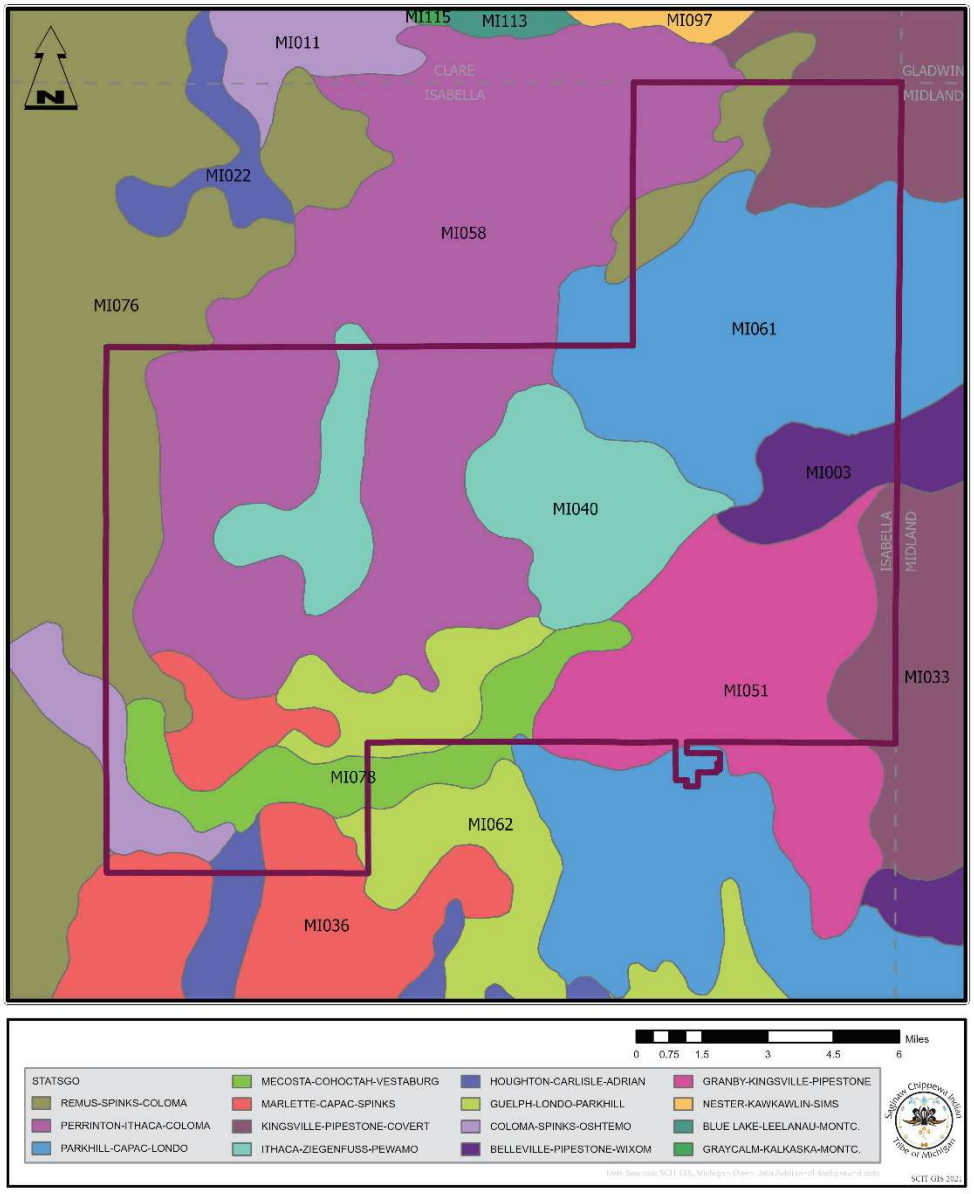
Roscommon Series-poorly drained, rapidly permeable soils on plains. The slopes range from 0 to 2 percent.

Rubicon Series-well drained , rapidly permeable soils on outwash plains. The slopes range from 0 to 45 percent.

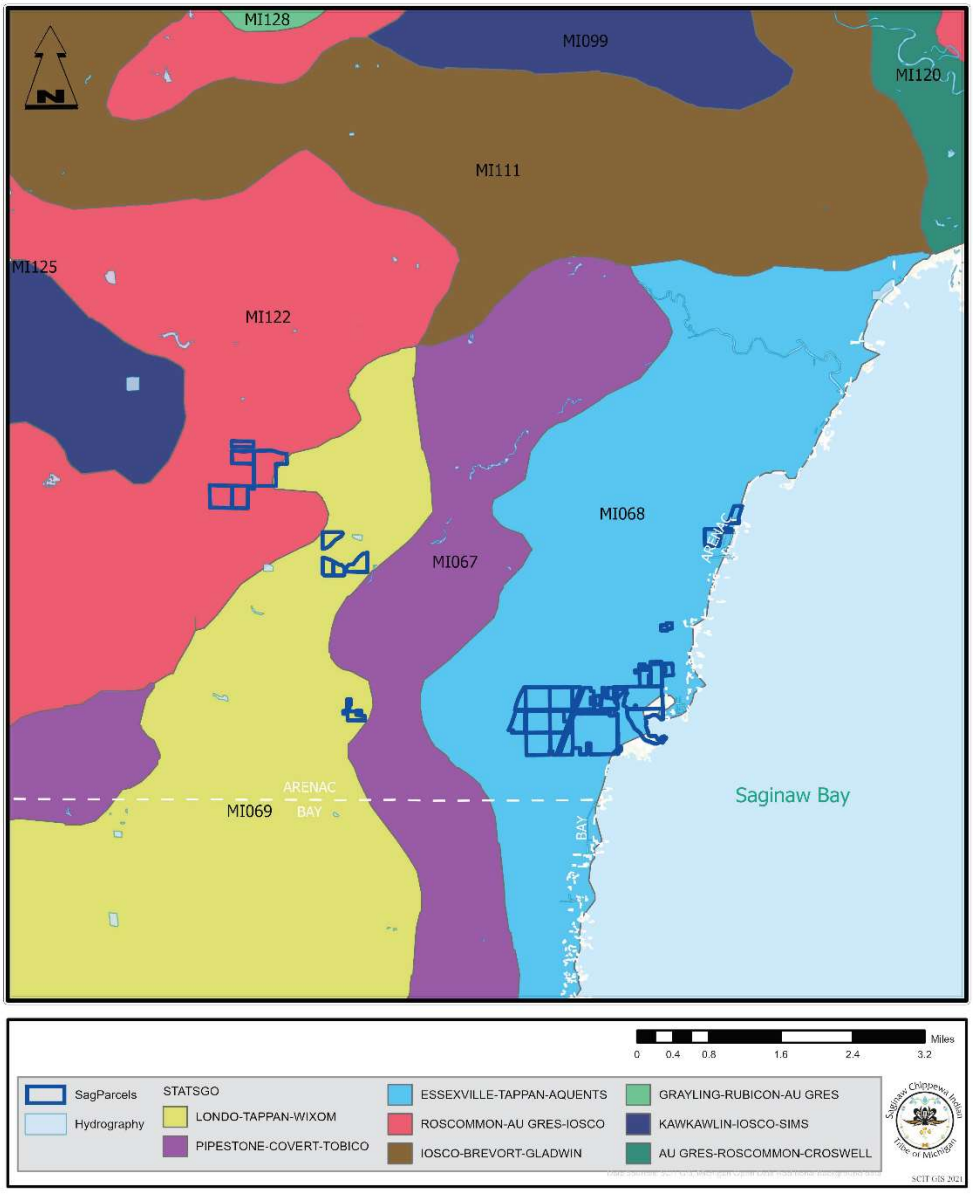
Isabella Reservation

Soils Map

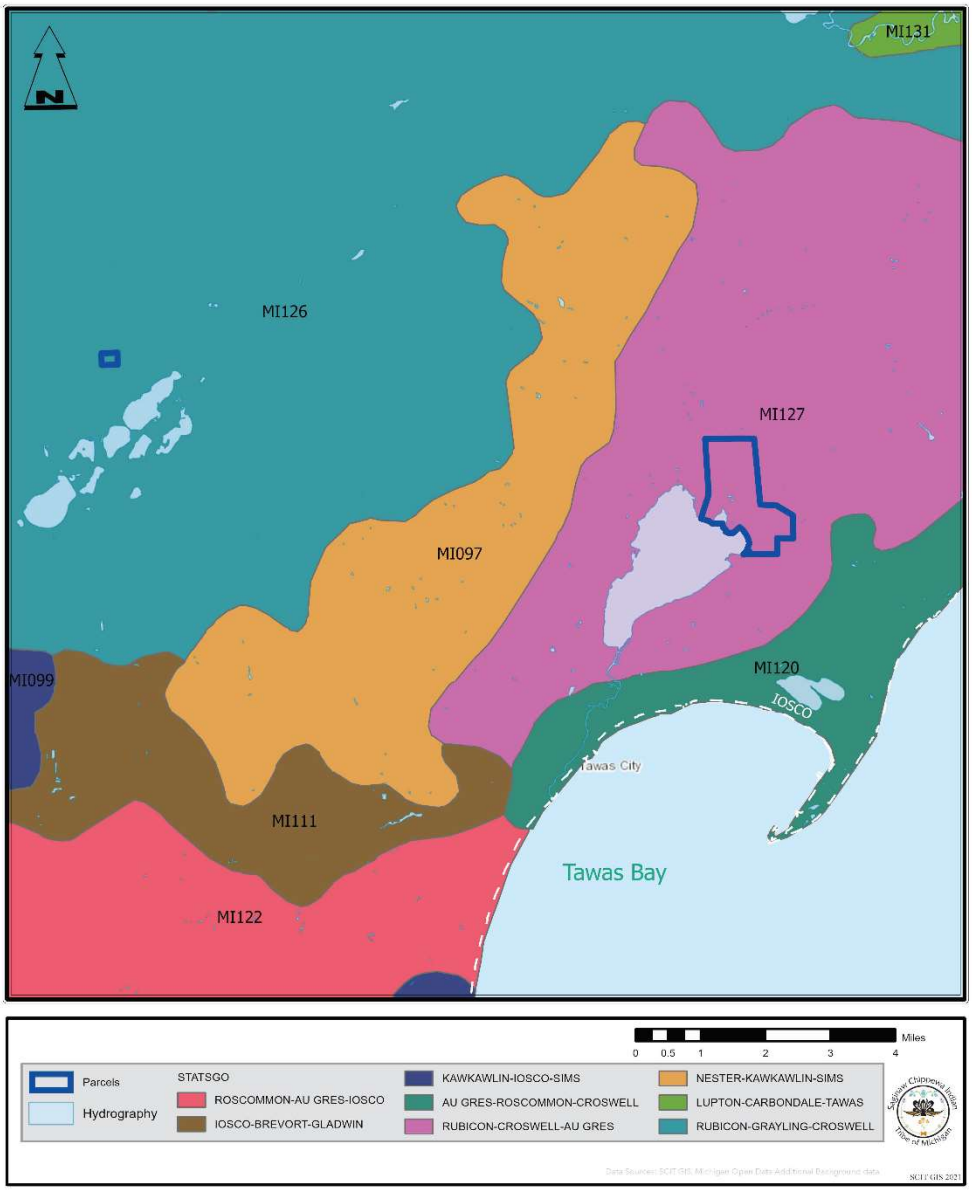
MAP 3.7



Saganing District-Arenac County
Soils Map
MAP 3.8



Saganing District-Iosco County
Soils Map
MAP 3.9



CLIMATE

Climate has a strong influence on the way of life and the activities of the people of the Saginaw Chippewa Indian Tribe. In the Koppen climate classification system, Tribal lands are considered to have a continental type of climate, which is characterized by having no dry season, and a hot summer. This is similar to many of the counties in the Lower Peninsula of Michigan. Like the rest of the State of Michigan, the tribal lands have four distinct seasons that allow for a wide variety of outdoor activities. In the tables below are breakdown of the average high and low temperatures for each month along with the monthly average

precipitation (rainfall) and snowfall for the Isabella Reservation and the Saganing District.

Climate

Isabella Reservation

TABLE: 3.2

Month	Average Temperatures (in degrees)		Monthly Average Rainfall (in inches)	Monthly Average Snowfall (in inches)
	High Average (degrees in Fahrenheit)	Low Average (degrees in Fahrenheit)		
January	28	14	1.68	14.4
February	31	14	1.44	9.8
March	42	22	1.97	6.9
April	56	33	3.23	1.8
May	58	45	3.19	0.0
June	78	55	3.44	0.0
July	82	59	2.87	0.0
August	80	57	3.33	0.0
September	72	49	3.23	0.0
October	59	38	3.07	0.4
November	44	29	2.75	3.2
December	33	20	2.14	11.0
Annual Totals			32.34	47.4

Source: usclimatedat.com

Climate
Saganing District
TABLE: 3.3

Month	Average Temperatures (in degrees)		Monthly Average Rainfall (in inches)	Monthly Average Snowfall (in inches)
	High Average (degrees in Fahrenheit)	Low Average (degrees in Fahrenheit)		
January	29	11	1.59	13.1
February	32	12	1.39	8.6
March	41	21	1.85	6.5
April	55	31	2.86	1.1
May	67	40	3.25	0.1
June	77	51	3.36	0.0
July	81	55	2.95	0.0
August	79	54	3.81	0.0
September	72	46	3.36	0.0
October	59	33	2.54	0.2
November	46	28	2.51	2.7
December	34	19	1.72	10.9
Annual Totals			31.19	43.2

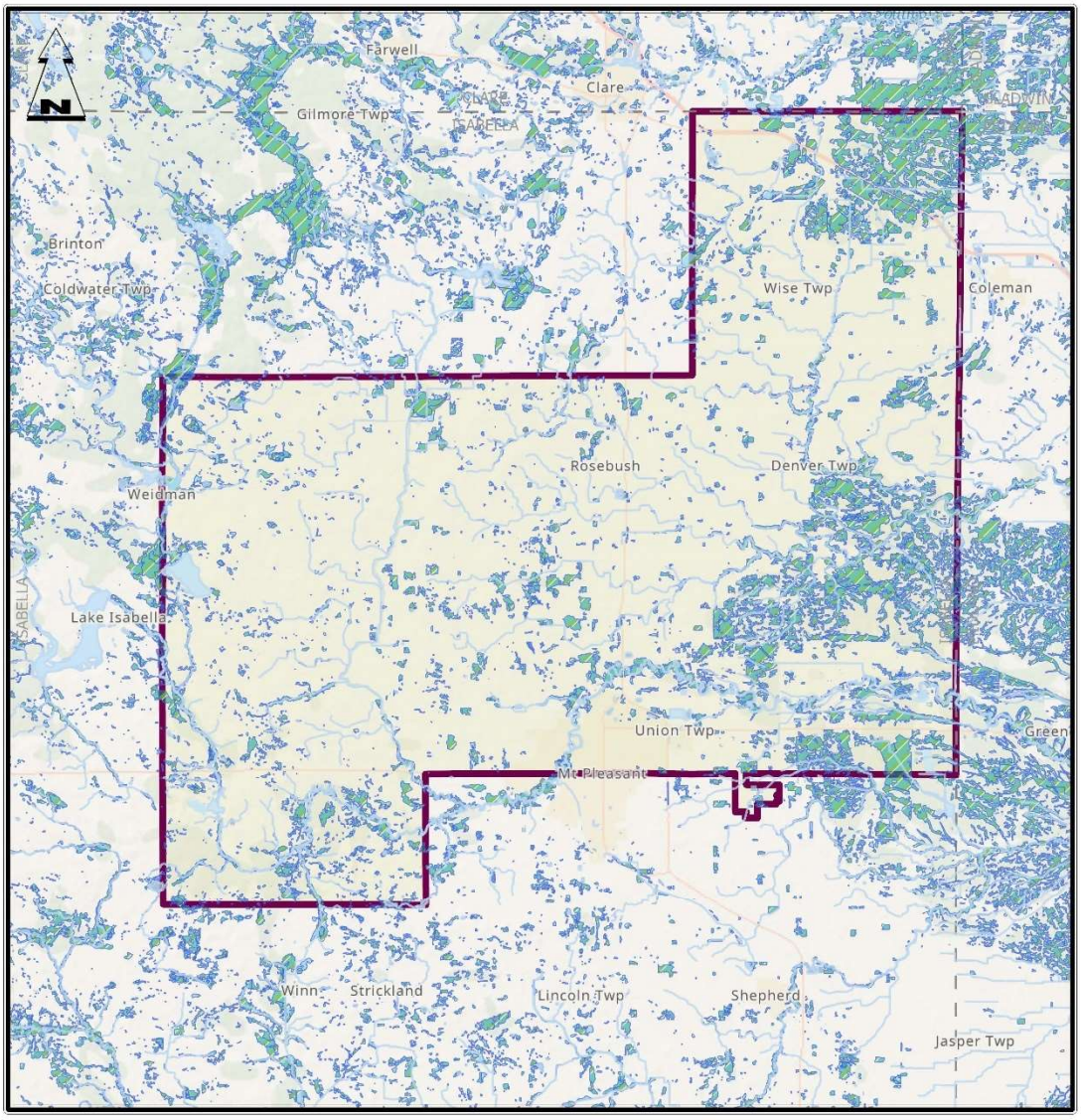
Source: usclimatedata.com

WATER FEATURES AND WETLANDS

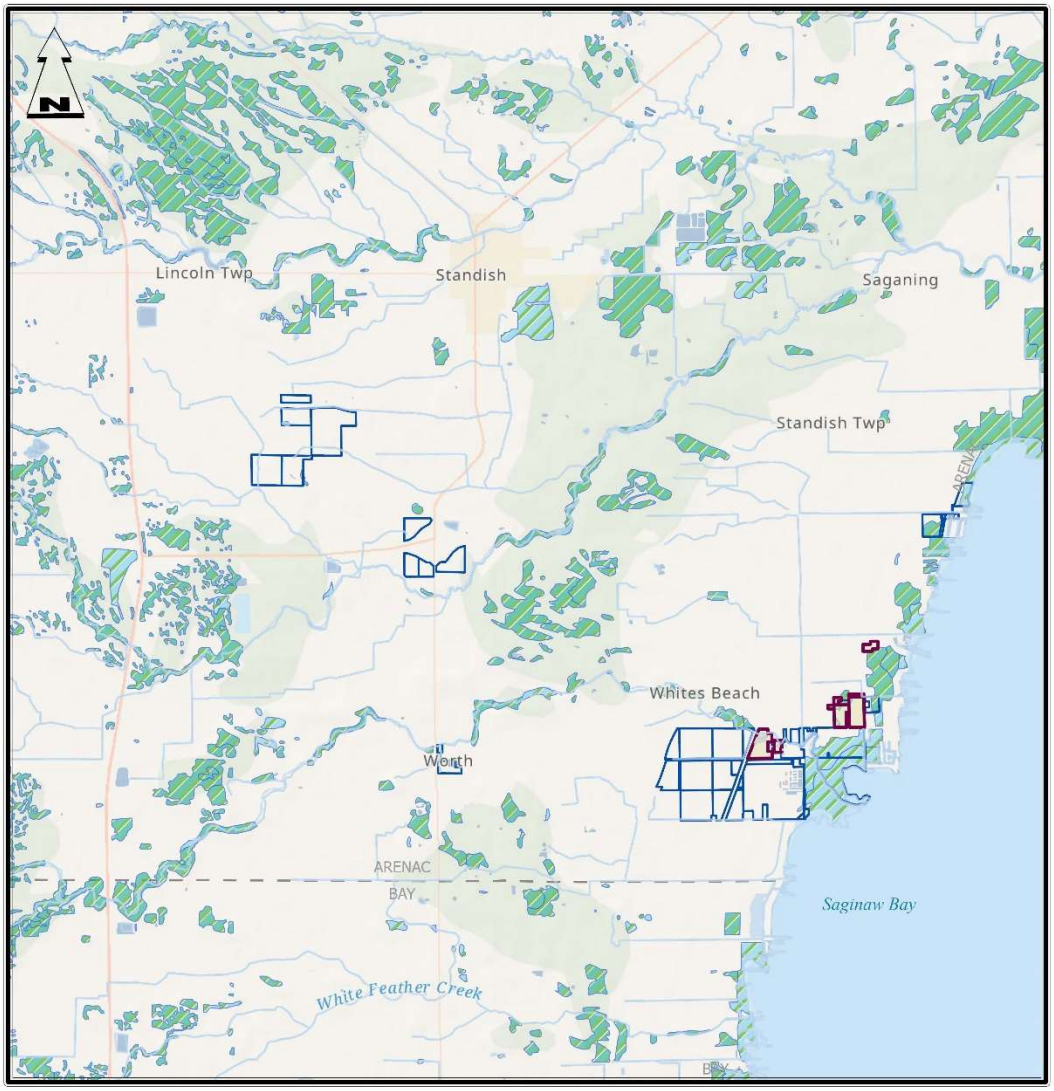
On the Isabella Reservation there are multiple rivers, streams, and lakes, along with freshwater emergent wetlands that cover approximately 15 percent of the land area. Lake Isabella is the single largest body of water and is nearly 4.7 square miles in area. Emergent Wetlands are characterized by rooted herbaceous and grass like plants which stand erect above the water or ground surface (excluding mosses or lichens). Vegetation is present for most of the growing season in most years. Emergent wetlands include marshes, meadows, and fens.

Only the Reservation Property in the Saganing District, is impacted by wetlands and water features in Arenac County, as it is located on the shores of the Saginaw Bay on Lake Huron. Both of the Iosco County parcels are located on freshwater emergent wetlands, with the larger parcel abutting Tawas Lake, a small, shallow lake approximately 2.5 square miles in area. The lake has a maximum depth of less than 10 feet.

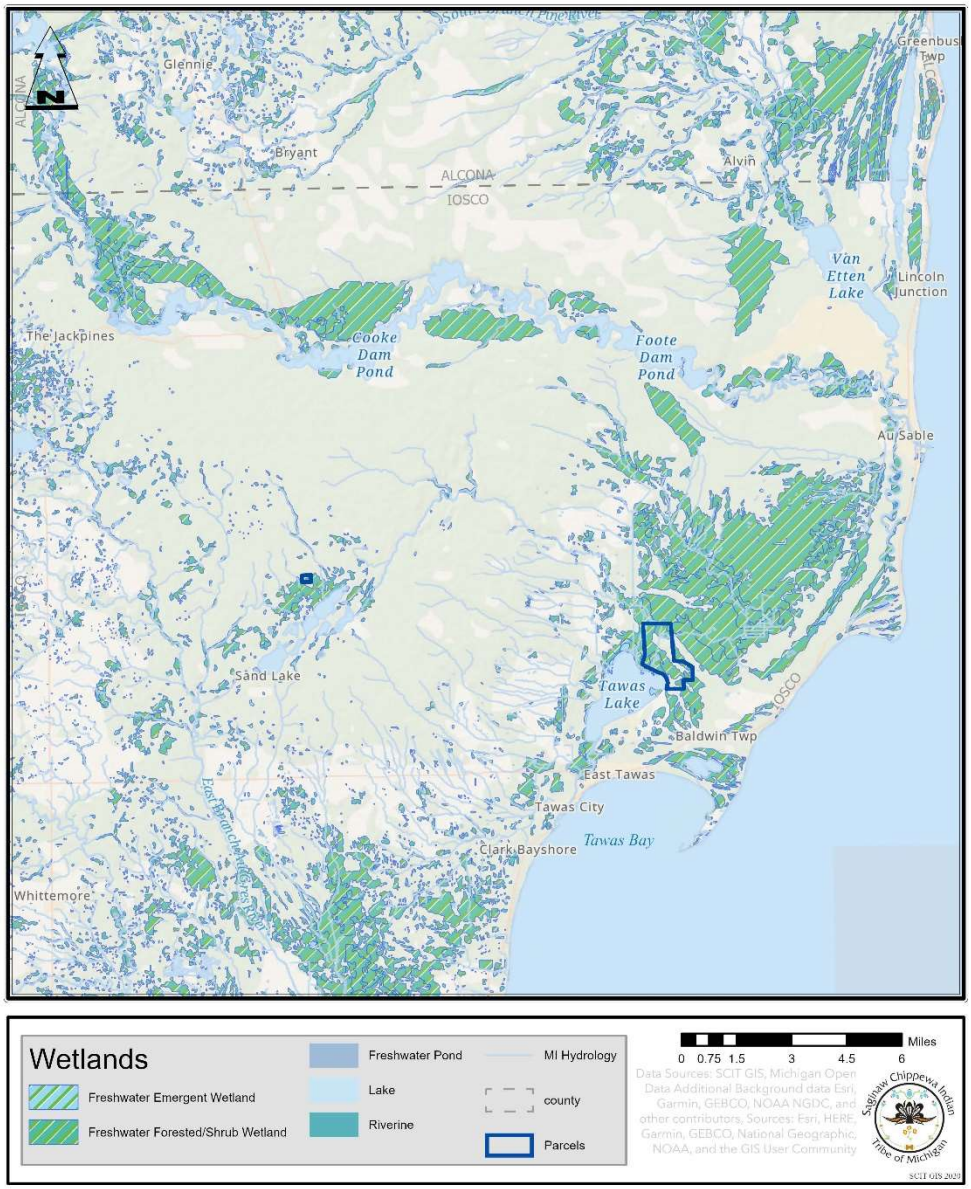
Isabella Reservation
Wetlands
MAP 3.10



Saganing District-Arenac County
Wetlands
MAP 3.11



Saganing District-Iosco County
Wetlands
MAP 3.12



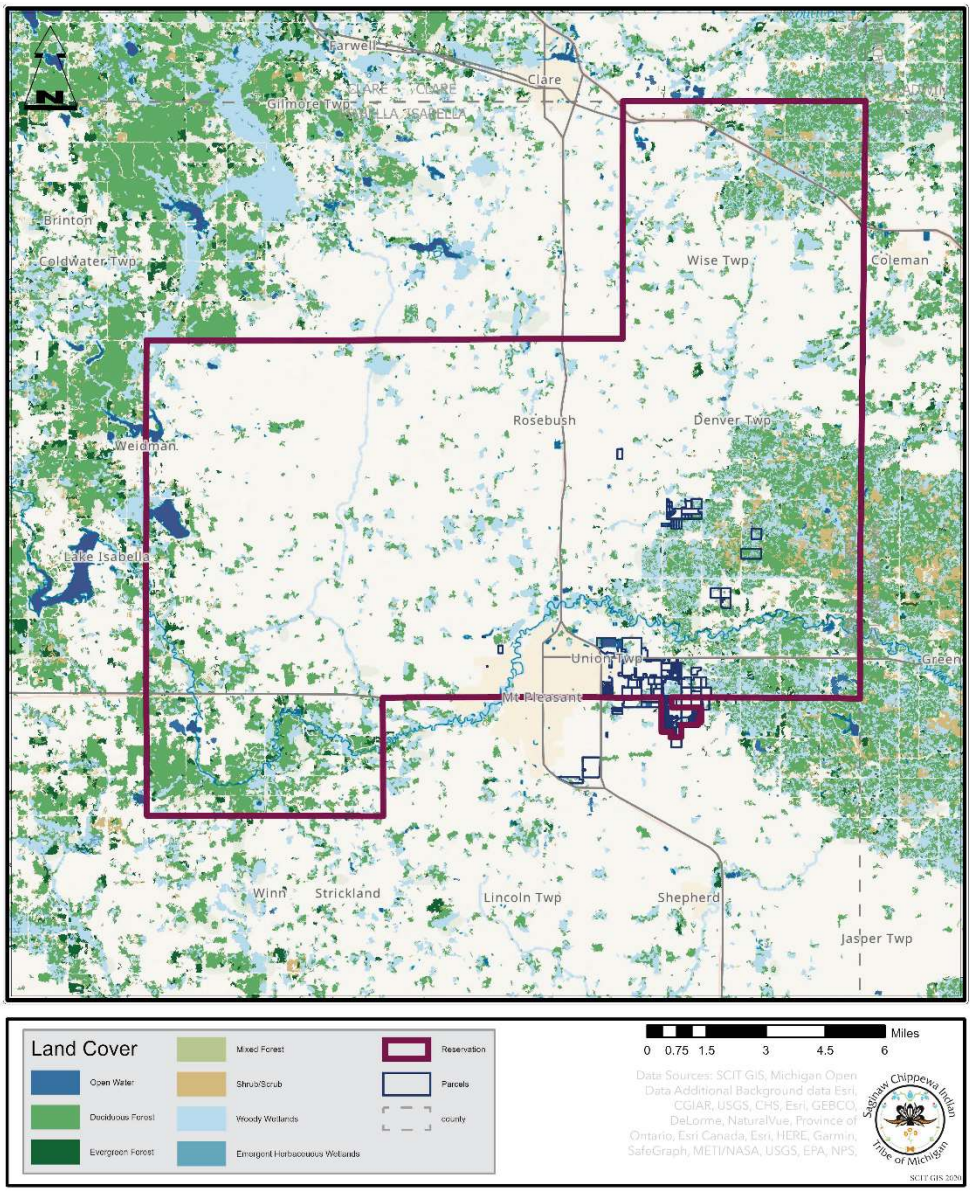
FOREST COVER

Approximately 16.6 percent of the land under the SCIT jurisdiction is forested. Tree species vary depending upon the soils, moisture and past activities such as logging, fires and land clearing. Aspen-Birch, central hardwoods, and pine are the most common forest types. Under dry spring conditions forest fires can occur in any forest type. However, some forest types have higher risks. Jack and red pine forests have a high risk for wildfires. Oak and white pine forests have a moderate risk for wildfires.

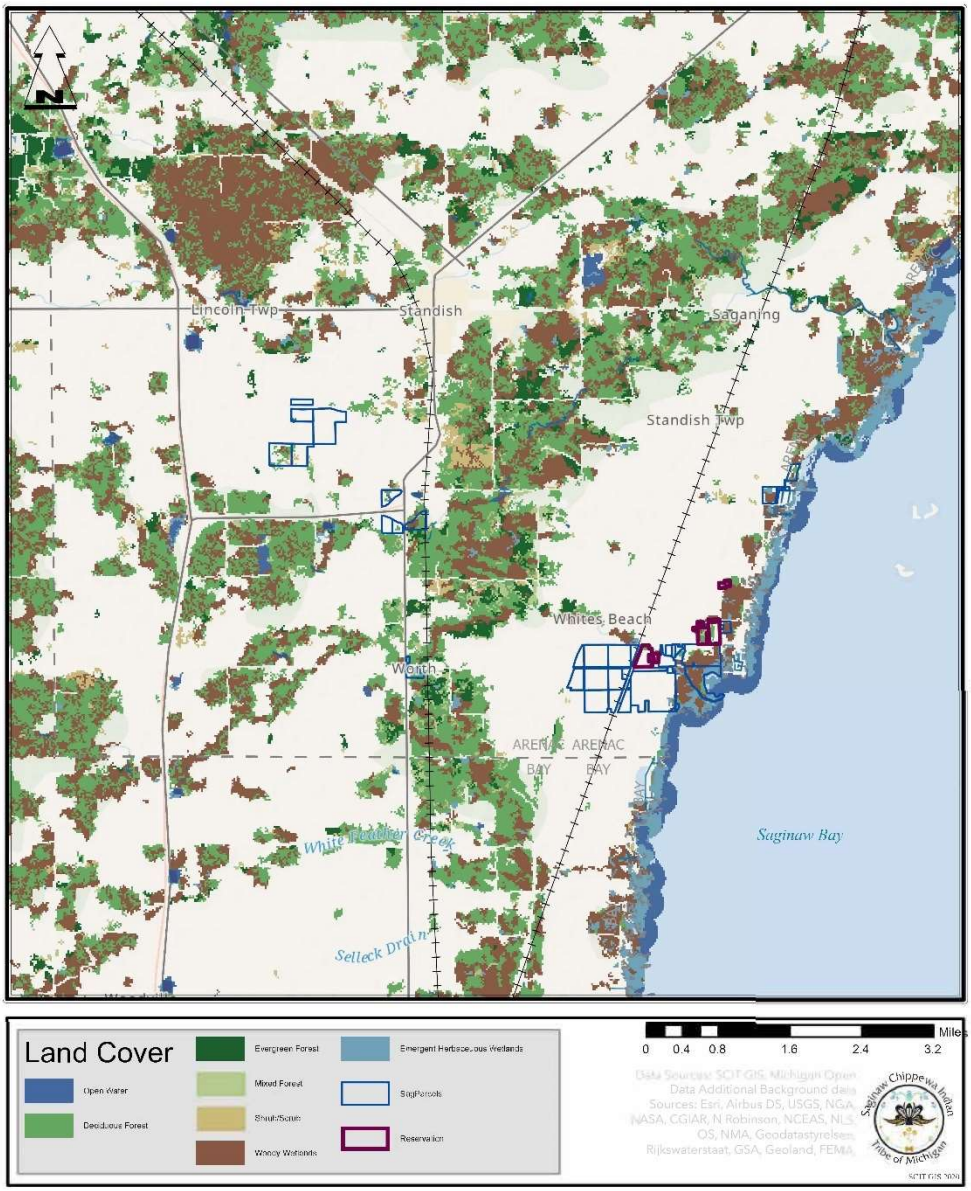
Red jack and white pine forest types are included in the pine forest category. Bigtooth aspen, quaking aspen, white birch, red maple and red oak are the primary tree species found in the aspen-birch type. Red oak, white oak, black oak and northern pin oak are the primary species growing in the oak forests. Northern hardwoods include species such as sugar maple, red maple, American beech, basswood and yellow birch.

Poorly drained, lowland areas support northern white cedar, tamarack, balsam fir, black spruce, eastern hemlock, white pine, balsam poplar, trembling aspen, paper birch, black ash, speckled alder and shrub willows. Northern white cedar dominates the wetland areas where there is good lateral water movement, and the soils are high in organic content. Lowland forests are typically located adjacent to water features and function as riparian forests and water quality buffers. The network of lowland forests, associated with rivers and creeks, also function as wildlife corridors and are the backbone of large regional ecological corridors. Lowland forests adjacent to rivers and streams are prone to flooding during the spring snow melt, particularly when combined with heavy spring rains.

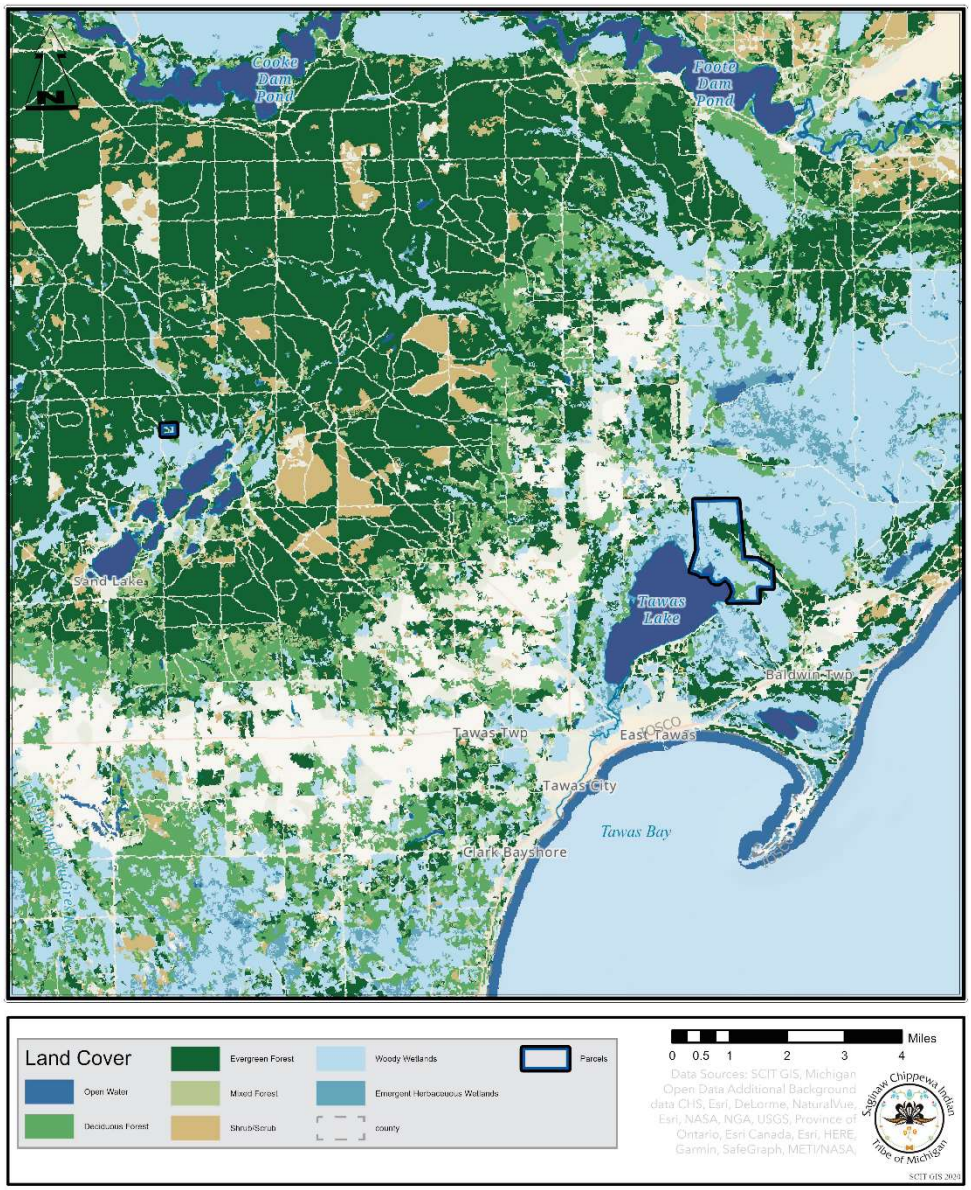
Isabella Reservation
Forest Cover
Map 3.13



Saganing District-Arenac County
Forest Cover
Map 3.14



Saganing District-Iosco County
Forest Cover
Map 3.15



Community Organization And Resources For Hazard Mitigation Including County And Local Community Agencies, Departments, And Organizations Potentially Relevant For Hazard Mitigation.

Emergency Services

Emergency services are very important for the Hazard Mitigation Process. These services help serve the public in times of natural disasters and other emergency situations. It is crucial for the public to know where these services exist and how to reach them in times of need.

Saginaw Chippewa Indian Tribe Office of Emergency Management

7070 E. Broadway Rd
Mt. Pleasant, MI 48858
(989) 775-4866

This office was established in 2010. The current Emergency Management Director is the Fire Chief, and the current Assistant Director is the Police Chief. The emergency management office assesses local capabilities to respond to emergency and disaster situations, and advocate emergency preparedness in both the public and private sectors and works to assure a comprehensive approach is used involving a range of public and private agencies including local police, fire, and EMS agencies, the Michigan Department of Environmental, Great Lakes, and Energy (EGLE), the Environmental Protection Agency (EPA), Indian Health Services, Homeland Security, and the National Weather Service. Other agencies coordinating with emergency management include the county emergency management offices in Arenac, Iosco, and Isabella Counties, the American Red Cross, and local and state health departments. This office tends to be central for all major threats and incidents within the tribal properties.

Local Emergency Planning Committees (LEPC) – LPT Local Planning Team

One of the major provisions of SARA Title III is the establishment of Local Emergency Planning Committees (LEPCs). The LEPC for the SCIT is comprised of staff members of various tribal departments. The LEPCs are responsible for developing emergency response plans for the Tribes that have facilities in their jurisdiction subject to SARA Title III emergency planning requirements. The LEPC is the primary mechanism through which local SARA Title III planning, training and exercising activities are implemented. The SCIT LEPC consists of a six members from the planning, police, fire, risk management, health, and grant writing departments.

Note: Many of the programs and initiatives designed to mitigate, prepare for, respond to, and recover from fixed- site hazardous material incidents have the dual purpose of also protecting against hazardous material transportation incidents.

Local Emergency Capability:

Procedures in the Emergency Operations Plans address the of problems associated with hazards, including specific functions such as rescue and evacuation. Communities work closely with company officials and surrounding jurisdictions to ensure a fast, coordinated response. Mitigation possibilities include the use of community zoning regulations to provide suitable open, unoccupied "buffer" areas around pipelines, storage fields, refineries, and compressor stations.

Warning Sirens or System

The SCIT has two automated warning systems on their property, both of them being located in Isabella

County. The sirens are found at the fire department and the tribal campgrounds. Sirens typically have a working radius of approximately one (1) mile; however, this can vary based on the existing weather conditions.

SCIT Planning Department

The Saginaw Chippewa Indian Tribe Planning Department is heavily involved in emergency management and the approval of the Hazard Mitigation Plan ("Plan"). The Department has a total of 11 employees that deal with many of the issues addressed in this Plan. The Planning Department Director is a civil engineer and a certified floodplain manager (CFM), and works with multiple agencies on infrastructure issues, as well as potential flooding issues. The Environmental Manager oversees a number of environmental specialists/natural resource personnel that deal with a number of hazards that include but are not limited to: water quality (public health emergencies), invasive species, HazMat issues, forestry management, and pollution.

Risk Management

The Saginaw Chippewa Risk Management staff is also a critical department for the SCIT. They complete assessments on all factions of tribal life in order to mitigate losses resulting from any hazardous event.

Police

The Saginaw Chippewa Tribal Police Department is a full service 24/7 Law Enforcement organization. They are charged with providing police services within the Isabella Reservation and Saganing District. In addition, they have entered into cross-deputization agreements with our local law enforcement partners: Isabella County Sheriff's Office, Arenac County Sheriff's Office, Michigan State Police, Mt. Pleasant City Police Department, and Central Michigan University Police Department. These deputization agreements task the agency with the responsibility for providing law enforcement services to both tribal and non-tribal businesses as well as tribal and non-tribal citizens of the reservation. The Saginaw Chippewa Tribal Police Department is also part of the Mid-Michigan Investigative Narcotics Team (M.I.N.T.).

The Saginaw Chippewa Tribal Police Department currently consists of 41 employees. The make up the Saginaw Chippewa Tribal Police Department is 1 Police Chief, 1 Captain, 5 Police Sergeants, 2 Criminal Investigators, 21 Police Officers, 7 Dispatch/Corrections Officers, 2 Police Cadets, and 2 Administrative Support personnel. The Department has three canine teams. These consist of two narcotics detection canines and one explosives canine. All three canines primarily service the Isabella Reservation. In addition to the

The SCIT also has three Officers assigned to the Isabella County Tactical Response team, two Officers in the Isabella County dive rescue team, one Officer assigned as a school resource Officer, a drone pilot team, a digital evidence collection unit, one Officer assigned to the narcotics investigation team, and several Officers trained to Captain our rescue boat on Saginaw Bay.

The police department not only protects and serves the native community, the many thoroughfares within those jurisdictions, but two major entertainment facilities roughly seventy miles apart from each other. These interests are priority to this department. During the FY' 20 the Saginaw Chippewa Tribal Police Department handled 16,235 calls for service. Below is the information on the Saginaw Chippewa Indian Tribe Police Department as well as the agencies with whom the Tribe has mutual aid agreements.

Area Police Departments

Saginaw Chippewa Indian Tribe Police Department
7500 Soaring Eagle Blvd.
Mt. Pleasant, MI 48858
Phone: 989 775-4000

Michigan State Police Department
525 E. Superior St
Mt. Pleasant, MI 48858
Phone: 989 463-8317

Isabella County Sheriff's Department
207 Court St.
Mt. Pleasant, MI 48858
Phone: 989 772-5911

Arenac County Sheriff's Department
126 N. Grove St.
Standish, MI 48658
Phone: 989 846-3002

Mt. Pleasant Division of Public Safety
804 E. High St.
Mt. Pleasant, MI 48858
Phone: 989 779-5100

Central Michigan University Police
1720 East Campus Dr.
Mt. Pleasant, MI 48858
Phone: 989 774-4000

Fire

The Saginaw Chippewa Tribal Fire Department is a full service 24/7 Fire Department. They are charged with providing Fire Suppression and Medical First Responder services within the Isabella Reservation. In addition, they have entered into Mutual Aid agreements with their local Fire Department partners: Mt. Pleasant Fire Department, Shepherd Tri-Township Fire Department, Isabella Northeast Fire Department, Nottawa-Sherman Fire Department, Deerfield Township Fire Department, Freemont Township Fire Department and Millbrook –Rolland Fire Department, as well as Standish Area Fire Authority (SAFA). The Saginaw Chippewa Tribal Fire Department is an active member of the Isabella County Fire Investigation Team, Isabella County Dive Team and a supporting partner with the Isabella County Haz-mat Team and Technical Rescue Team. The Saginaw Chippewa Tribal Fire Department has a dual dispatch agreement with Shepherd Tri-Township Fire Department to provide quality service to both Tribal and Non-Tribal business and its citizens.

The Saginaw Chippewa Tribal Fire Department consists of 10 Career staff. The Saginaw Chippewa Tribal Fire Department has 1 Fire Chief, 3 Fire Sergeants, 6 Career Firefighters. In addition to the fulltime staff the Fire Department also includes 20 paid-on-call firefighters. The Saginaw Chippewa Tribal Fire Department also is an active participant to the Bureau of Indian Affairs Fire Management program, which consists of the Wild Land Fire program that consists of 6 crew members.

The Fire Department not only protects and serves the native community, the many thoroughfares within the Isabella Reservation, but also a major entertainment facility, and two hotels. During the FY 20 the Saginaw Chippewa Tribal Fire Department handled 900 calls for service. The Fire Department utilizes two fire engines and a ladder truck to combat the local fires. In addition, they also have a wildland engine (type 4) a brush truck, a water tender with portable pump, and a medium duty walk-in rescue truck, which can be used for incident command operations. These latter pieces of equipment can be used for larger fires, but also can be utilized for wildfires, some of which are driven to other parts of the country to fight large-scale wildfires or forest fires. Lastly, the Fire Department also has a light duty boat for search and rescue operations.

Area Fire Departments

Saginaw Chippewa Indian Tribe Fire Department
6954 E. Broadway St
Mt Pleasant, MI 48858
Phone: 989 775-4866

Mt Pleasant Fire Department
804 E. High St
Mt Pleasant, MI 48858
Phone: 989 779-5100

Shepherd Tri-Township Fire Department
410 N. Chippewa St
Shepherd, MI 48883
Phone: 989 828-5272

Nottawa-Sherman Fire Department
6263 W Weidman Rd
Weidman, MI 48893
Phone: 989 644-3221

Isabella Northeast Fire Department
4215 N Mission Rd,
Rosebush, MI 48878
Phone: 989 433-2152

Deerfield Township Fire Department
2888 S Winn Rd
Mt. Pleasant, MI 48858
Phone: 989 779-7557

Freemont Township Fire Department
8375 S Winn RD
Winn, MI 48896
Phone: 989 866-2471

Millbrook Rolland Township Fire Department
8323 W County Line Rd,
Blanchard, MI 49310
Phone: 989 561-2346

Standish Area Fire Authority
Industrial Rd,
Standish, MI 48658
Phone: 989 846-9155

Isabella County Drain Commission
200 N Main Street, Room 140
Mt Pleasant, MI 48858
Phone: 989 317-4072

Arenac County Drain Commission
120 N Grove, PO Box 747
Standish, MI 48658
Phone: 989 846-2011

The SCIT Planning Department works with the Drain Commissioners and their staffs on projects dealing with surface water in the Isabella Reservation and near the Saganing District properties. The mission of these offices is to provide for the health, safety and welfare of county citizens, the protection of surface waters and the environment, and to promote the long-term environmental sustainability of the county by providing storm water management, flood control, soil erosion control and education. The office is particularly relevant for hydrological hazards.

Isabella County Road Commission
2261 East Remus Road
Mt Pleasant, MI 48858
Phone: 989 773-7131

Arenac County Road Commission
4271 Airpark Drive
Standish, MI 48658
Phone: 989 718-3250

The SCIT Planning Department works with the Road Commissioners and their staff on all projects addressing roads in the Isabella Reservation and near properties in the Saganing District properties. The Road Commissions are responsible for maintaining the roads and bridges within their respective county.

Nimkee Public Health Department
2591 Leaton Road
Mt Pleasant, MI 48858
Phone: 989 775-4695
The mission of the Nimkee Public Health is to seek and utilize resources appropriately and to address wellness needs of the Tribal Community. To promote healthy lifestyles through a comprehensive approach and prevention, education, treatment, and outreach. To provide current medical standards of care which are met in the culturally sensitive and respectful manner.

Economic Development Department
Brian Smith
Director
7070 E. Broadway St
Mt Pleasant, MI 48858
Phone: 989 775-4091
Email: bsmith@sagchip.org
The Economic Development Department coordinates economic development and related services on behalf of the SCIT. The Economic Development Department as a clearinghouse for information and assistance in the retention, expansion, and location of businesses on tribal property.

Tribal Council/Planning Commission
7500 Soaring Eagle Boulevard
Mt Pleasant, MI 48858
Phone: 989 775-4000
The SCIT has a fully staffed planning department. The Tribal Council acts as the Planning Commission for the SCIT. Through the enforcement of the SCIT Strategic and Community Master Plans the planning department and the Planning Commission directs the future growth and development for the SCIT.

Ambulance
Mobile Medical Response (MMR) is the primary response unit.

Isabella Reservation
MMR
2026 Packard St.
Mt Pleasant, MI 48858
Phone: 989 289-3095

Saganing District
MMR
132 N. James St.
Standish, MI 48658
Phone: 989 387-5958

Health Care
There are four facilities located in or near SCIT property.

McLaren Central Michigan
1221 South Dr.
Mt Pleasant, MI 48858
Phone: 989 772-6700

Nimkee Memorial Wellness Clinic
2591 S. Leaton Rd.
Mt Pleasant, MI 48858
Phone: 989 775-4600

Mid-Michigan Medical Center
4851 E. Pickard St.
Suite 1000
Mt Pleasant, MI 48858
Phone: 989 956-9609

Ascension Standish Hospital
805 W. Cedar St.
Standish, MI 48658
Phone : 989 846-4521

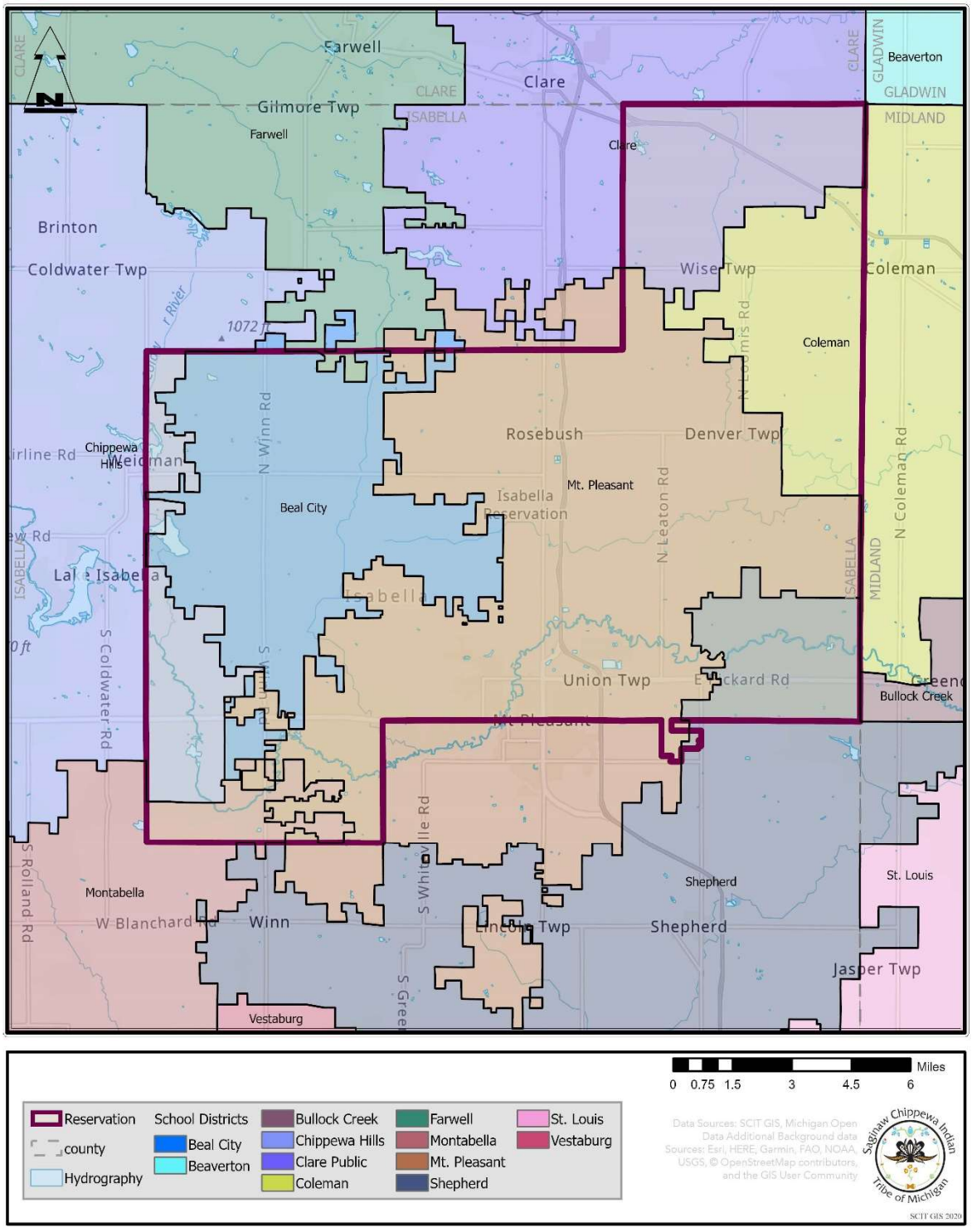
Tribal Offices and Facilities

Saginaw Chippewa Indian Tribe of Michigan
7500 Soaring Eagle Blvd.
Mt Pleasant, MI 48858
Phone: 989 775-4000

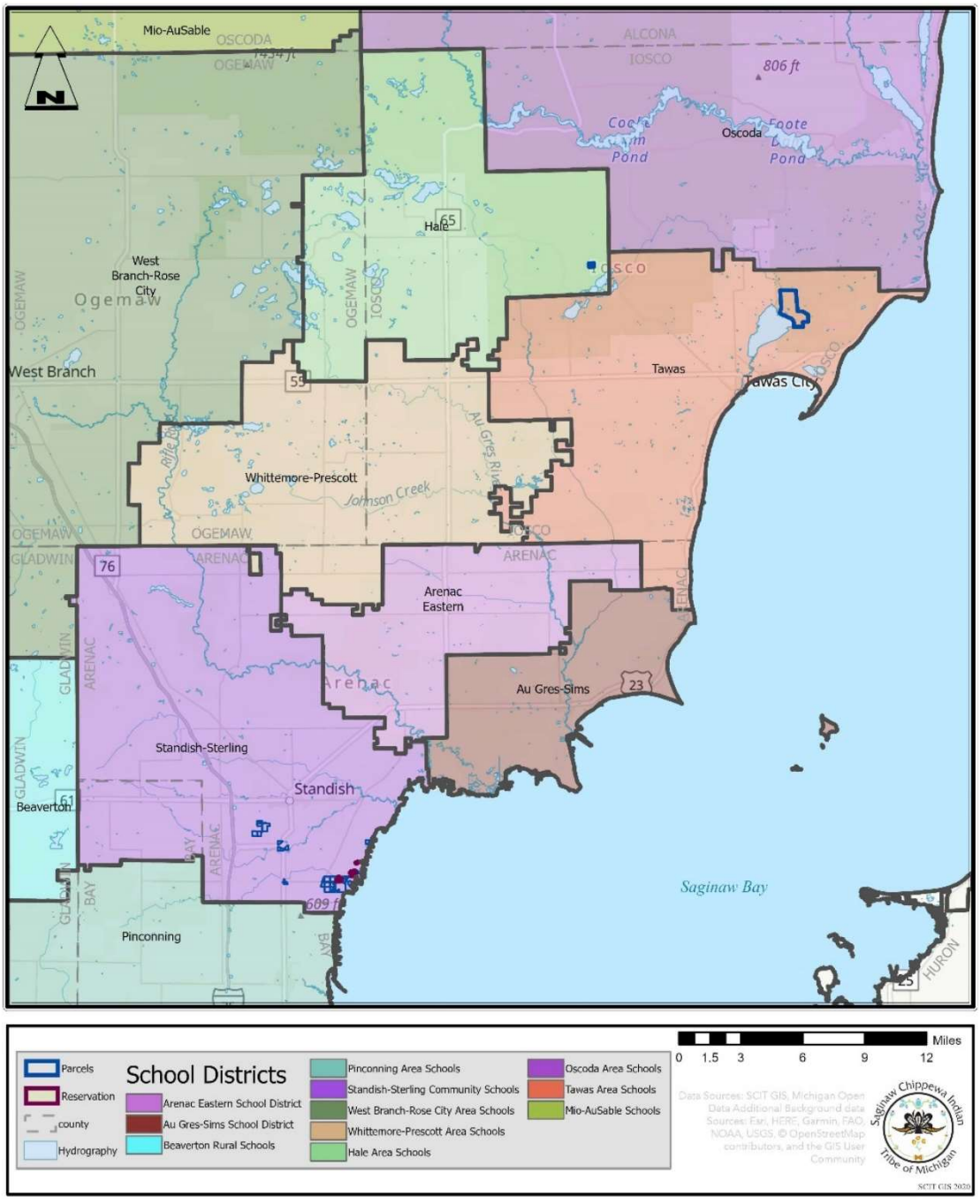
Schools

In addition to the K-8 Tribal School, there are 17 school districts located on or near the Isabella Reservation or Saganing District, where the tribal members may attend. This includes both public and private schools. Tribal members are allowed to utilize their "school of choice", which allows them to attend either the school district in which they reside or the Tribal School. In addition, Mid-Michigan College, and the Saginaw Chippewa Tribal College are also available to the tribal members.

Isabella Reservation
School District Map
MAP 3.16



Saganing District
School District Map
MAP 3.17



Utilities
Information on the utilities provided to communities within the SCIT properties are essential to distribute information to the public in times of need. Also, certain locations that provide these services may be the source of emergency situations (transformer problems, gas leaks, etc.).

Electricity
Isabella Reservation-Consumers Energy
Saganing District-SCIT

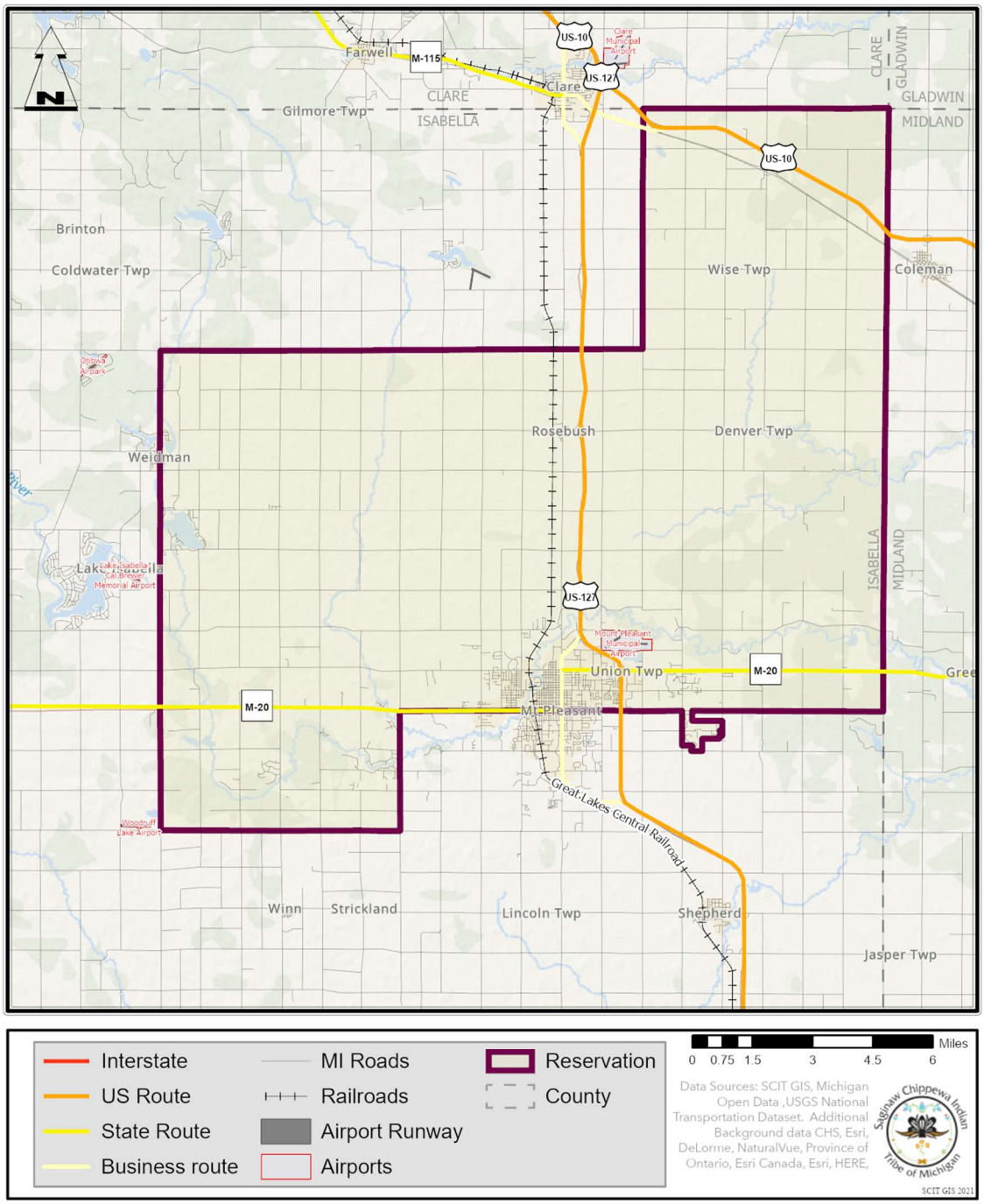
Natural Gas
Consumers Energy

Transportation
Roads
The SCIT works with the county road commissions regarding maintenance and improvements, so while they are not responsible for the roads, tribal funds are allocated to assist in maintaining the roads for tribal member usage.

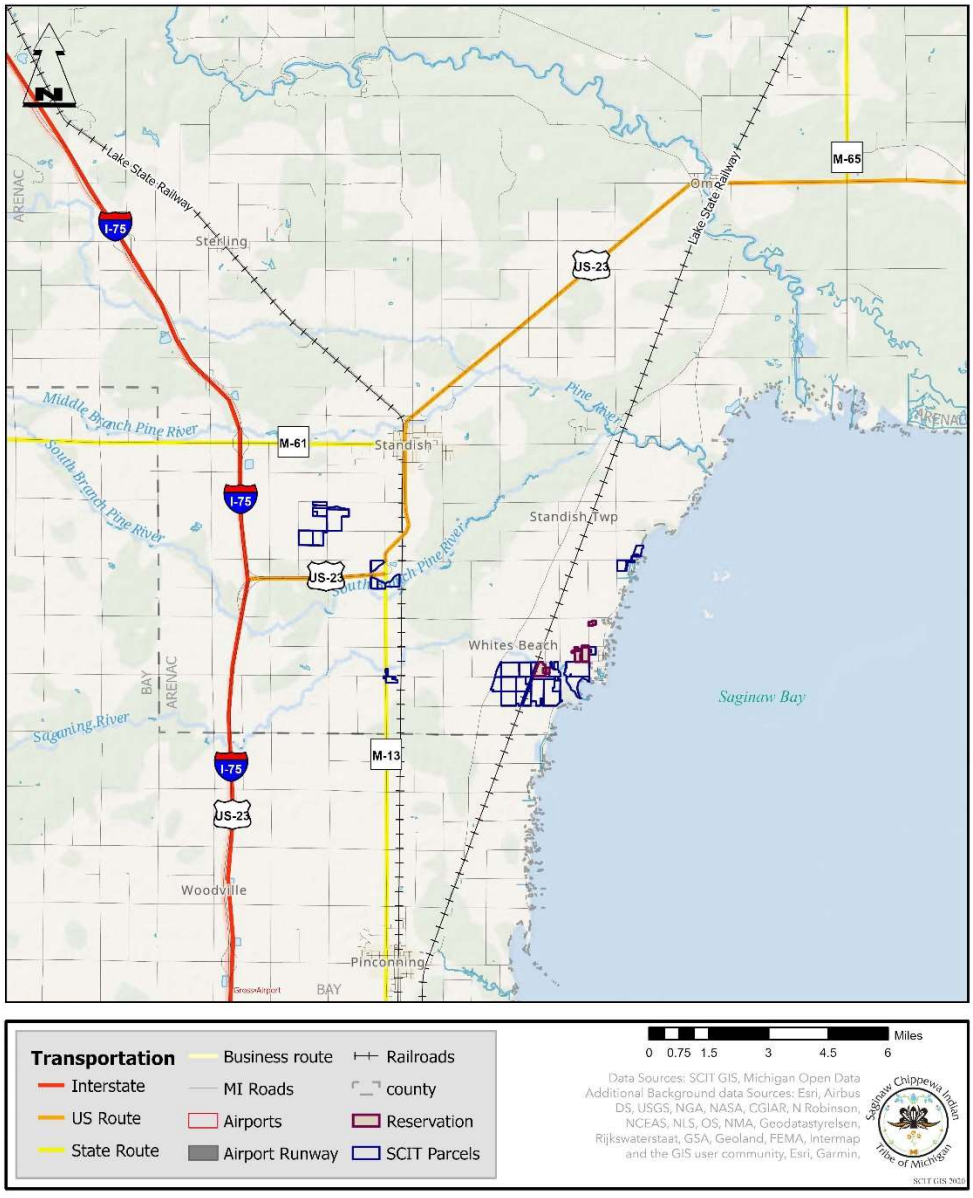
The Isabella Reservation is served by three (3) all season State Trunkline Highways.
US-127-North/South-central portion of the Isabella Reservation
US-10-East/West-northern portion of the Isabella Reservation
M-20-East/West-southern portion of the Isabella Reservation

The Saganing District is served by three (3) all season State Trunkline Highways as well.
I-75-North/South-immediately west of the Saganing District properties
US-23-North/South- Adjacent to several Saganing District properties in Arenac County and immediately west of Saganing District Reservation properties, and also south of the Iosco County properties

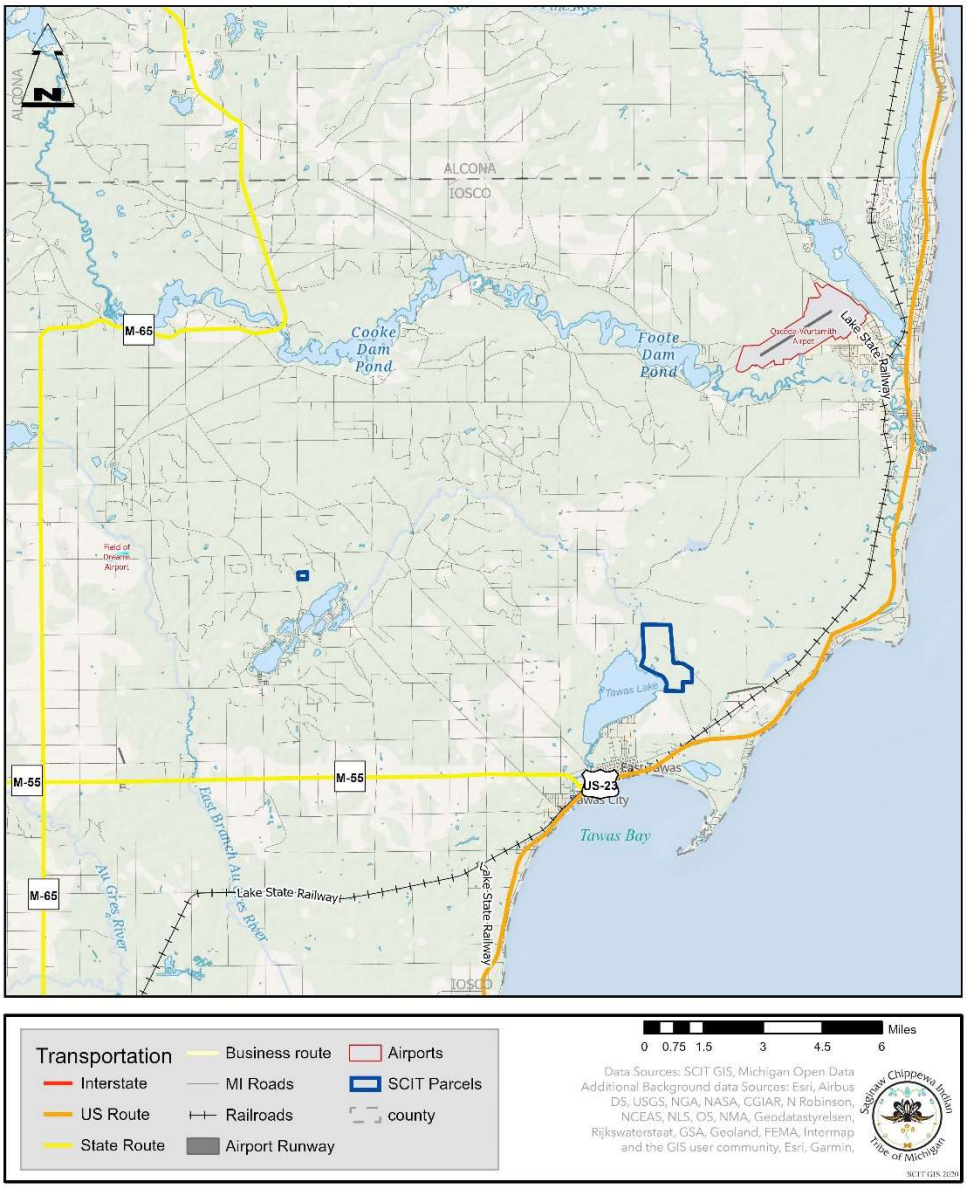
Isabella Reservation
Transportation Map
MAP 3.18



Saganing District-Arenac County
Transportation Map
Map 3.19



Saganing District-Iosco County
Transportation Map
Map 3.20



Airports

Mt Pleasant Municipal Airport
Bill Brickner
Airport Manager
5453 East Airport Rd.
Mt Pleasant, MI 48858
Phone: 989 772-2955.

The Mt Pleasant Municipal Airport has the call letters of KMOP is located at 5453 East Airport Rd, northeast of Mt Pleasant and in the southern portion of the Isabella Reservation. The Airport is managed by the City of Mt Pleasant and includes two runways. Runway 9/27 is 5,000 feet by 100 feet in length and is paved with asphalt. Runway 5-23 is 2,502 feet by 160 feet in length and is turf.

Mass Transportation

Isabella County Transportation Commission (I Ride) is available all across Isabella County and the Isabella County portion of the Reservation as timed routes and on demand. The Saganing portion of the Isabella Reservation is served by Bay County to the South.

Railroads

The SCIT has two railroads going through its property. The Great Lakes Central Railroad is located in the Isabella Reservation and the Lake State Railroad is located in the Saganing District.

Great Lakes Central Railroad
Mark Nagy
V.P. of Marketing
101 Enterprise Dr.
Vassar, MI 48768
Phone: 989 797-5132

Great Lakes Central Railroad (GLCRR) is the largest regional railroad in Michigan, with 400 miles of track stretching through Central and Northern Michigan. GLCRR is a north/south route through the Isabella Reservation. It travels from Detroit northwest up to Traverse City.

Lake State Railway
John Rickoff
President and CEO
750 N. Washington Ave.
Saginaw, MI 48607
Phone: 989 393-9800

Lake State Railway operates on approximately 375 mile of track throughout the State of Michigan. It begins in Washtenaw County, west of Detroit and runs north to Pinconning where it splits with the west leg going north to Gaylord and the east leg going north to Alpena. There are interchanges with CSXT. Canadian National, HESR, and MMRR. GLCRR and Lake State Railway. MMRR travels through Breckenridge, St Louis, and terminates in Alma, connecting with GLCRR there. MMRR is a freight line focusing on agricultural commodities, lumber, and salt.

Authorities, Centers, Programs, Etc. That Address Various Hazards

Sabotage/Terrorism/Weapons of Mass Destruction (WMD)
The federal Office of Homeland Security coordinates the many counter-terrorism functions scattered across numerous federal agencies and organizations and works closely with state and local police and fire agencies, emergency response teams, and emergency management agencies in formulating and carrying out the National Homeland Security Strategy.

The Strategic National Stockpile (SNS) Program
Presidential Decision Directive (PDD) 62, issued by President Clinton in May 1998 ordered federal agencies to take significantly expanded and better-coordinated steps to protect against the consequences of biological and other unconventional attacks, especially potential bioterrorism directed at civilian populations. One of the major bio-terrorism initiatives of the U.S. Department of Health and Human Services (HHS) in response to this PDD is the development of the Strategic National Stockpile – a national repository of lifesaving pharmaceuticals and medical materials that will be delivered to the site of a major medical emergency in order to reduce morbidity and mortality in civilian populations. The decision to send the SNS is a collaborative effort between local, state, and federal officials in a process whereby local health departments and emergency management officials contact the Michigan State Police Emergency Management Division, and state health officials who recommend to the Governor that a formal request for the SNS is made to the CDC.

The stockpile is activated to support a local and or state response to an emergency within the US or its territories. The two major components of the stockpile are the 12 Hour Push Pack and the Vendor Managed Inventory (VMI). Push Packs contain 50 tons of medical materiel that will treat a variety of illnesses. The VMI will re-supply the Push Pack or supplies will be sent immediately to the emergency site if the biological agent is known.

Homeland Security Presidential Directive/HSPD-8 Subject: National Preparedness Purpose
This directive establishes policies to strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved preparedness. The National Preparedness Guidelines are contained within four documents that correlate to establish a vision for national preparedness and provide a systematic approach for prioritizing preparedness efforts across the nation for local, state, and federal governments. These four documents address capabilities-based preparedness for the full range of homeland security missions, from mitigation through recovery, and include: *The National Preparedness Vision, the National Planning Scenarios, the Universal Task List,* and *Core Capabilities*.

The purposes of the *Guidelines* are to:

- Organize and synchronize national (including Federal, State, local, tribal, and territorial) efforts to strengthen national preparedness;
- Guide national investments in national preparedness;
- Incorporate lessons learned from past disasters into national preparedness priorities;
- Facilitate a capability-based and risk-based investment planning process; and
- Establish readiness metrics to measure progress and a system for assessing the Nation's overall preparedness capability to respond to major events, especially those involving acts of terrorism.

Using the Core Capabilities List, local jurisdictions measure their capabilities against the list, identifying shortfalls and making corrective actions. In addition, local exercises are designed around using the national planning scenarios which allows for local jurisdictions to determine required capabilities already identified using pre-developed scenarios.

FEMA Grant Programs

FEMA has several grant programs to assist in the mitigation of hazard damages. These grants are available annually or after a federally declared disaster. The grant programs are the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), and Building Resilient Infrastructure and Communities (BRIC). The HMGP provides funding to state, local, tribal, and territorial governments after a presidentially declared disaster, so that they can rebuild in a way that reduces or mitigates future disaster losses. FMA is a competitive grant programs to reduce or eliminate repetitive flood damage to buildings insured by the NFIP. Grants are available to states, local communities, federally recognized tribes, and territories. BRIC is available annually to states, local municipalities, tribes, and territories to undertake mitigation projects that reduce damages resulting from hazards and natural disasters.

School Safety Information Act: 102 P.A. 1999

In response to the rash of school shootings that occurred in the late 1990s, the Michigan Legislature passed Act 102 in July 1999-The Michigan School Safety Information Act-which requires local school districts to meet with law enforcement officials to develop emergency plans to handle violent situations. School superintendents are then required to educate local communities about the plans. The plans spell out, among other things, how to evacuate schools, bring first aid and emergency resources to the scene, and handle parents that want to pick up their children. The law also requires the development and implementation of a statewide school safety information policy, the reporting and compiling of certain school safety information, and the expulsion of pupils for certain assaults.

H.B. 4713 – Act 12 of Public Acts of 2014 February 2014

The bill amends the Fire Prevention Code to modify school drill requirements. The bill also requires the governing body of a school to adopt and implement a school cardiac emergency response plan. The bill takes effect on July 1, 2014. Currently, a school that operates any of grades kindergarten through 12 must hold at least six fire drills and two "lockdown" drills during each school year. The bill requires a K-12 school to hold a minimum of five fire drills and three lockdown drills, according to a schedule prescribed in the bill. The Code requires a K-12 school to hold at least two tornado safety drills for each school year. Under the bill, at least one tornado safety drill would have to be held in March.

The bill would require the governing body of a K-12 school to ensure that documentation of a completed school safety drill was posted on its website (or on its intermediate school district's website) within 30 days of completing the drill and maintained for at least three years. By September 15, the chief administrator of a K-12 school would have to give a list of scheduled drill days to the county emergency management coordinator, who would have to provide the information to the local emergency management coordinator, if any, and certain local officials. This information would be exempt from disclosure under the Freedom of Information Act. If a drill were not conducted as scheduled, it would have to be rescheduled and the chief administrator would have to notify the county emergency management coordinator of the rescheduled date. The governing body of a school that operates any of grades kindergarten through 12 would have to adopt and implement a cardiac emergency response plan for the school. The plan would have to address all of the following: use and maintenance of automated external defibrillators (AEDs), if available; activation of a cardiac emergency response team during an

identified emergency; effective and efficient communication throughout the school campus; a training plan for the use of an AED and CPR techniques, in a school with grades 9 to 12; integration of the local emergency response system and emergency response agencies with the school's plan; and an annual review and evaluation of the cardiac emergency response plan.

Michigan Office of Safe Schools

In 1998 the Michigan Legislature established the Michigan Office of Safe Schools within the Michigan Department of Education. The Office of Safe Schools began operating in October of 1999. Its mission is to collect and distribute information about school safety. The Office of Safe Schools maintains a web site that serves as a one-stop clearinghouse for information on school safety, school bus safety, food safety and current and proposed school safety legislation. In March 2001, the Michigan Office of Safe Schools established a toll-free School Violence Hotline to provide a means for students to anonymously report specific threats of imminent school violence or other suspicious or criminal conduct. The toll-free hotline is operational 24-hours per day, 365 days a year, at 1-800-815-TIPS.

Federal Agencies

Sabotage/terrorism is being addressed on a variety of other fronts within Federal Government. The Michigan Department of State Police oversees, and coordinates state agency actions related to homeland security and terrorism response – including the investigation of suspected or potential criminal enterprises and activities that might involve sabotage or terrorism. In addition, the State Police (in conjunction with other state agencies as well as federal and local counterparts) continuously prepares for terrorist incidents through emergency planning, training, information sharing and exercising efforts.

Weather Hazards (General)

National Weather Service Doppler Radar

The National Weather Service (NWS) has completed a major modernization program designed to improve the quality and reliability of weather forecasting. The keystone of this improvement is Doppler Weather Surveillance Radar, which can more easily detect severe weather events that threaten life and property. The lead-time and specificity of warnings for severe weather have improved significantly. Doppler technology calculates both the speed and the direction of motion of severe storms. By providing data on the wind patterns within developing storms, the new system allows forecasters to better identify the conditions leading to severe weather such as tornadoes, severe straight-line winds, lightning and damaging hail. This means early detection of the precursors to severe storms, as well as information on the direction and speed of storms once they form.

National Weather Service Watches/Warnings

The National Weather Service issues severe thunderstorm watches for areas when the meteorological conditions are conducive to the development of severe thunderstorms. People in the watch area are instructed to stay tuned to National Oceanic and Atmospheric Administration (NOAA) weather radio and local radio or television stations for weather updates and watch for developing storms. Once radar or a trained Skywarn spotter detects the existence of a severe thunderstorm, the National Weather Service will issue a severe thunderstorm warning. The warning will identify where the storm is located, the direction in which it is moving and the time frame during which the storm is expected to be in the area. Persons in the warning area are instructed to seek shelter immediately. The State and local government agencies are warned via the Law Enforcement Information Network (LEIN), NOAA weather radio and the Emergency Managers Weather Information Network (EMWIN), EMNET. Public warning is provided through the Emergency Alert System (EAS), Integrated Public Alert Warning System (IPAWS). The National

Weather Service stations in Michigan transmit information directly to radio and television stations, which in turn pass the warning on to the public. The National Weather Service also provides detailed warning information on the Internet through the Interactive Weather Information Network (IWIN).

National Weather Service Education

The National Weather Service issues severe thunderstorm watches and warnings when there is a threat of severe thunderstorms. However, lightning, by itself, is not sufficient criteria for the issuance of a watch or warning (every storm would require a watch or warning). The National Weather Service has an extensive public information program aimed at educating citizens about the dangers of lightning and ways to prevent lightning-related deaths and injuries, which is facilitated by local Emergency Management Programs.

Severe Weather Awareness Week

Each spring, the Emergency Management Division, Michigan Department of State Police, in conjunction with the Michigan Committee for Severe Weather Awareness, sponsors Severe Weather Awareness Week. This annual public information and education campaign focuses on such severe weather events as tornadoes, thunderstorms, hail, high winds, flooding and lightning. Informational materials on lightning hazards are disseminated to schools, hospitals, nursing homes, other interested community groups, facilities, and the public and internet.

Tornado National Weather Service Watches/Warnings

The National Weather Service issues tornado watches for areas when the meteorological conditions are conducive to the development of a tornado. People in the watch area are instructed to stay tuned to NOAA weather radio and local radio or television stations for weather updates and watch for developing storms. Once a tornado has been sighted and its existence is confirmed and reported, or Doppler Radar shows strong probability of the development or occurrence of a tornado, the National Weather Service will issue a tornado warning. The warning will identify where the tornado was sighted, the direction in which it is moving and the time frame during which the tornado is expected to be in the area. Persons in the warning area are instructed to seek shelter immediately.

The State and local government agencies are warned via the Law Enforcement Information Network (LEIN), National Oceanic and Atmospheric Administration (NOAA) weather radio and the Emergency Managers Weather Information Network (EMWIN), and EMNET. Public warning is provided through the Emergency Alert System (EAS), (IPAWS), and (CMAS) Commercial Mobile Alert System Using wireless towers. The National Weather Service stations in Michigan transmit information directly to radio and television stations, which in turn pass the warning on to the public. The National Weather Service also provides detailed warning information on the Internet, through the Interactive Weather Information Network (IWIN).

Warning Systems

Outdoor warning siren systems warn the public about impending tornadoes and other hazards. Most of these systems were originally purchased to warn residents of a nuclear attack, but that purpose was expanded to include severe weather hazards as well. These systems can be very effective at saving lives in densely populated areas where the siren warning tone is most audible. In more sparsely populated areas where warning sirens are not as effective, communities are turning to NOAA weather alert warning systems, IPAWS, and Nixle to supplement or supplant outdoor warning siren systems. Some rural areas of boteh the Isabella Reservation and the Saganing District are still in poor NOAA radio reception areas

and limited cellular network coverage, these areas are encouraged to supplant with monitoring of local TV and Radio Broadcasts.

Michigan Office of Fire Safety

The Michigan Department of Licensing and Regulatory Affairs' Office of Fire Safety is responsible for conducting fire safety and prevention inspections in state-regulated facilities and certain other facilities. Specific services provided include: 1) fire safety inspections of adult foster care, correctional and health care facilities, and hotels/motels; 2) plan review and construction inspections of the regulated facilities in item (1), as well as schools, colleges, universities, and school dormitories; 3) coordination of fire inspector training programs; and 4) coordination of fire alarm and fire suppression system installation in regulated facilities. These activities are important mitigation activities designed to save lives and protect property from structural fire hazards. The State Fire Safety Board, also housed within the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes and Fire Safety, promulgates rules covering the construction, operation and maintenance of schools, dormitories, health care facilities, and correctional facilities. These rules are designed to protect life and property at these facilities from fire, smoke, hazardous materials, and fire-related panic.

Fire Safety Rules for Michigan Dormitories

Even before the Seton Hall University dormitory fire in January 2000, the State Fire Safety Board took action to enhance the fire and life safety protection of Michigan's college and university dormitories. On December 21, 1999, two new sets of rules took effect governing the construction, operation, and maintenance of school, college and university instructional facilities and dormitories. These sets of rules were updated to meet the most current nationally recognized standards from the National Fire Protection Association. The new rules adopted the 1997 edition of NFPA 101, Life Safety Code. NFPA standards provide the minimum requirements necessary to establish a reasonable level of fire and life safety and property protection from hazards created by fire and explosion.

The new rules require, among other things, that fire sprinklers be installed in newly constructed dormitories or those undergoing major renovations. However, existing dormitories don't fall under the new rules and therefore do not have to be retrofitted unless they are being renovated.

Wildfires

Because the vast majority of wildfires are caused by human activity, the Michigan Department of Natural Resources established in 1981 the Michigan Interagency Wildfire Prevention Group. It was the first such group in the nation (promoting wildfire prevention and awareness) that had the full involvement of the state's fire agencies. In 1993, the Michigan Interagency Wildfire Prevention Group was expanded to form the Michigan Interagency Wildland Fire Protection Association (MIWFPA). The MIWFPA promotes interagency cooperation in fire prevention, training, fire technology, and firefighting operations. Members of the MIWFPA include the: 1) MDNR Forest Management Division; 2) USDA Forest Service - Huron Manistee, Hiawatha, and Ottawa National Forests; 3) USDI National Park Service - Pictured Rocks and Sleeping Bear Dunes National Lakeshores; 4) USDI Fish and Wildlife Service – Seney National Wildlife Refuge; 5) USDI Bureau of Indian Affairs; 6) Michigan Department of State Police – fire investigation; 7) Michigan State Firemen's Association; and the 8) Michigan Fire Chief's Association. The risk of wildfires is moderate. The SCIT can reduce its vulnerability to wildfires by 1) participating in multi-state and interagency mitigation efforts.

Riverine and Urban Flooding

National Flood Insurance Program

For many years, the response to reducing flood damages followed a structural approach of building dams, levees and making channel modifications. However, this approach did not slow the rising cost of flood damage, plus individuals could not purchase insurance to protect themselves from flood damage. It became apparent that a different approach was needed. The National Flood Insurance Program (NFIP) was instituted in 1968 to make flood insurance available in those communities agreeing to regulate future floodplain development. As a participant in the NFIP, a community must adopt regulations that: 1) require any new residential construction within the 100-year floodplain to have the lowest floor, including the basement, elevated above the 100-year flood elevation; 2) allow non-residential structures to be elevated or dry flood proofed (the flood proofing must be certified by a registered professional engineer or architect); and 3) require anchoring of manufactured homes in flood prone areas. The community must also maintain a record of all lowest floor elevations or the elevations to which buildings in flood hazard areas have been flood proofed. In return for adopting floodplain management regulations, the federal government makes flood insurance available to the citizens of the community. In 1973, the NFIP was amended to mandate the purchase of flood insurance as a condition of any federally regulated, supervised or insured loan on any construction or building within the 100-year floodplain. At this time the SCIT does not participate in the National Flood Insurance Program (NFIP).

Community Rating System

The Community Rating System (CRS) recognizes and encourages community floodplain management activities that exceed the minimum NFIP standards. Depending upon the level of participation, flood insurance premium rates for policyholders can be reduced up to 45%. Besides the benefit of reduced insurance rates, CRS floodplain management activities enhance public safety, reduce damages to property and public infrastructure, avoid economic disruption and losses, reduce human suffering, and protect the environment. Technical assistance on designing and implementing some activities is available at no charge. Participating in the CRS provides an incentive to maintaining and improving a community's floodplain management program over the years. Implementing some CRS activities can help projects qualify for certain other Federal assistance programs.

Michigan Flood Hazard Regulatory Authorities

Land Division Act, 591 P.A. 1996, as amended by 87 P.A. 1997

The Land Division Act governs the subdivision of land in Michigan. The Act requires review at the local, county and state levels to ensure the land being subdivided is suitable for development. From a flood hazards viewpoint, a proposed subdivision is reviewed by the County Drain Commissioner for proper drainage, and for floodplain impacts by the Department of Environmental Quality, Land and Water Management Division.

Provisions of the Act and its Administrative Rules require that the floodplain limits be defined and prescribe minimum standards for developments for residential purposes and occupancy, within or affected by the floodplain. Restrictive deed covenants are filed with the final plat which stipulates that any building used, or capable of being used, for residential purposes and occupancy within or affected by the floodplain shall meet the following conditions:

- Be located on a lot having a buildable site of 3,000 square feet of area at its natural grade above the floodplain limit. (Lots with less than 3,000 square feet of buildable area may be filled to achieve that area.)

- Be served by streets within the proposed subdivision having surfaces not lower than one foot below the elevation defining the floodplain limits. Have lower floors, excluding basements, not lower than the elevation defining the floodplain limits. Have openings into the basement not lower than the elevation defining the floodplain limits.

- Have basement walls and floors below the elevation defining the floodplain limits, watertight and designed to withstand hydrostatic pressures. Be equipped with a positive means of preventing sewer backup from sewer lines and drains serving the building. Be properly anchored to prevent flotation. Floodplain Regulatory Authority, found in Water Resources, Part 31 of the Natural Resources and Environmental Act, 451 P.A. 1994, as amended.

The floodplain regulatory portion of Act 451 restricts residential occupation of high-risk flood hazard areas and ensures that other occupations do not obstruct flood flows. A permit is required from the Department of Environmental Quality for any occupation or alteration of the 100-year floodplain. In general, construction and fill may be permitted in the portions of the floodplain that are not floodway, provided local ordinances and building standards are met. (Floodways are the channel of a river or stream and those portions of the floodplain adjoining the channel which are reasonably required to carry and discharge the 100-year flood. These are areas of moving water during floods.) New residential construction is specifically prohibited in the floodway. Non-residential construction may be permitted in the floodway, although a hydraulic analysis may be required to demonstrate that the proposed construction will not harmfully affect the stage-discharge characteristics of the watercourse. The Act does not apply to watersheds that have a drainage area of less than two square miles. Those small watersheds are considered to be local drainage systems, and do not fall under the Floodplain Regulatory Authority.

Soil Erosion and Sedimentation Control, Part 91 of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended

This portion of the Act seeks to control soil erosion and protect the waters of the state from sedimentation. A permit is required for all earth changes that disturb one or more acres of land, as well as those earth changes that are within 500 feet of a lake or stream. The Act itself does not address flood hazards, per se. However, if sedimentation is not controlled, it can clog streams, block culverts, and result in continual flooding and drain maintenance problems.

Inland Lakes and Streams, Part 301 of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended

This portion of the Act regulates all construction, excavation and commercial marina operations on the State's inland waters. It ensures that proposed actions do not adversely affect inland lakes, streams, connecting waters and the uses of all such waters. Structures are prohibited that interfere with the navigation and/or natural flow of an inland lake or stream. Though reduction of flooding is not a specific goal of this Act, minimizing restrictions on a stream can help to reduce flooding conditions.

Wetlands Protection, Part 303 of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended

This portion of the Act requires a permit from the Department of Environmental Quality for any dredging, filling, draining or alteration of a wetland. This permitting process helps preserve, manages, and protect wetlands and the public functions they provide – including flood and storm water runoff control. The hydrologic absorption and storage capacity of the wetland allows wetlands to serve as natural floodwater and sedimentation storage areas. The Act recognizes that the elimination of wetland areas can result in increased downstream flood discharges and an increase in flood damage. Permits for wetland alterations are generally not issued unless there is no feasible alternative, and the applicant can demonstrate that the proposal would not have a detrimental impact upon the wetland functions.

Natural Rivers Program, Part 305 of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended

The Natural Rivers Act was originally passed in 1970 and has been incorporated as Part 305 of the Natural Resources and Environmental Protection Act. The purpose of this program is to establish and maintain a system of outstanding rivers in Michigan, and to preserve, protect, and enhance their multi-faceted values. Through the natural rivers designation process, a Natural River District is established (typically 400 feet either side of the riverbank) and a zoning ordinance is adopted. Within the Natural River District, permits are required for building construction, land alteration, platting of lots, cutting of vegetation, and bridge construction. Not all of the zoning ordinances on the natural rivers have the same requirements, but they all have building setback and vegetative strip requirements. Although the purpose is not specifically to reduce flood losses, by requiring building setbacks (in many cases prohibiting construction in the 100-year floodplain), flood hazard mitigation benefits can be realized.

Dam Safety, Part 315 of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended

The Dam Safety Unit within the Land and Water Management Division, Department of Environmental Quality, has the primary responsibility to ensure dam safety within the state. Following the September 1986 flood in central Lower Michigan, the current Dam Safety Act was passed to ensure that dams are built and maintained with necessary engineering and inspections for safety of the public and the environment. The Department of Environmental Quality is required to review applications involving construction, reconstruction, enlargement, alteration, abandonment, and removal for dams that impound more than five acres of water and have a height of six feet or more.

Local River Management Act, 253 P.A. 1964

Enacted in 1964, the Local River Management Act provides for the coordination of planning between local units of government in order to carry out a coordinated water management program. Implementation of the water management program occurs via the establishment of watershed councils. These councils conduct studies on watershed problems, water quality and the types of land uses occurring within the watershed. Watershed councils have the authority to develop River Management Districts for the purpose of acquisition, construction, operation and the financing of water storage and other river control facilities necessary for river management. The provision to allow acquisition of land adjacent to the river for the purpose of management aids in regulating development of land prone to flooding.

Dam Failures

Both the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the Federal Energy Regulatory Commission (FERC) classify and regulate dams in Michigan. Under state and federal legislation,

certain dam owners are required to develop a survey of the downriver area, develop flood-prone area maps and develop emergency action plans (EAPs). Furthermore, the FERC requires the owners of such dams to exercise these plans; EGLE has initiated an effort to encourage owners of state-regulated dams to voluntarily perform exercises of their EAPs. In Michigan, well over 100 dams are covered by Emergency Action Plans. Dams in Michigan are regulated by Part 315 of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Part 315, Dam Safety provides for the inspection of dams. This statute requires EGLE to rate each dam as either "high," "significant," or "low" hazard potential, according to the potential downstream impact if the dam were to fail (not according to the physical condition of the dam). EGLE has identified and rated over 2,400 dams. Dams over 6 feet in height that create an impoundment with a surface area of 5 acres or more are regulated by this statute. Dam owners are required to maintain an EAP for "high" and "significant" hazard potential dams. Owners are also required to coordinate with local emergency management officials to assure consistency with local emergency operations plans. Dams regulated by FERC, such as hydroelectric power dams, are generally exempt from this statute. The FERC licenses waterpower projects (including dams) that are developed by non-federal entities, including individuals, private firms, states and municipalities. Under provisions of the Federal Power Act and federal regulations, the licensee of the project must prepare an EAP. This plan must include a description of actions to be taken by the licensee in case of an emergency. Inundation maps showing approximate expected inundation areas must also be prepared. Licensees must conduct a functional exercise at certain projects, in cooperation with local emergency management officials. No dams are located within the Isabella Reservation or Saganing District.

Shoreline Flooding and Erosion

Flooding and erosion along Michigan's 3,200-mile-long Great Lakes shoreline is typically caused by high Great Lakes water levels, storm surges, or high winds. Shoreline flooding and erosion are natural processes that occur at normal and even low Great Lakes water levels. During periods of high water, however, flooding and erosion are more frequent and serious causing damage to homes, businesses, roads, water distribution and wastewater treatment facilities, and other structures in coastal communities. Windstorms and differences in barometric pressure can temporarily tilt the surface of a lake up at one end as much as eight feet. This phenomenon is called a storm surge and can drive lake water inland over large areas.

There is a 10% or higher chance of shoreline flooding in a year. In nearly every decade, high water levels on the Great Lakes have caused significant damage and impact to Michigan coastal communities. In some decades high water levels last longer than one year. The most recent high-water period began in 1997 and resulted in the Great Lakes being at or near record levels set in the mid-1980s'. In response to the threat of severe shoreline flooding and erosion, the U.S. Army Corps of Engineers (USACE), at the request of the Governor, implemented its Advance Measures Program to assist Michigan shoreline communities in their flood and erosion mitigation efforts. (See Programs and Initiatives section for more details.) To date, over 20 Michigan jurisdictions have taken advantage of this program.

Prior to that, the record-high lake levels in 1985-86 culminated in a Governor's disaster declaration for 17 shoreline counties. The USACE implemented its Advance Measures Program, and the State of Michigan implemented three shoreline flooding and erosion mitigation

programs aimed at reducing future flood impacts on shoreline communities and homeowners. During 1972-73, high water levels caused flooding in over 30 counties, resulting in an excess of $50 million in public and private damage. Thousands of people were forced to evacuate their homes. Similar high-water level flooding occurred in the early 1950s and late 1960s, also resulting in millions of dollars' worth of damage to shoreline communities. Many of the same events that influence Riverine Flooding occur simultaneously as Shoreline Flooding.

Drought

U.S. Geological Survey

The U.S. Geological Survey (USGS) is the primary federal agency that collects and analyzes stream flow data, another good index of the relative severity of drought. The agency provides a handy "Drought Watch" web site at http://waterwatch.usgs.gov/.

The site presents a map that is continually updated through an automated analysis of USGS stream gauging stations. Additional drought-related links can be accessed through the Michigan-specific web page: http://waterwatch.usgs.gov/new/index.php?m=dryw&r=mi) by clicking on the map (or proceeding directly to the specific web page at http://mi.water.usgs.gov/midroughtwatch.php).

Fixed Site Hazardous Materials (including explosions and industrial accidents)

Resource Conservation and Recovery Act - 42 U.S.C. s/s 6901 et seq. (1976)

The Resource Conservation and Recovery Act (RCRA) (pronounced "rick-rah") gave EPA the authority to control hazardous waste from the "cradle to grave". This includes the generation, transportation, treatment, storage and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. RCRA focuses only on active and future. The Federal Hazardous and Solid Waste Amendments are the 1984 amendments to RCRA that required phasing out land disposal of hazardous waste. Some of the other mandates of this strict law include increased enforcement authority for EPA, more stringent hazardous waste management standards and a comprehensive underground storage tank program.

Hazardous Materials

Local Emergency Planning Committees (LEPC) – LPT Local Planning Team

One of the major provisions of SARA Title III is the establishment of Local Emergency Planning Committees (LEPCs) for designated planning districts. The LEPCs are responsible for developing emergency response plans for communities that have facilities in their jurisdiction subject to SARA Title III emergency planning requirements. The LEPC is the primary mechanism through which local SARA Title III planning, training and exercising activities are implemented. Michigan has 88 designated LEPCs – one for each of the 83 counties and 5 in major cities. Nearly 2,800 facilities across the state have been identified as being subject to Title III emergency planning provisions. A facility is subject to SARA Title III provisions if extremely hazardous substances (as determined by the U.S. Environmental Protection Agency) are present at the facility in quantities at or above the minimum threshold quantities established in Section 302 of the Act.

Note: Many of the programs and initiatives designed to mitigate, prepare for, respond to, and recover from fixed- site hazardous material incidents have the dual purpose of also protecting against hazardous material transportation incidents.

Federal Hazardous Material Transportation Regulations

The transportation, manufacturing, storage and disposal processes for hazardous materials are highly regulated by federal and state agencies in order to reduce risk to the public. At the federal level, the U.S. Department of Transportation, Office of Hazardous Materials Safety (USDOT/OHMS), is the regulating agency for all modes of hazardous material transportation. In addition to enforcing federal hazardous material transportation regulations, the USDOT/OHMS is also involved in a number of other areas aimed at improving the safety of hazardous material shipping. Those areas include: 1) research and development of improved containment/packaging and other technological aspects of hazardous material shipping; 2) interagency coordination efforts in hazardous material transportation planning and standards setting; 3) management of data information systems pertaining to hazardous material transportation; and 4) development of hazardous material safety training policies and programs.

In Michigan, the Motor Carrier Division, Department of State Police, oversees, coordinates, and implements the commercial truck safety aspects of the USDOT regulations. The Michigan Department of Transportation oversees programs aimed at enhancing railroad safety and improving the rail infrastructure (which helps reduce the likelihood of a hazardous material rail transportation accident).

Hazardous Materials Transportation Uniform Safety Act

The federal Hazardous Materials Transportation Uniform Safety Act (HMTUSA), enacted in 1990, provides funding for the training of emergency responders and the development of emergency response plans for both fixed site facilities and transportation-related incidents. (This funding mechanism under the HMTUSA is referred to as Hazardous Material Emergency Preparedness [HMEP] grants.) In Michigan, the HMTUSA/HMEP program is coordinated and implemented by the Emergency Management Division, Department of State Police. Since the program's inception, over $326,000 in grants have been allocated to 80 Michigan communities for hazardous material planning and training activities.

Federal/State Hazardous Material Response Resources

There are numerous groups at the federal, state and local levels and in private industry that are trained to deal with hazardous material fixed site and transportation incidents. These groups include the National Response Team (NRT), Regional Response Teams (RRTs), and state and local hazardous material response teams. The Chemical Manufacturers Association established the Chemical Transportation Emergency Center (CHEMTREC) to provide 24-hour technical advice to emergency responders. The National Response Center (NRC), which operates much like CHEMTREC, was established to provide technical advice and coordinate federal response to a hazardous material incident.

In Michigan, a 24-hour statewide notification system called the Pollution Emergency Alerting System (PEAS) was established for reporting chemical spills to EGLE. As a companion to the PEAS, the Michigan Department of Agriculture (MDA) has established a 24-hour Agriculture Pollution Emergency Hotline for use by agrichemical users to report fertilizer and pesticide spills. Callers to the MDA hotline gain immediate access to appropriate technical assistance, regulatory guidance for remediation, and common-sense approaches for addressing the problem.

Oil and Natural Gas Wells

Local Emergency Capability

Communities that may be affected by oil or natural gas well accidents should have adequate procedures in their Emergency Operations Plans to address the unique types of problems associated with this hazard,

including rescue and evacuation. Affected communities must work closely with company officials and surrounding jurisdictions to ensure compatibility of procedures for a fast, coordinated response. Mitigation possibilities include the use of community zoning regulations to provide suitable open, unoccupied "buffer" areas around refineries and compressor stations. Michigan Department of Environmental Quality regulations provide for buffer zones around wells and treatment and storage facilities.

Pipelines (Petroleum and Natural Gas)

MPSC Pipeline Safety Inspections

Safety engineers from the MPSC are certified by the USDOT/OPS to conduct inspections on natural gas pipelines to ensure structural and operational integrity of the systems. If violations are found, the pipeline company can be ordered to take corrective actions; in addition, the pipeline operator may be fined. The MPSC safety engineers also respond to accidents involving natural gas pipelines (to ensure compliance with federal and state law and to offer technical assistance to emergency responders).

Protection of Underground Facilities Act / MISS DIG/ 811 Programs

Michigan's first line of defense against pipeline and other utility line breaks from construction excavation is The "MISS DIG" / 811 Program established with the passage of Act 53 in 1974 – The Protection of Underground Facilities. MISS DIG/ 811 System, Inc., is a 24-hour utility communications system that helps contractors comply with the state law (Act 53) which requires notification of utilities at least three working (but not more than 21 calendar) days before commencing excavation, tunneling, demolishing, drilling, or boring procedures, or discharging explosives for a project. When properly administered and followed, the MISS DIG/ 811 safety system does an excellent job of minimizing pipeline and utility line accidents.

Programs and Initiatives

Pipeline jurisdiction and oversight in Michigan is complex, determined primarily by the type and function of a pipeline and its location. Agencies involved include 1) the MPSC Gas Safety Office; 2) the USDOT/OPS in Kansas City, Missouri; and 3) the Michigan Department of Environment, Great Lakes, and Energy, Geological Survey Division (EGLE/GSD). The table below is a breakdown of jurisdictional and inspection responsibilities for the various types of pipelines present in Michigan:

Pipeline Safety Regulation in Michigan

TABLE 3.4

Pipeline Type	Jurisdiction	Applicable Code	Inspected by
Inter-state natural gas	USDOT/OPS	49 CFR Part 192	MPSC Gas Safety Intrastate
Inter-state natural gas	State of MI/MPSC	Michigan Gas Safety Standards	MPSC Gas Safety
Liquid Petroleum	USDOT/OPS	49 CFR Parts 193/195	USDOT/OPS
Gathering Lines*	EGLE/GSD	Oil/Gas Administrative rules under Part 165, 1994 P.A. 451	

*Note: Gathering lines are run from a production facility (i.e., well) to a pre-processing plant (i.e., dehydration facility, separator, compression station). Source: Michigan Public Service Commission, Gas Safety Office

Nuclear Power Plants

The SCIT is not located within the Emergency Planning Zones. The two zones are: the Plume Exposure Pathway Zone, which has a radius of approximately 10 miles, and the Ingestion Exposure Pathway Zone, which has a radius of approximately 50 miles. Mitigation of nuclear power plant hazards on the local County level is primarily limited to the detection of radiation, alerting the public, and providing directions for evacuation and/or housing – the latter three issues are addressed in other sections of this mitigation action item section of the mitigation plan.

Infrastructure Systems

Water/Electrical Infrastructure

The Federal Clean Water Act regulates the discharge from community wastewater collection and treatment systems. The regulatory aspects of the Act that pertain to municipalities have been delegated to the EGLE Surface Water Quality Division for surface water discharge facilities, and the EGLE Waste Management Division for groundwater discharge facilities. Authority for the oversight of planning, facility design review, and construction permitting of sewerage systems collection, transportation and treatment facilities, is derived from Part 41 of the Michigan Natural Resources and Environmental Protection Act (451 P.A. 1994) and Administrative Rules promulgated under authority of Part 41. The two EGLE divisions assist communities with the development and maintenance of their wastewater collection and treatment systems. In addition, they monitor and regulate these systems to ensure pollution abatement and health conditions are met. Although the regulatory authority vested in the EGLE is primarily aimed at preventing pollution of waters of the state, there are requirements in place under 451 P.A. 1994 regarding the design, construction, and operational integrity and reliability of wastewater collection and treatment systems. A collaboration between the SCIT EMD and ITC Power Transmission Corporation continues, and materials are updated annually and shared with responders.

Electrical system

Disaster-related damage to electric power facilities and systems is a concern that is being actively addressed by utility companies across the state. Detroit Edison, Consumers Energy and other major electric utility companies have active, ongoing programs to improve system reliability and protect facilities from damage by wind, snow and ice, and other hazards. Typically, these programs focus on trimming trees to prevent encroachment of overhead lines, strengthening vulnerable system components, protecting equipment from lightning strikes, and placing new distribution systems underground. The Michigan Public Service Commission (MPSC) monitors power system reliability to help minimize the scope and duration of power outages.

Telecommunications System

Like electric utility companies, telecommunications companies are concerned with the issue of protecting facilities and systems from disaster-related damage. Major telecommunications companies have programs to improve system reliability and physically protect facilities and system components from wind, snow and ice, and other hazards, utilizing many of the same techniques as the electric utility companies.

Surface Drainage Systems

Michigan's first drain laws appeared on the books as Territorial laws – years before Michigan achieved statehood. After attaining statehood in 1837, the State passed its first drain law in 1839. Since that time, there have been 45 separate acts passed regarding drainage, up to the most recent re-codification of drain law in 1956. Since 1956, the present drain code has been amended over 200 times – an indication of how important and dynamic the issue of drainage continues to be in Michigan. The Michigan Drain Code provides for the maintenance and improvement of the vast system of intra-County (County) and intercounty drainage facilities. Each drain has a corresponding special assessment district (watershed), a defined route and course, an established length, and is conferred the status of a public corporation with powers of taxation, condemnation, ability to contract, hold, manage and dispose of property, and to sue and be sued. Drainage districts and drains are established by petition of the affected landowners and/or municipalities. County drains, with a special assessment district entirely within the county, are administered by the locally elected county Drain Commissioner. Inter-County drains, with a special assessment district in more than one County, are administered by a drainage board that consists of the drain commissioners of the affected counties and is chaired by the Director of the Michigan Department of Agriculture (MDA) or an MDA Deputy Director.

Water Distribution Systems

Michigan's public water supplies are regulated under the Federal Safe Drinking Water Act. The Michigan Department of Environment, Great Lakes, and Energy (EGLE), as a primary agency for the Federal government, provides supervision and control of Michigan's public water supplies (including their operation and physical improvements) under the Michigan Safe Drinking Water Act (399 P.A. 1976).

The EGLE Drinking Water and Radiological Protection Division regulates, through a permit process, the design, construction, and alteration of public water supply systems. Water supply construction must be conducted within the framework of the Michigan Safe Drinking Water Act, as well as the Architecture, Professional Engineering and Land Surveying Act (240 P.A. 1937, which requires professional engineering preparation of construction documents for water works construction costing over $15,000). Most communities in Michigan, in conjunction with EGLE, developed water system master plans that conform to the requirements of the Michigan Safe Drinking Water Act. From a hazard mitigation standpoint, that is important because it helps ensure that all new water system construction and alterations to existing systems will conform to the minimum standards set in the Act. While not making water infrastructure "disaster-proof", the standards provide at least a basic level of design, structural and operational integrity to new or renovated portions of a community's water supply system.

Public Health

Michigan Department of Community Health

The Director of the Department of Community Health, and local public health officers, have the authority (under the Michigan Public Health Code—1978 PA 368, as amended) to take those steps determined necessary and prudent to prevent epidemics and the spread of hazardous communicable diseases, or to effectively mitigate other conditions or practices that constitute a menace to public health. The Director and local public health officers can issue written orders to implement the required preventive steps and/or responses, and those orders can be enforced through the imposition of civil and criminal penalties for failure to comply. State and local health departments have detailed, written emergency operations plans that address public health emergencies.

U.S. Centers for Disease Control and Prevention

At the national level, the U.S. Centers for Disease Control and Prevention (CDC), a branch of the Department of Health and Human Services, has the responsibility and authority to investigate public health emergencies to determine their cause, probable extent of impact, and appropriate mitigation measures. The CDC can also assist state and local public health officials in establishing health surveillance and monitoring systems/programs, and in disseminating information on prevention and treatment to the general public. The CDC announced dedicated funding for bioterrorism response, and Michigan has been strengthening its surveillance and intervention infrastructures with these funds. Since 2001, the CDC has also provided dedicated funding for public health emergency preparedness programs. In 2002, the MDCH Office of Public Health Preparedness was established to oversee these cooperative agreements. In the 2009 Influenza A (H1N1) event, CDC coordinated with numerous health departments across the country, tracked influenza cases, and provided information about outbreak trends. Tests were also performed, to verify whether flu cases were indeed of the correct type.

Michigan Pandemic Influenza Plan

In October 2009, the Michigan Department of Community Health updated the "Michigan Pandemic Influenza Plan," to provide response guidelines for an influenza pandemic affecting Michigan. Although the plan cannot eliminate the disease, it will aid in reducing the impact by enabling state and local agencies to anticipate, prepare for, and respond efficiently and effectively to the disease. The plan, which is divided into pre-pandemic, pandemic, and post-pandemic phases, details necessary activities at the state and local level related to:

- command and management
- crisis communications
- surveillance
- laboratory testing
- community containment
- infection control in health care facilities
- vaccines and antivirals/medical management
- data management
- border/travel issues
- recovery

In January of 2020, COVID-19, entered the U.S. according to the Centers for Disease Control and Prevention (CDC). It is believed it that the virus came from a single unidentified case from China. After going undetected for a period of time, in late February several cases were found in various points throughout the country. By March the virus was being considered a pandemic and many states throughout the U.S., including Michigan, began to establish various forms of quarantines. The CDC established protocols to use, including the wearing of mask, social distancing (a minimum of 6 feet), and washing one's hands to limit exposure to the pandemic. However, as this was not agreed upon by all the elected officials, these recommendations were not implemented by everyone. As a result, the pandemic raged on throughout the U.S into 2021.

By mid-December, the CDC was reporting that over 2,000 people were dying daily in the U.S. The first vaccine was approved in December 2020, with a second vaccine approved within weeks of the first. These vaccines required two shots to work accordingly, with the second shot needing to occur within 3-4

of the first vaccine. A third vaccine was approved by the end of February. This vaccine only required one shot but was not as effective in clinical trials as the first two vaccines. The vaccines were not a cure for COVID-19 but would lessen its symptoms. By mid-October, 2021, there were over 44 million cases in the U.S. and over 720,000 deaths. There were over 230 million cases with over 4.8 million deaths worldwide.

Transportation

Air Transportation

The Michigan Aeronautics Commission of the MDOT administers several programs aimed at improving aviation safety and promoting airport development. The Commission's safety programs include: 1) registering aircraft dealers, aircraft, and engine manufacturers; 2) licensing airports and flight schools; 3) inspecting surfaces and markings on airport runways; and 4) assisting in removal of airspace hazards at airports. The Commission's airport development program includes providing state funds for airport development and airport capital improvements – many of which contribute to overall air transportation safety. The Federal Aviation Administration (FAA) contracts with the MDOT for the inspection of the state's 238 public- use airports on an annual basis. The FAA has regulatory jurisdiction over operational safety and aircraft worthiness. The National Transportation Safety Board (NTSB) investigates all aircraft crashes that involve a fatality and publishes reports on its findings (see the NTSB section below).

Bus Safety

School bus safety programs and initiatives generally fall into two categories: 1) driver skill enhancement, competency training and 2) physical inspections of bus mechanical and safety equipment. The Motor Carrier Division, Michigan Department of State Police, inspects all school buses and other school transportation vehicles (21,000 units) on an annual basis. In addition, all school bus drivers in Michigan must take and pass a bus driver education and training program, and then take regular refresher courses to maintain their certification to operate a school bus. School bus drivers must also pass an annual medical examination.

CHAPTER 4: HAZARD ANALYSIS

At the first advisory committee meeting the Saginaw Chippewa Indian Tribe Emergency Management/ Hazard Mitigation Committee (SCIT EM/HMC) identified hazards that could potentially impact the Saginaw Chippewa Tribe and their land. During the next several meetings, risk and vulnerability assessments were completed along with an overall priority determination. This was followed up by a prioritization for each of the two areas covered in the Plan, the Isabella Reservation, located in Isabella County, and the Saganing District, located in Arenac and Iosco Counties. The Saganing District is located approximately 60 miles to the northeast of the Isabella Reservation. During the assessments and prioritization process, similar hazards were combined to eliminate redundancies. Below is Table 4.1 that includes the results of the assessments and prioritization of the hazards. On the following page on Table 4.2 are the hazards and their impact on the two regions being covered in this Plan. Following that table is an overview of each of the hazards for the Saginaw Chippewa Indian Tribe (SCIT).

Hazard Prioritization

Table 4.1

Probable occurrence had a high value of 10-occurring multiple times within a year to 1-occurring not more than once within the past 100 years. Risk assessment was out of a possible 10 points and was based on the overall risk the hazard (or hazards) posed to the County. The risk assessment was the hazard's risk to the residents based on the following criteria: likelihood to occur, capacity to cause physical damage, potential to cause casualties, and duration of threat from hazard. Vulnerability assessment was how vulnerable the residents are to impact of each hazard with high, medium, and low criteria. Ability to be mitigated values ranged from 0 (impacts of an event can be completely mitigated within one year) to 10 (impacts of an event cannot be mitigated in any capacity).

Event	Risk Assessment	Probable Occurrence	Vulnerability Assessment	Ability to be Mitigated	Overall Priority
Infrastructure Failures	9.05	10	High	2	High
Severe Weather[1]	8.45	10	Medium	5	High
Cyber Crimes	7.75	10	High	1	High
Energy Emergencies	7.5	10	High	9	High
Structural Fires	7.20	10	High	2	High
Tornadoes	7.20	10	High	2	High
Riverine Flooding	5.6	8	High	6	High
Hazard Material Incidents[2]	5.45	7	High	1	High
Extreme Temperatures	7.95	10	Medium	0	Medium
Well/Pipeline Incidents	4.90	6	Medium	2	Medium
Shoreline Incidents[4]	6.15	10	Medium	1	Medium
Public Health Emergency	5.70	10	High	0	Medium
Terrorism/Sabotage	9.00	10	High	8	Moderate
Invasive Species	7.55	10	Low	9	Moderate
Subsidence	6.10	10	High	1	Moderate

Event	Risk Assessment	Probable Occurrence	Vulnerability Assessment	Ability to be Mitigated	Overall Priority
Transportation Accidents	7.50	10	Low	4	Moderate
Civil Disturbance	5.45	9	Medium	1	Moderate
Wildfires	4.20	7	Medium	1	Moderate
Drought	3.65	4	Medium	1	Moderate
Special Events	8.65	10	Low	1	Moderate
Fog	7.65	10	Medium	10	Moderate
Seasonal Population Changes	7.05	10	Low	10	Low
Earthquakes	3.30	5	Low	0	Low
Dam Failures	1.90	3	Low	1	Low
Nuclear Attack	5.00	0	High	10	Low

(1) Severe weather includes- Ice/Sleet Storms, Snowstorms, Lightning, Severe Winds, Thunderstorms, and Hail
(2) Hazard Materials Incidents include-Hazard Mitigation Fixed Site and Hazard Mitigation Transportation
(3) Extreme Temperatures include-Extreme Heat and Extreme Cold
(4) Shoreline Incidents include-Shoreline Erosion and Shoreline Flooding

Hazards By Impact For SCIT Districts

Table 4.2

As the SCIT is located in two districts with different concerns, representatives from the two districts were asked to categorize each of the hazards, based on the impacts of the hazards on their region. Below is the table that identifies the overall priority and the impact for the two regions for each hazard.

Event	Overall Impact	Isabella Reservation Impact	Saganing District Impact
Infrastructure Failures	High	High	High
Severe Weather	High	High	High
Cyber Crimes	High	High	High
Energy Emergencies	High	High	High
Structural Fires	High	High	High
Tornadoes	High	High	High
Riverine Flooding	High	High	High
Hazard Material Incidents	High	High	High
Extreme Temperatures	Medium	Medium	Medium
Well/Pipeline Incidents	Medium	Medium	Medium
Shoreline Incidents	Medium	Low	Medium
Public Health Emergency	Medium	Medium	Medium
Terrorism/Sabotage	Moderate	Moderate	Moderate
Invasive Species	Moderate	Moderate	Moderate
Subsidence	Moderate	Moderate	Low
Transportation Accidents	Moderate	Moderate	Moderate
Civil Disturbance	Moderate	Moderate	Low
Wildfires	Moderate	Moderate	Moderate

Event	Overall Impact	Isabella Reservation Impact	Saganing District Impact
Drought	Moderate	Moderate	Moderate
Special Events	Moderate	Moderate	Moderate
Fog	Moderate	Moderate	Medium
Seasonal Population Changes	Low	Low	Low
Earthquakes	Low	Low	Low
Dam Failures	Low	Low	Low
Nuclear Attack	Low	Low	Low

On the following pages is an overview for each of the identified hazards impacting the Saginaw Chippewa Indian Tribe. The natural hazards are identified first. The hazards are not in any particular order of importance or priority.

HIGH PRIORITY HAZARDS

INFRASTRUCTURE FAILURES

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

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 literally die in their homes if immediate mitigative action is not taken. When the water or waste 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 an overload of capacity, serious flooding can occur.

These are just some examples of the types of infrastructure failures that can occur, and all of these situations can lead to disastrous public health and safety consequences if immediate mitigative actions are not taken. 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 an 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.

Communication Loss

Communication loss can be catastrophic in emergency situations in the county. Power outages or direct damage to communication equipment could mean life or death in certain situations. The population is dependent on emergency services getting to the incident site in a timely manner, and if there is damage to the equipment, the services may not reach their destination at all. The elderly population in the county is especially vulnerable to power outages and times of extreme weather, and these times are the most important to get services to them. In that case, there needs to be an alternative way of communication for the emergency services to reach their destination.

Infrastructure Failures

On 10/15/98 a power outage occurred, causing the washing machines to go into default mode, which resulted in chemicals being mixed incorrectly, creating chlorine gas. There were , 50+ employees affected by the gas. A decontamination center was created, and all impacted employees were decontaminated and washed.

Infrastructure Failures Overview

Many of the Saginaw Chippewa Indian Tribe's (SCIT) infrastructure failures are secondary hazards caused by other major events such as floods, windstorms, snow, and ice storms. The infrastructure failures that have resulted in recent years include power outages, road closures, which are normally restored in a matter of hours. However, due to the impact that result from the infrastructure failures on the local businesses (casinos/hotels/water parks), they were given a high priority to address.

SEVERE WEATHER/THUNDERSTORMS

HAIL

Hail: a condition where atmospheric water particles from thunderstorms form into rounded or irregular lumps of ice that falls to the earth.

Hazard Description

Hail is a product of strong thunderstorms. Hail is formed when strong updrafts within the storm 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 winds. They finally fall to the ground, battering crops, denting autos, and injuring wildlife and people. As one of these thunderstorms passes over, hail usually falls near the center of the storm, along with the heaviest rain. Most hailstones range in size from a pea to a golf ball, but hailstones larger than baseballs have been reported. Large hail is a characteristic of severe thunderstorms, and it may precede the occurrence of a tornado.

Hailstorms Events

According to the National Centers for Environmental Information (NCEI), 26 hail events occurred at either on or near the Isabella Reservation or the Saganing District, which includes property in both Arenac and Iosco Counties, from 1996 to 2019. Of these 26 events, only four events reported damages from the hail. Damages totaled $55,000 in property damages, and $115,000 in crop damages. No injuries or deaths were reported from these events. Below is a table identifying those events.

Significant Hail Events

Table 4.3

Location	Date	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Rosebush	08/09/2000	1.25 in.	0	0	$25,000	$75,000
Beal City	06/17/2002	1.75 in.	0	0	$5,000	$5,000
Rosebush	07/13/2003	.75 in.	0	0	$15,000	$15,000
Mt Pleasant	09/10/2019	1.50 in.	0	0	$10,000	$20,000

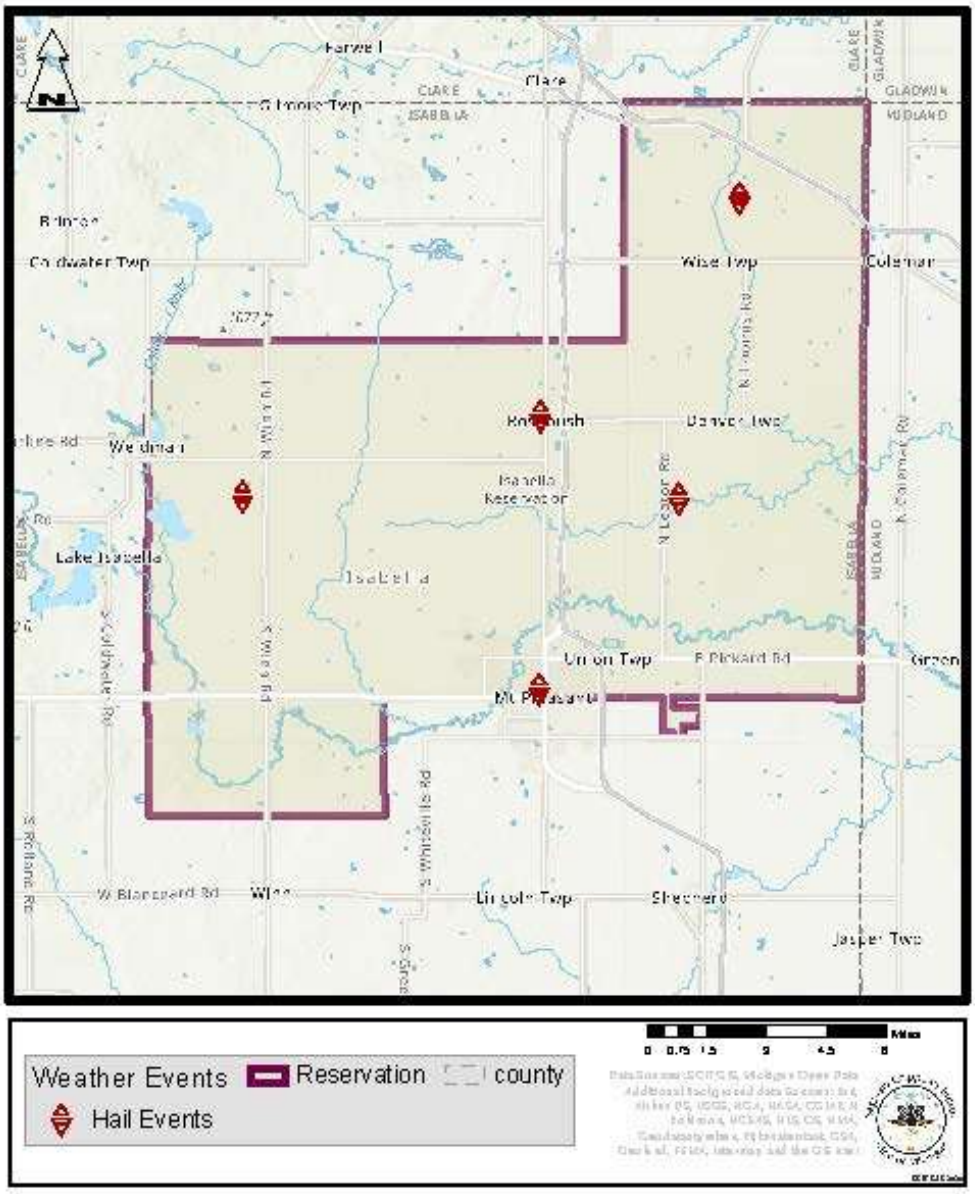
Source: National Centers for Environmental Information

On 08/09/2000 1.25-inch diameter hail was reported north of Rosebush. The hail resulted in extensive crop dame in Vernon and Wise Townships. In addition, numerous trees were defoliated.

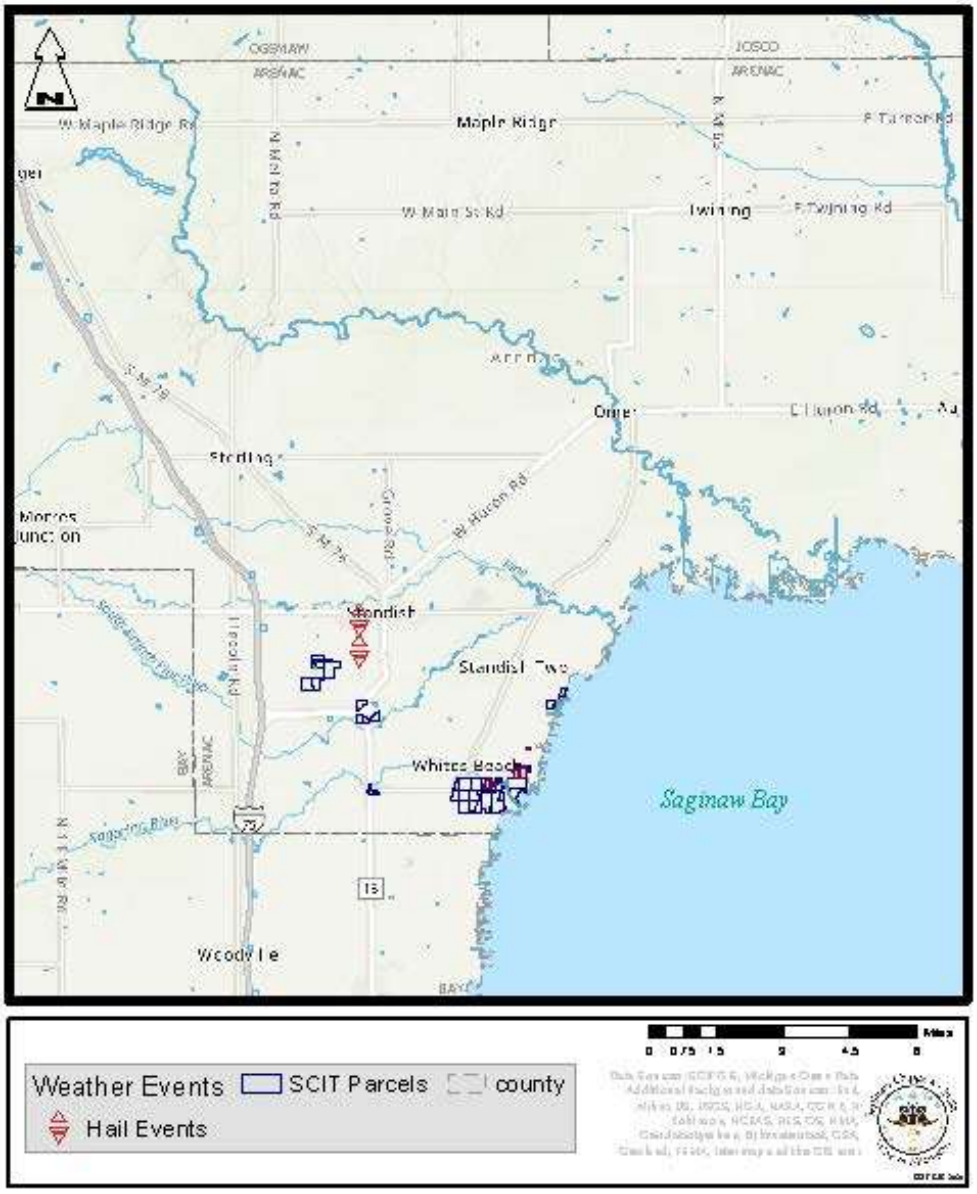
On 7/13/03 1 ¾ inch diameter hail was reported in Rosebush. Property damages of $15,000 and crop damages of $15,000 were estimated as a result of the storm.

On 9/10/19 1 ½ inch diameter hail was reported in Mt Pleasant. Property damages of $10,000 and crop damages of $20,000 were estimated as a result of the storm.

Significant Hail Events on the Isabella Reservation
Map 4.1



Significant Hail Events on the Saganing District
Map 4.2



Hail Overview

From 1996 to 2020, there were 26 hail-producing events or about 1 event per year impacting the SCIT and their property. Based on the above information, there is a high probability that a hail event would occur annually. (While on average there was at one event a year, some years had multiple events and some years did not have an event.) NCEI received limited information on the personal property damages and the crop damages resulting from the hail events., totaling $170,000, other than the damages reported on 08/08/2000. During this same time period The counties of Isabella, Arenac, and Iosco had events ranging

from 36 to 52, or about 1.5 to 2 events per year with reported damages resulting from these events, ranging from $0 to $360,000. The SCIT is located in moderate risk counties for hail events. However, hail is associated with thunderstorms and severe weather which were given a high priority to address. The SCIT does utilize warning sirens and other storm alerts programs to provide warning for the residents of SCIT on the Isabella Reservation. They are seeking to install a warning siren in the Saganing District along with the other storm alerts programs currently in place to bring the Saganing District current with the Isabella Reservation.

LIGHTNING

Lightning: the discharge of electricity from within a thunderstorm.

Hazard Description

Most direct impacts from lightning are relatively site-specific in scope, and therefore do not have a tremendous impact on the community as a whole. With the temperature of a bolt of lightning approaching 50,000 degrees Fahrenheit in a split second, the most common direct damage from lightning is fire. The most common indirect effect of lightning is power outages. This indirect effect can have an impact on a much larger segment of the community, leaving hundreds and sometimes thousands of homes without electricity.

Globally, there are about 2,000 thunderstorms occurring at any given time, and those thunderstorms cause approximately 100 lightning strikes to earth each second. In the United States, approximately 100,000 thunderstorms occur each year, and every one of those storms generates lightning. It is commonplace for a single thunderstorm to produce hundreds or even thousands of lightning strikes. However, to the majority of the public, lightning is perceived as a minor hazard. That perception lingers despite the fact that lightning damages many structures and kills and injures more people in the United States per year, on average, than tornadoes or hurricanes. Many lightning deaths and injuries could be avoided if people would have more respect for the threat lightning presents to their safety.

Statistics compiled by the NCEI and the National Lightning Safety Institute (NLSI) for the period 1959-1994 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 golf course)
- 8% are water-related (boating, fishing, swimming, etc.)
- 5% are golf related
- 3% are related to heavy equipment and machinery
- 2.4% are telephone-related
- 0.7% are radio, transmitter and antenna-related

The NLSI estimates that 85% of lightning victims are children and young men (ages 10-35) engaged in recreation or work-related activities. Approximately 20% of lightning strike victims die, and 70% of survivors suffer serious long-term after-effects such as memory and attention deficits, sleep disturbance, fatigue, dizziness, and numbness.

Lightning Events

Historically, the State of Michigan is near the top among U.S. states in both deaths and injuries resulting from lightning. A major cause for this is that Michigan is a destination location for outdoor, summer activities, the prime season for lightning strikes. However, while the State has experienced heavily reported property damages and multiple deaths and injuries in recent years (according to NCEI, 309 events were reported in Michigan from 1996 through 2020, resulting in 18 deaths and 113 injuries, and over $18 million in personal property damages), the SCIT has had limited lightning events between 1996 and 2020 at either the Isabella Reservation or the Saganing District. Only 2 events in or near the Isabella Reservation and the Saganing District occurred during this time period.

Significant Lightning Events

Table 4.4

Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Standish	07/15/2010	0	0	$500	$0
Rosebush	07/03/2012	0	0	$10,000	$0

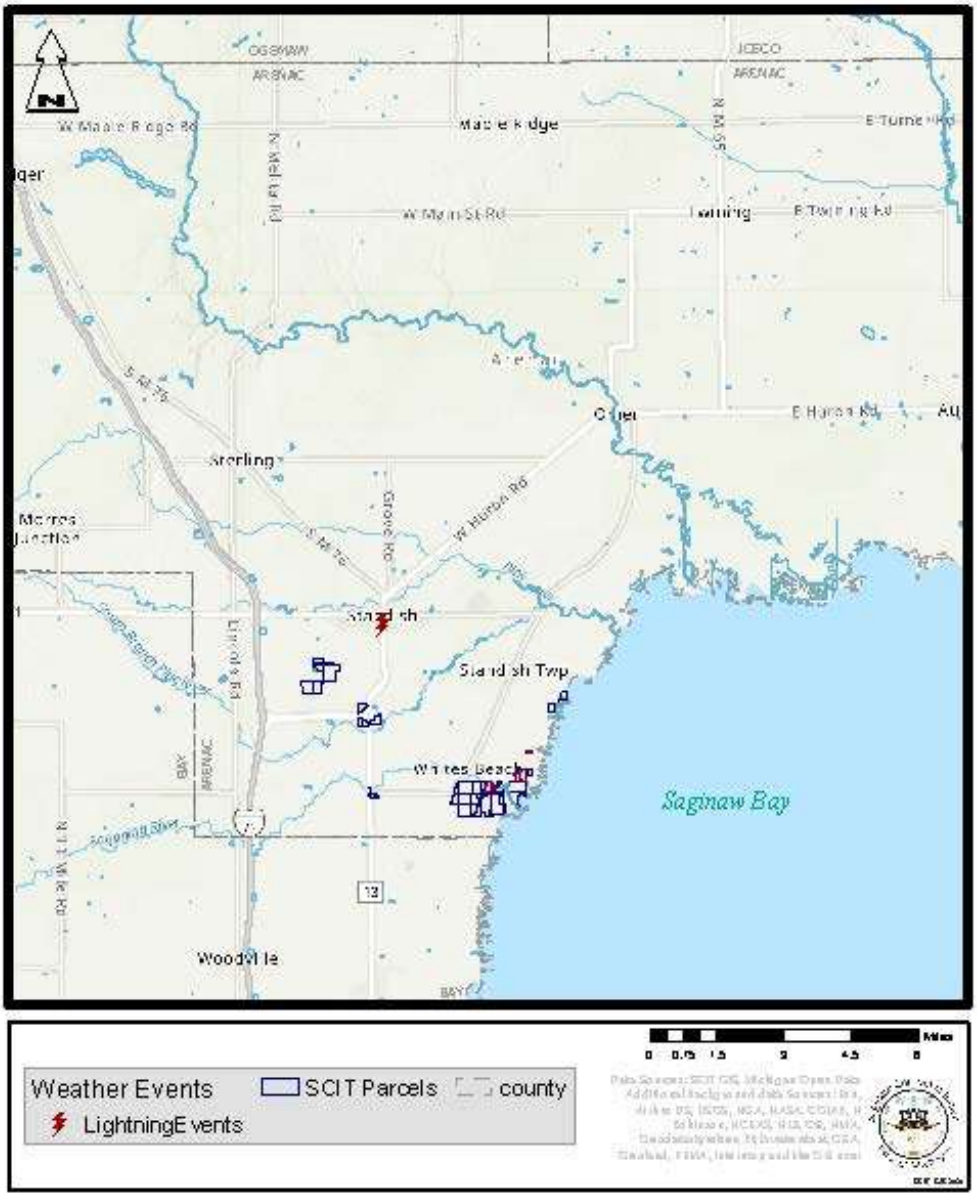
Source: National Centers for Environmental Information

On 07/15/2010, a lightning strike in Standish resulted in the loss of electronic equipment for a short period of time.

On 07/03/2012, a construction barn was destroyed by lightning.

Lightning Events on the Isabella Reservation
Map 4.3

Lightning Events on the Saganing District
Map 4.4



Lightning Overview

According to the NCEI, only two (2) lightning events have been recorded in or near SCIT property in the Isabella Reservation and/or the Saganing District during the past 25 years (from 1996 to 2020) , or about one damaging strike every twelve and one-half years. The probability of an event occurring annually is about 8%. Moderate damages were reported totaling $10,500, with no injuries or deaths resulting from the lightning strikes. The SCIT is located in moderate risk counties for lightning events even though Statewide Michigan is considered to be a high-risk area for these events. To reduce the vulnerability of the

residents, all-purpose warning sirens have been installed at various points in the Reservation. Additionally, lightning protection devices have been installed at various tribal facilities to further minimize the impact of lightning strikes. However, even with those measures the SCIT is still vulnerable to damages resulting from lightning strikes, as individual homes/barns are still susceptible to lightning. Even though the SCIT has not experienced many recent lightning strike events, it is possible that future events could still occur. Lightning strikes are considered to be a severe weather activity, which was given a high priority to address.

SEVERE WINDS

Severe winds: non-tornadic winds 58 miles per hour (mph) or 50.4 knots per hour (kph) or greater.

Hazard Description

Severe winds, or straight-line winds sometimes occur during thunderstorms and other weather systems and can be very damaging to communities. Often, when straight-line winds, occur, the presence of the forceful winds, with velocities over 58 mph (50.4 kph) may be confused with a tornado occurrence. Severe winds have the potential to cause loss of life, property damage, and flying debris, but tend not to cause as many deaths as tornadoes do. However, the property damage from straight-line winds can be more widespread than a tornado, usually affecting multiple counties at a time. In addition to property damage to buildings, there is a risk for infrastructure damage from downed power lines due to falling limbs and trees. Large scale power failures are common during straight-line wind events.

Severe winds spawned by thunderstorms and other weather events can have devastating effects in terms of loss of life, injuries, and property damage. According to data compiled by the National Weather Service Michigan has experienced over 9,000 severe wind events (not including tornadoes) that resulted in 122 deaths and millions of dollars in damage since 1970. Severe wind events are characterized by wind velocities of 58 mph or greater, with gusts sometimes exceeding 74 mph (hurricane velocity), but do not include tornadoes.

Wind Events

According to the National Centers for Environmental Information (NCEI), there have been 45 non-tornado wind events that have occurred on or impacting SCIT property at either the Isabella Reservation or the Saganing District from 1996 to 2019. Of these 48 events, no events in either location resulted in deaths or injuries to tribal members or visitors. Property and crop damages are estimated to be $10,922,000 per NCEI. Below are the significant events that have property damages of $25,000 or more.

Significant Severe Wind Events
Table 4.5

Location	Date	Windspeed	Deaths	Injuries	Property Damage	Crop Damage
Isabella Reservation (Countywide)	05/17/1999	NA	0	0	$50,000	0
Isabella Reservation (Countywide)	06/18/2001	53 kts. EG	0	0	$25,000	
Isabella Reservation (Countywide)	10/30/2004	50 kts. EG	0	0	$50,000	
Isabella Reservation (Mt Pleasant)	07/17/2006	52 kts. EG	0	0	$25,000	0
Isabella Reservation (Mt Pleasant)	07/10/2007	70 kts. EG	0	0	$100,000	0
Isabella Reservation (Rosebush)	12/23/2007	52 kts. EG	0	0	$50,000	0
Isabella Reservation (Mt Pleasant)	09/03/2011	61kts	0	0	$100,000	0
Isabella Reservation (Mt Pleasant)	07/19/2013	56 kts	0	0	$50,000	0
Isabella Reservation (Countywide)	11/17/2013	61 kts. EG	0	0	$75,000	0
Isabella Reservation (Countywide)	03/08/2017	52 kts. EG	0	0	$10 M	0
Isabella Reservation (Beal City)	08/28/2018	52 kts. EG	0	0	$100,000	0
Saganing District (Standish)	06/10/2020	56 kts.EG	0	0	$30,000	0

Source: National Centers for Environmental Information

NA-Information not available on the storm specifics
kts-knots
E-Estimated
EG-Estimated Gusts

On 07/10/2007 there was widespread wind damage throughout the Isabella Reservation. Shingles were blown off roofs north of Mt Pleasant. Trees were blown down, a roof was blow off a garage, and bleachers in a ballpark were blown over a fence.

On 09/03/2011 winds were estimated to be between 40 and 70 mph throughout the region. Trees were downed, roofs lost shingles, and power was lost throughout the region.

On 03/08/2017 winds throughout the region were estimated to be gusting up to 60 mph. Tree limbs were downed, resulting on downed power lines, and power outages throughout mid-Michigan. Damages were estimated to be $10,000,000 in Isabella County and over $200,000,000 in Michigan.

Severe Winds Overview

There was a total of 48 non-tornado wind events from 1996 through 2020 or about 1.9 events per year. The probability of an event occurring in future years is approximately 100 percent. Even though the average is almost 2 events per year, there were a couple of years when no events occurred. Estimated damages have been moderate, with one exception being the event on 03/08/2017, when the estimated damages were $10,000,000. Damages from these events often result in down trees and/or power lines leading to loss of electricity in large areas. No injuries or deaths were reported during this time period. Severe winds are considered to be a severe weather activity, which was given a high priority to address.

ICE/SLEET STORMS

Ice/sleet storm: a storm that generates sufficient quantities of ice or sleet to result in hazardous conditions and/or property damage.

Hazard Description

Ice storms are sometimes incorrectly referred to as sleet storms. Sleet is similar to hail only smaller 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. Ice storms are the result of cold rain that freezes on contact with the 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.

Ice and Sleet Storms Events

Ten (10) ice/sleet events were reported by NCEI that impacted the Saginaw Chippewa Indian Tribe (SCIT) either at the Isabella Reservation or the Saganing District in Arenac and Iosco Counties from 1996 to 2020. Of these storms seven had reported damages and three did not. Nine of the storms were ice storms and one storm was a sleet storm (Isabella County). There were no reported injuries or deaths resulting from these storms. The table on page below identifies those ice storms that caused damages. No damages resulted from the sleet storm that occurred in Isabella County. The storm on 04-11-13 is identified twice in the table as it impacted both Arenac and Iosco Counties.

Significant Ice/Sleet Storm Events

Table 4.6

Location	Date	Time	Deaths	Injuries	Property Damage	Crop Damage
Isabella County	12-17-02	8:00 PM	0	0	$100,000	$0
Isabella County	04-03-03	10:00 AM	0	0	$200,000	$0
Isabella County	02-13-05	8:00 PM	0	0	$50,000	$0
Iosco County	03-01-07	8:00 AM	0	0	$10,000	$0
Arenac County	04-11-13	3:00 PM	0	0	$50,000	$0
Iosco County	04-11-13	3:00 PM	0	0	$40,000	$0
Isabella County	02-05-19	8:00 PM	0	0	$1,000,000	$0

Source: National Centers for Environmental Information

On 12/17/2002 an ice storm hit mid-Michigan. It was reported that approximately ¼ inch of ice fell on Isabella County.

On 04/03/2003 a major ice storm hit mid-Michigan that resulted in ½ inch of ice in Isabella County. Many tree limbs fell due to the ice resulting in loss of power in many regions of Michigan.

Ice and Sleet Storms Overview

Ten ice/sleet storms were reported by the NCEI from 1996 to 2020 or about one every 2.5 years. There is a probability of 40% that an ice/sleet storm could occur in any year in one of the three counties. A major concern resulting from ice and sleet storms is the downing of power lines, which often results in the loss of power. The weight of the ice causes power lines to snap and break, builds up on branches that fall on the power lines disrupting service. In these circumstances, power can take days to be restored. If this happens temporary shelters may need to be set up. The local chapter of the American Red Cross would be called. Also, with the power loss would come loss of heat, which could cause death from hypothermia especially with the elderly population. Another potential problem caused by ice and sleet storms would

be debris cleanup. The weight of the ice often causes tree limbs to snap and break. When there are a large number of downed limbs, finding an appropriately sized area to store the debris.

Approximately 87% of ice storms occur during the months of January, February, March and April, when conditions are most conducive for the development of ice and sleet. Ice/sleet storms are considered to be severe weather events, which were given a high priority to address. Both the Isabella Reservation and the Saganing District in Arenac and Iosco Counties remains vulnerable to ice storms and their impact on damages trees, leading to power outages. One way to reduce vulnerability is to trim tree limbs away from power lines to minimize or possibly eliminate power outages due to fallen tree limbs. However, this is a very expensive undertaking due to the number of power lines located throughout the Isabella Reservation and Saganing District.

SNOWSTORMS

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

Hazard Description

As a result of being surrounded by the Great Lakes, Michigan experiences large differences in snowfall in relatively short distances. The annual mean accumulation ranges from 30 to 170 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 and strong winds (35+ miles per hour) bearing enormous amounts of snow. Most of the snow accompanying a blizzard is in the form of fine, powdery particles that are wind-blown 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. Just the cost of clearing the snow can be enormous. Snowstorms can also be dangerous, as heavy snows can shut down roads for a period of time, thereby limited access to many essential needs. If the snowfall is large enough it can also damage roofs of homes and other buildings.

Snowstorm Events

There was a total of 101 storms that were identified in the NCEI database, impacting the SCIT from 1996 to 2020. All the storms were found in one of four snowstorm categories: blizzards, winter storms, winter weather, and heavy snows. Of these events, only four events had reported damages, and no events had human-related injuries/deaths. However, the data from these events may be incomplete as not all damages that may have occurred were reported. Below is a table that identifies the significant storms impacting the SCIT. Due to the nature of winter storms, a significant storm would include those events that have reported damages, as well as closure of roads and/businesses.

Significant Snowstorms Events

Table 4.7

Location	Date	Death	Injuries	Property Damage	Crop Damage
Arenac County (Saganing District)	01/09/1997	0	0	$0	$0
Isabell County (Isabella Reservation)	01/04/1998	0	0	$0	$0

Location	Date	Death	Injuries	Property Damage	Crop Damage
Arenac County (Saganing District)	03/09/1998	0	0	$0	$0
Arenac County (Saganing District)	02/13/2000	0	0	$0	$0
Isabella County (Isabella Reservation)	03/02/2002	0	0	$0	$0
Isabella County (Isabella Reservation)	02/20/2005	0	0	$0	$0
Isabella County (Isabella Reservation)	01/20/2006	0	0	$0	$0
Arenac County (Saganing District)	01/21/2006	0	0	$0	$0
Isabella County (Isabella Reservation)	02/24/2007	0	0	$0	$0
Isabella County (Isabella Reservation)	03/01/2007	0	0	$40,000	$0
Isabella County (Isabella Reservation)	12/11/2010	0	0	$250,000	$0
Arenac County (Saganing District)	02/01/2011	0	0	$0	$0
Isabella County and Arenac County	02/07/2013	0	0	$0	$0
Isabella County (Isabella Reservation)	04/14/2018	0	0	$100,000	$0
Arenac County (Saganing District)	01/12/2020	0	0	$4,000	$0

Source: National Centers for Environmental Information

Following are examples of the four different types of storms (blizzard, heavy snow, winter storm, and winter weather) that have affected the Saginaw Chippewa Indian Tribe at either the Isabella Reservation or the Saganing District properties.

Blizzard-ON 03/09/1998 blizzard conditions swept through Arenac County with winds blowing at 20-30 mph with snowfall between 8-12 inches. Drifts of 3-4 feet resulted in numerous accidents and ultimately many road closures. The heavy snow and high winds brought down many tree branches and power lines resulting in power outages throughout the region.

Blizzard-On 02/24/2019 blizzard conditions developed throughout the Isabella Reservation with moderate to heavy snow and wind gusts of 45 to 50 mph resulting in near zero visibility at times.

Heavy snow-on 02/13/2000 a band of heavy snow fell across central lower Michigan with southern Arenac County (the location of the Saganing District) receiving up to 12 inches of snow.

Heavy snow-On 2/24/2007 heavy snow swept across central lower Michigan, with 12 inches being reported in Isabella County.

Winter storm-On 02/01/2011 the Standish area received approximately 13-14 inches of snow. The snow combined with gusting winds, resulting in drifting snow. It was also reported that there was zero visibility, and the maximum safe driving speed was 5 mph.

Winter Storm-On 12/11/2010 it was reported that portions of the Isabella Reservation area received as much as 10-15 inches of heavy snow causing numerous accidents. Estimated damages resulting from the storm were approximately $250,000.

Winter weather-On 01/04/1998 a cold front swept across lower Michigan. Temperatures fell changing the light rain to freezing rain in Isabella County. Dense fog and icy road conditions resulted in school closings on Monday, January 5th.

Snowstorms Overview

There has been a total of 101 events in the snowstorm category (blizzards, winter storms, winter weather, and heavy snows) from 1/1/1996 to 11/30/2020. This is approximately four winter events year. Based on the number of storm, there is nearly a 100% probability that a winter storm event will occur in any given year. Severe snowstorms affect every Michigan community. While the number of events has not resulted in any reported deaths/injuries on tribal lands, due to the nature of these events snowstorms are considered to be severe weather events, which were given a high priority to address. With the advancement of weather predicting programs, the residents can be given notice ahead of these storms allowing adequate time to take shelter. However, due to the nature of these events, the SCIT is still vulnerable to the impacts of these events (power outages, road closures, school/business closings).

CYBER CRIMES

Cyber Crimes: a malicious and deliberate attempt by an individual or organization to breach the information system of another individual or organization. Usually, the attacker seeks some type of benefit from disrupting the victim's network.[1]

Hazard Description

Cyber-attacks threaten businesses daily and have incrementally increased in recent years. According to Cisco, the total number of cyber-attacks have increased nearly fourfold over a 20-month period from January 2016 to October 2017.[2] These attacks can range from the installation of malware (malicious software) to intentionally cause damage to computers or computer networks to calls to the public and defraud them from the money in their bank accounts.

Cyber Crimes Events

In 2019 a computer bug was imbedded into an email and when that email was opened, computers were shut down. Numerous employees lost use of their computers, NIMKEE, the health department for SCOIT lost patient records for several days, and several departments were without computers for a week. Several servers were shut down.

Cyber Crimes Overview

While some forms of cyberattack occur every day, the main focus of cybercrime mitigation is two-fold. The first concern is at the regional level and is a large-scale event or events that can be inflicted on local SCIT businesses (casinos, hotels, and waterparks or other local business operations) causing widespread hardship to the SCIT members. The second concern are telephone calls that use misrepresentation and prey upon the general public, specifically the elderly or lower income households. A disruption in monthly payment or replenishment would have severe financial hardships and could result in civil disobedience that could quickly overwhelm local resources. With most banking and financial transactions done electronically and are web-based, this is a threat that has been identified as a known concern.

ENERGY EMERGENCIES

Energy Emergencies: An actual or potential shortage of gasoline, electrical power, natural gas, fuel oil, or propane-of sufficient magnitude and duration to potentially threaten public health and safety, and/or economic and social stability.

[1] Cisco Technology

[2] Cicso Technology

Hazard Description

Michigan's citizens are dependent on energy resources to power the public and private utility infrastructure which provide essential life services such as electric power, heating and air conditioning, water, sewage disposal and treatment, storm drainage, communications, and transportation.

Temporary loss of any one source of energy can have devastating consequences. For example, when electric power is lost during periods of extreme heat or cold, people can literally die in their homes if immediate mitigative action is not taken. When the water or waste treatment systems in a community are inoperable, serious public health problems arise that must be addressed immediately to prevent outbreaks of disease. When there is a gasoline shortage (automobile fuel) people can be left stranded and unable to leave their dwellings for shopping trips, doctor trips, or other necessary trips to maintain their household.

Energy Emergency Events

On 12/21/2013 an ice storm hit Central Michigan resulting in power outages in the Isabella Reservation and throughout the region causing numerous homes and businesses to lose power. Because of the extensive coverage of the storm and the hazardous traveling conditions, many homes in the region did not gain their power back for several days.

Energy Emergencies Overview

Most of the SCIT's energy emergencies are the result of major weather events such as floods, windstorms, snow/ice storms. The main infrastructure failures are power outages, which are normally restored in a matter of hours. Due to the potential impact that could result from the energy emergencies, they were given a high priority to address.

STRUCTURAL FIRES

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

Hazard Description

In terms of average annual loss of life and property, structural fires, often referred to as the "universal hazard" because they occur in virtually every community, can have a major impact on many communities in Michigan and across the country. According to the National Fire Protection Association (NFPA) from 2014-2018 the United States averaged, approximately 494,000 structural fires, approximately 2,850 deaths, approximately 12,800 civilian injuries, and approximately $10.5 billion dollars in losses.[3]

In 2018, residential fires represent 75% of all fire deaths, cause 77% of all fire injuries, and 43% of fire losses. The top three causes for residential fires are cooking, at approximately 51%, heating, at approximately 9 %, and unintentional/carelessness at approximately %.[4]

There are challenges to firefighting For the SCIT Fire Department. The first challenge is that the SCIT firefighting staff does not include a full complement of full-time firefighters but is a combination of full-time personnel (10) and paid-on-call firefighters (15). The second challenge is that the Saganing District does not have its own firefighting personnel and is totally reliant of the Standish Area Fire Authority (SAFA). The third challenge is that many of the fire departments that the SCIT has with mutual aid agreements with are also paid-on-call departments. In addition, due to the smaller size of the

[3] National Fire Protection Association, 2021

[4] US.S> Fire Administration, 2021

departments, when there is a multiple alarm fire within the region, multiple agencies have to respond to assist in battling the fire. This can create a strain on the communities should another fire or emergency occur.

Structural Fire Events

There are structural fires annually within both the Isabella Reservation and the Saganing District. Since 1999 there have been 227 fires, including structural fires and car fires. No reported deaths, injuries, or significant damages were reported as a result of these fires. However, multiple these fires did result in damage of a home or a business, leaving the occupant temporarily without a place to live or operate their business. Thus, while the SCIT is susceptible to fires, their vulnerability in recent years has been limited to the loss of property. Even though the vulnerability has been limited to property loss, the risk remains high as a result of human behavior and there is always the threat of human loss of life or injury.

Structural Fires Overview

Structural fires occur every year, beyond the ordinary single-home fires that happen in every community. Since historic areas are less well-fireproofed and tend to have greater densities, the risk of major fire impacts appears to be higher. Because of the impact and potential danger to the community, structural fires were viewed as the hazard that poses the greatest threat to the members of the SCIT and was given a high priority to address.

TORNADOS

Tornado: a violently whirling column of air extending downward to the ground from a cumulonimbus cloud.

Hazard Description

Tornadoes in Michigan are most frequent in 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 tornadoes. A tornado may have winds up to 300 miles per hour and an interior air pressure that is 10 to 20 percent below that of the surrounding atmosphere. The typical length of a tornado path is approximately 16 miles but tracks up to 200 miles have been reported. Tornado path widths are generally less than one-quarter mile wide. Historically, tornadoes have resulted in tremendous loss of life, with a national average of 111 deaths per year. Property damage from tornadoes is in the hundreds of millions of dollars every year in the United States.

Tornado Intensity

Tornado intensity is measured on the Enhanced Fujita Scale, which examines the damage caused by a tornado on homes, commercial buildings, and other man-made structures. The Enhanced 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 tornadoes can be weak, and small tornadoes 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 (see following page for scale.)

The Enhanced Fujita Scale of Tornado Intensity

Table 4.8

F-Scale Number	Intensity Description	Wind Speed (mph)	Type/Intensity of Damage
EF-0	Gale tornado	65-85 mph	**Light damage**. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1	Moderate Tornado	86-110 mph	**Moderate damage.** The lower limit is the beginning of hurricane wind speed; roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2	Strong Tornado	111-135 mph	**Considerable damage.** Roofs torn off well-constructed houses; foundation of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3	Severe Tornado	136-165 mph	**Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; foundations blown away some distance.
EF-4	Devastating tornado	166-200 mph	**Devastating damage.** Whole frame houses, well-constructed houses and whole frame houses completely leveled; cars thrown, and small missiles generated.
EF-5	Incredible Tornado	200 mph+	**Incredible damage**. Strong frame houses lifted off foundations and carried considerable distances; automobile sized missiles fly through the air in excess of 100 meters; high-rise buildings have significant structural deformation; incredible phenomena will occur.

Source: Storm Prediction Center

Significant Tornado Events

Table 4.9

Location	Date	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Weidman (Isabella Reservation)	06/21/1996	F1	0	0	$500,000	$0
City of AuGres (Saganing District)	07/02/1997	F1	0	1	$0	$0
Vernon Twp (Isabella Reservation)	10/06/1998	F0	0	0	$30,000	$0
Mt Pleasant (Isabella Reservation)	07/23/1999	F0	0	0	$10,000	$0
City of Shepherd (Isabella Reservation)	05/21/2001	F1	0	1	$150,000	$0
City of Standish (Saganing District)	07/09/2007	EF-0	0	0	$15,000	$1,000
City of Pinconning (Saganing District)	07/08/2016	EF-0	0	0	$10,000	$0

Source: National Centers for Environmental Information

Tornado Events

There have been seven (7) reported tornado events impacting the Saginaw Chippewa Indian Tribe (SCIT) property between 1996 and 2020. Of these events, six (6) events resulted in $10,000 or more in damages, totaling more than $716,000 in reported damages. (However, it should be mentioned that damages In AuGres were reported, but damage amounts were not. One injury was reported during this time period, but no deaths were reported. Of these seven tornadoes, three had an F-1rating, and the remaining four had an F-0 or EF-0 rating.

On 04/03/1988 the roof was torn off of a mobile home and a 2-ft diameter tree fell on the house injuring the six occupants. Damages totaled $25,000. (This event took place prior to the reporting period.)

On 06/21/1996 in Weidman, a census-designated place located in the western portion of the Isabella Reservation, an F-1 tornado down numerous trees, damaged three homes, and destroyed numerous outbuildings, including four barns. Estimated damages were $500,000. No deaths or injuries were reported.

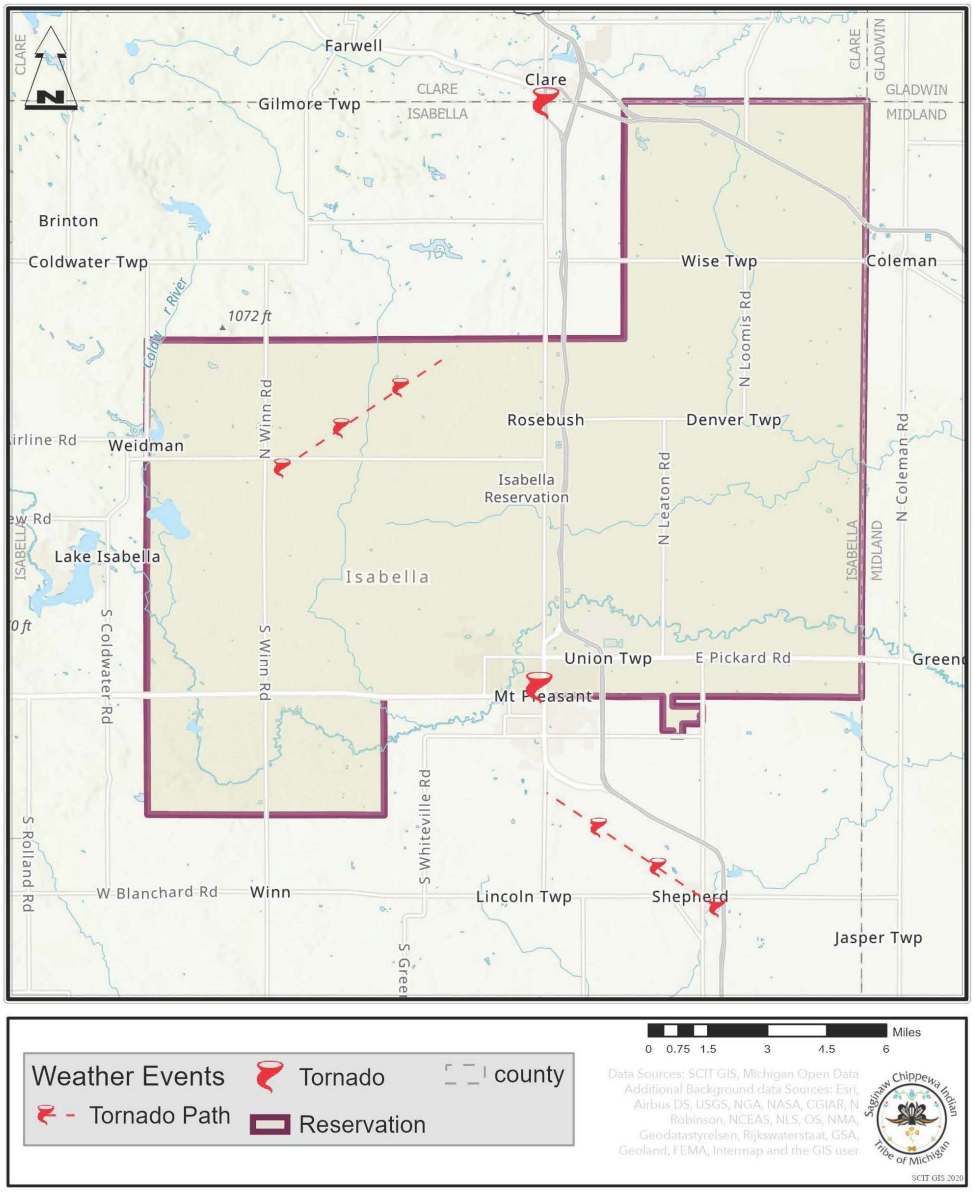
On 07/02/1997 south of AuGres, a city northeast of the Saganing District, an F1 tonada touched down. Three homes were destroyed, and several others damaged to varying degrees. One injury was reported. No specific information was available regarding the injury or the damages.

On 10/06/1998 in Vernon Township, in the Isabella Reservation, an F0 tornado touched down. Estimated damages were $30,000. No deaths or injuries were reported.

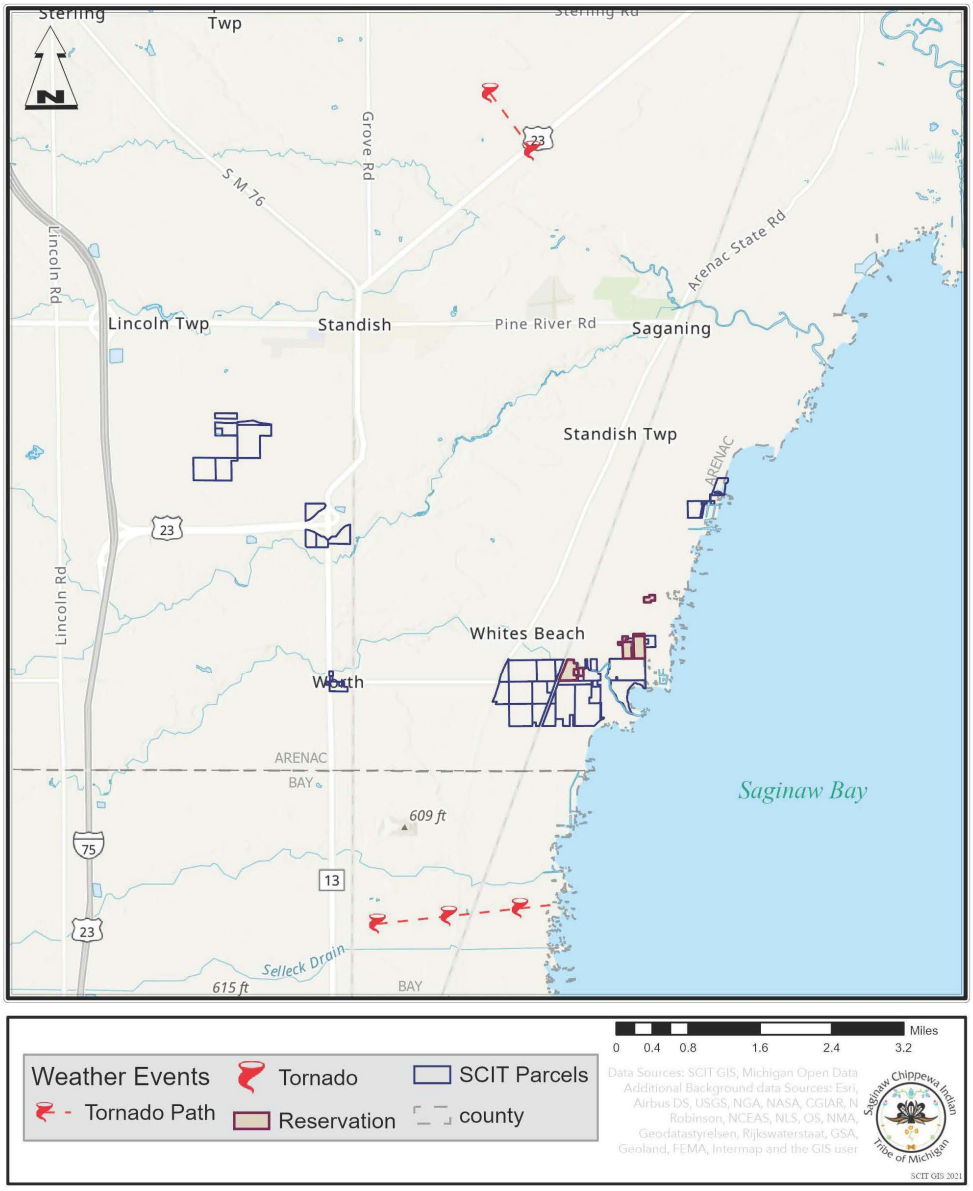
On 05/21/2001 immediately south of the Isabella Reservation, an F1 tornado touched down leaving a 4-mile path, 40 yeads in width of destruction. Winds of 80 mph were recorded. One person was injured with his car was forced off the road by the winds. Damages included a small radio tower being blown down, a barn suffered heavy damages, including the roof being carried more than 100 yards away. Damages of $150,000 were reported.

Significant Tornado Events on the Isabella Reservation

Map 4.5



Significant Tornado Events on the Saganing District
Map 4.6



Tornadoes Overview

There was a total of six (6) reported tornadoes impacting SCIT property from 1996 to 2020. The SCIT has experienced six tornadoes from 1996 to 2020 or about one event every 4 years. The probability of a tornado event occurring would be 24% in any given year. Tornadoes are considered to be a severe weather activity, which was given a high priority to address. To reduce the vulnerability of tornados, the SCIT staff is looking to utilize multiple warning systems to alert the residents, employees, and visitors in both the Isabella Reservation and the Saganing District.

RIVERINE FLOODING

For the purposes of this document, riverine flooding will include both fluvial flooding (riverine) and pluvial flooding. Fluvial flooding-the overflow of rivers, streams, drains and lakes due to excessive rainfall, rapid snowmelt or ice jams and dam failures. Pluvial flooding-flooding events caused by extreme rainfall.

Hazard Description

Flooding of land adjoining the normal course of a stream or river has been a natural occurrence since the beginning of time. If these floodplain areas were left in their natural state, floods would not cause significant damage. Development has increased the potential for serious flooding because rainfall that used to soak into the ground or take several days to reach a river or stream via a natural drainage basin now quickly runs off streets, parking lots, and rooftops, and through man-made channels and pipes.

Pluvial flooding can occur as a result of several causes. Flooding can be a result of multiple reasons, several of which, include: an extremely heavy rainfall where the ground becomes saturated and can longer absorb the water; urban drainage systems are overloaded by excessive water flow; or lowlands that are inadequately drained.

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.

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-areas that are often not in a floodplain. That 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 water backing into basements, which damages mechanical systems and can create serious public health and safety concerns.

Ice Jams

Cold winters like those experienced ion Mid-Michigan can produce thick river ice and the potential for ice jams. An ice jam develops when pieces of snow and ice buildup along a river. As the ice buildup increases, water passes slowly, and flooding develops behind the dam of ice. Water levels can also rise rapidly when temperatures rise and result in snowmelt runoff or rain, thus adding more water to the river behind an ice jam.

In the spring, or when temperatures rise, the ice buildup will thaw and break up, and may unleash all of the dammed-up water in a short period of time. When this occurs, flooding can rapidly result downstream from the ice jam. The combination of ice, debris, and water released from the ice jam can cause tremendous physical damage to homes, docks, and other structures. Ice jams have occurred in both the

Isabella Reservation area (Chippewa River) and the Saganing District (Saganing River).

Average Monthly Precipitation
2007-2019
Table 4.10

Month	Isabella Reservation		Saganing District	
	Monthly Average Rainfall (in inches)	Monthly Average Snowfall (in inches)	Monthly Average Rainfall (in inches)	Monthly Average Snowfall (in inches)
January	1.68	14.4	1.59	13.1
February	1.44	9.8	1.39	8.6
March	1.97	6.9	1.85	6.5
April	3.23	1.8	2.86	1.1
May	3.19	0.0	3.25	0.1
June	3.44	0.0	3.36	0.0
July	2.87	0.0	2.95	0.0
August	3.33	0.0	3.81	0.0
September	3.23	0.0	3.36	0.0
October	3.07	0.4	2.54	0.2
November	2.75	3.2	2.51	2.7
December	2.14	11.0	1.72	10.9
Annual Average	32.34	47.4	31.19	43.2

Source: National Weather Service

It should be noted that the Isabella Reservation area receives slightly more rainfall annually than does the Saganing District, 1.15 inches or about 3.7 percent more; however, the snowfall at the Isabella Reservation is 4 inches or about 9.7 percent more than at the Saganing District.

Riverine Flooding Events

The NCEI has reported that 30 floods/flash floods have occurred in either the Isabella Reservation or Saganing District from 1996 to 2020. According to the information provided by the NCEI no deaths or injuries were reported as a result of these floods, and the reported property and crop damages were in excess of $104 million. Several of the flooding events during this time period were declared national disasters as were several events from 1972 to 1986. There are seven (7) flood events with damages in excess of $100,000 since 1996. These events are identified in the table on the following page.

Significant Flood Events[5]

Table 4.11

Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Isabella County (Isabella Reservation)	05/23/2004	0	0	$1,000,000	$200,000
Isabella County (Isabella Reservation)	07/16/2008	0	0	$100,000	$50,000
Isabella County (Isabella Reservation)	08/11/2010	0	0	$4,000,000	$0
Isabella County (Isabella Reservation)	04/17/2013	0	0	$3,000,000	$0
Isabella County (Isabella Reservation)	06/23/2017	0	0	$70,000,000	$21,000,000
Isabella County (Isabella Reservation)	05/18/2020	0	0	$100,000	$0
Arenac County (Saganing District)	05/18/2020	0	0	$4,400,000	$0

Source: National Centers for Environmental Information

On 09/10 to 09/19/1986 major flooding occurred throughout mid-Michigan. This was reportedly the worst flood in 50 years. Presidential and governor declarations were issued due to the flooding. Rainfall in excess of 10 inches fell during the three-day period of September 10-12th. Damages for the state were estimated to be between $400 and $500 million, but personal belongings were not included in the estimate. Furthermore, more than 100 people were injured statewide due to the flood and a minimum of 10 people lost their lives directly or indirectly to the flooding.[6]

On 08/11/2010 over 4 inches of rain fell in 2 ½ hours resulting in flooded and washed-out roads, over a foot of water on some of the roads in Mt Pleasant. Damages were estimated at over $4 million.

On 06/23/2017 over 7 inches of rain fell on Isabella County, including all of the Isabella Reservation. Flooding that resulted from the rain resulted in over $90 million in damages, that included $21 million in damages in crops. Over 100 roads were closed in the County. The event was identified as a major disaster through a presidential declaration.

On 05/18/2020 over 7 inches of rain fell on southern Arenac County causing all the rivers to flood, several of them over their banks. Numerous roads were closed, with several of them washed out. Flood waters rose near the casino/hotel. The event was identified as a major disaster through a presidential declaration.

Riverine Flooding Overview

Thirty (30) flood incidents were reported by the NCEI between 1996 and 2020 that impacted the Saginaw Chippewa Indian Tribe (SCIT) property either on the Isabella Reservation in Isabella County or the Saganing District located in Arenac County. This is an average of 1.2 events per year, and an approximate probability of 100% to occur in any given year. The SCIT is not participating in the National Flood Insurance Program (NFIP). The SCIT properties are vulnerable to flooding and as a result they have identified flooding as a high priority hazard. As a result of their concern regarding flooding, they have included measures in this

[5] Flooding events were limited to the reporting period of 1996-2020. The reported event on 09/10/1986, which was prior to the reporting period was identified following the table as it was a major flood that impacted much of central Michigan.

[6] Flooding events were limited to the reporting period of 1996-2020. The reported event on 09/10/1986, which was prior to the reporting period was identified following the table as it was a major flood that impacted much of central Michigan.

plan to reduce their vulnerability to these events.

HAZARDOUS MATERIAL INCIDENTS/FIXED SITE

Hazardous Material Incident: an uncontrolled release of hazardous materials from a fixed site, capable of posing a risk to health, safety, property, and the environment.

Industrial Accidents-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.

Hazard Description (Hazardous Material Incidents)

Hazardous materials are present in quantities of concern in business and industry, agriculture, universities, hospitals, utilities, and other community facilities. Hazardous materials are materials or substances which, because of their chemical, physical, or biological nature, pose a potential threat to life, health, property and the environment if they are released. Examples of hazardous materials include corrosives, explosives, flammable materials, radioactive materials, poisons, oxidizers, and dangerous gases.

Hazardous materials are highly regulated by the government to reduce risk to the general public, property and the environment. Despite precautions taken to ensure careful handling during the manufacture, transport, storage, use and disposal of these materials, accidental releases are bound to occur. Areas at most risk are within a 1-5-mile radius of identified hazardous material sites. Many communities have detailed plans and procedures in place for responding to incidents at these sites, but release can still cause severe harm to people, property, and the environment if proper mitigative action is not taken in a timely manner.

Amendments and Reauthorization Act (SARA), Title II

There are currently 5 Sites in Sanilac County designated SARA Title III, Section “302 Sites”. These sites are required to have an emergency plan on file with the Local Emergency Planning Commission, Fire Department, and their facility. All 5 “302 Sites” in Sanilac County have an emergency plan on file with the Local Emergency Planning Committee and their individual Fire Departments.

The meetings that were held in the county, attendees and the emergency manager expressed some concern for the safety and security of propane storage sites. The county would like to improve security and inventory the sites for the future safety of the residents. 302 Sites maps are located at the end of this section. (Buffer Zones for 302 Sites are half-mile radius.)

Hazard Description-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 are often confined to the site or facility itself, with 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.

Hazardous Material Incidents/Industrial Accident Events

On 10/15/98 a power outage occurred, causing the washing machines to go into default mode, which resulted in chemicals being mixed incorrectly, creating chlorine gas. There were , 50+ employees affected

by the gas. A decontamination center was created, and all impacted employees were decontaminated and washed.

Hazardous Material Incidents/Industrial Accidents Overview

Like all heavily industrialized states, Michigan will always be concerned with the risk of accidental hazardous material releases. However, the threat of accidental hazardous material releases that can affect life, health, property or the environment can be greatly reduced by: 1) developing and maintaining adequate community hazardous material response plans and procedures; 2) adequately training hazardous material workers and off-site emergency responders; 3) educating the public about hazardous materials safety; 4) enforcing basic hazardous material safety regulations; and 5) mitigating, wherever possible, the threat of accidental hazardous material releases. Fortunately, many Michigan communities are making great strides in these important areas.

HAZARDOUS MATERIAL INCIDENTS/TRANSPORTATION

Hazard material incident: an uncontrolled release of hazardous materials during transport, capable of posing a risk to health, safety, property, or the environment.

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 through local communities. A transportation accident involving any one of those hazardous material shipments could cause a local emergency affecting many people.

Michigan has had numerous hazardous material transportation incidents that affected 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 whole new 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 as well. Statistics show 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.

Hazardous Material-Transportation Events

On 08/07/2019 a garbage truck spilled hydraulic fluid, which caught on fire. Fortunately, the spill occurred in front of the fire station. Waste Management, the owner of the truck came out and cleaned up the spill. No injuries or deaths were reported due to the event.

Hazardous Material Incidents: Transportation Overview

Although there have not been any significant hazardous materials transportation incidents, there have been several minor hazardous materials spills throughout the years. Most major roads within the SCIT property are primarily two lanes, however, there are several state roads that are four lane roads. The primary routes can be heavily congested in the summer months due to summer travelers, and they can be icy or impassible in the winter. It is certainly only a matter of time before a serious hazardous materials incident occurs on a county roadway, railway, or waterway. Because of the dangers that could arise from these accidents, they were given a high priority.

MEDIUM PRIORITY HAZARDS

EXTREME TEMPERATURES/COLD TEMPERATURES

Extreme cold temperatures-prolonged periods of very low temperatures often accompanied by exacerbating conditions such as heavy snowfall and high winds.

Hazard Description

Extreme temperatures – whether it be extreme heat or extreme cold – share a commonality in that they both primarily affect the most vulnerable segments of society such as the elderly, children, impoverished individuals, and people in poor health. The major threats of extreme cold are hypothermia (also a major medical emergency) and frostbite.

Arenac County (Saganing District), which is located on Lake Huron is susceptible to variations in temperature. The temperate climate of southern Michigan, combined with the unsettling effect of Lake Huron, make for extreme deviations in temperature. 50-degree swings in the temperature in a 24-hour period are not uncommon. These events occur regularly depending on the year.

Prolonged periods of extreme cold can pose severe and often life-threatening problems for SCIT members. 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 as a result of severe cold temperature-related causes. This is substantially higher than the average of 170 heat-related deaths each year. 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 be convincingly argued that, were it not for the extreme cold temperatures, death in many cases would not have occurred at the time it did from the illness or disease alone.

Hypothermia (the unintentional lowering of core body temperature), and frostbite (damage from tissue being frozen) are probably the two conditions most closely associated with cold temperature-related injury and death. Hypothermia is usually the result of over-exposure to the cold and is generally thought to be clinically significant when core body temperature reaches 95 degrees or less. As body temperature drops, the victim may slip in and out of consciousness, and appear confused or disoriented. Treatment normally involves re-warming the victim, although there is some controversy in the medical community as to exactly how that should be done. Frostbite rarely results in death, but in extreme cases it can result in amputation of the affected body tissue.

Extreme Cold Events

There have been four (4) extreme cold events reported by the NCEI for the Saginaw Chippewa Indian Tribe (SCIT) in either Isabella or Arenac County from 1996 to 2020. These events are widespread and not site specific. Each of these events would have impacted large areas of the Isabella Reservation and/or the Saganing District. There were no reported deaths or injuries due to these events, nor was there any reported damages to personal property.

On 02/04/2007 experienced below zero temperatures with gusting winds producing wind chills between 20 and 30 below zero. Due to the cold and drifting snow, many of the schools in the region were closed on the 5th.

On 01/31/2019 a major blast of arctic air that spread statewide across the State of Michigan, coupled with

lake effect snow resulted in the SCIT closing down all tribal operations. Heating shelters were set up at both the Soaring Eagle Casino in Mt Pleasant and the Saganing Eagles Landing Casino in Arenac County.

Extreme Cold Overview

Four (4) extreme cold events were reported by the NCEI for the SCIT properties between 1/1/1996 11/30/2020, or about one event every 4.25 years. The probability of a cold event occurring in a given year is about 24%. While there have been minimal conditions with excessive cold, cold events occur annually in central Michigan and pose a risk to the residents. Unfortunately, many of those most vulnerable to this hazard (children, elderly, homeless individuals, and the critically ill) may not have access to sufficiently heated environments. Excessive cold is considered to be a medium priority to address.

EXTREME TEMPERATURES/HOT TEMPERATURES

Extreme warm temperatures: prolonged periods of very high temperatures often accompanied by exacerbating conditions such as high humidity and lack of rain.

Hazard Description

Extreme temperatures – whether it be extreme heat or extreme cold – share a commonality in that they both primarily affect the most vulnerable segments of society such as the elderly, children, impoverished individuals, and people in poor health. The major threats of extreme heat are heatstroke (a major medical emergency), and heat exhaustion. Extreme heat is a more serious problem in urban areas, where the combined effects of high temperature and high humidity are more intense.

Arenac County (Saganing District) is susceptible to extreme heat. The temperate climate of southern Michigan, combined with the unsettling effect of Lake Huron, can make for extreme deviations in temperatures. Swings of 50-degrees in temperatures over a 24-hour period can occur. Extreme temperature swings can occur regularly depending on the year.

Prolonged periods of extreme heat can pose severe and often life-threatening problems for SCIT members. Extreme summer weather is characterized by a combination of very high temperatures and 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 (a major medical emergency), and heat exhaustion. Heatstroke often results in high body temperatures, and the victim may be delirious, or can become comatose. Rapid cooling is critical to preventing permanent neurological damage or death. Heat exhaustion is a less severe condition than heatstroke, although it can still cause problems involving dizziness, weakness, and fatigue. Heat exhaustion is often the result of fluid imbalance due to increased perspiration in response to the intense heat. Treatment generally consists of restoring fluids and staying indoors in a cooler environment until the body temperature returns to normal. Other, less serious risks associated with extreme heat are often exercise-related and include heat syncope (a loss of consciousness by persons not acclimated to hot weather), and heat cramps (an imbalance of fluids that occurs when people unaccustomed to heat exercise outdoors).

Extreme Heat Events

One (1) extreme heat event was reported by the CNEI for the SCIT from 1996 to 2020. The event was widespread and impacted both the Isabella Reservation and the Saganing District regions.

On 06/30/2018 very hot, humid weather occurred in southern/mid-Michigan. Temperatures reached the middle 90's and coupled with the high humidity, dew points reached the middle 70's and the heat index rose to 105 degrees. (At the dew point, the air cannot hold any more water. The higher the dew point the

muggier it will feel.[7]

Extreme Heat Overview

One (1) extreme heat event was reported by the NCEI for both the Isabella Reservation and Saganing District 1996 and 2020 or about one every twenty-five years. These events have 4% chance occurring in any year. While there has only been one instance when excessive heat conditions were met, high heat events occur annually in at both the Isabella Reservation and Saganing District, which could become a risk to the tribal members and/or visitors. Air conditioning is probably the most effective measure for mitigating the effects of extreme summer heat on people. Unfortunately, many of those most vulnerable to this hazard (children, elderly, and homeless individuals, and the critically ill) do not have access to air-conditioned environments. Excessive heat is considered to be a medium priority to address.

WELL/PIPELINE INCIDENTS

OIL/GAS WELL INCIDENTS

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

Hazard Description

Oil and natural gas are produced from fields scattered across 63 counties in the Lower Peninsula. Since 1925 over 44,000 oil and natural gas wells have been drilled in Michigan, of which roughly half have produced oil and gas. To date, Michigan wells have produced approximately 1.4 billion barrels of crude oil and 4 trillion cubic feet of gas.

The petroleum and natural gas industry are highly regulated and has a fine safety record, but the threat of accidental releases, fires and explosions still exists. In addition to these hazards, many of Michigan's oil and gas wells contain extremely poisonous hydrogen sulfide (H_2S) 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 H_2S levels exceeding 300 parts per million (ppm).

As the table below indicates, at concentrations of 700 ppm, as little as one breath of hydrogen sulfide can kill. Although hydrogen sulfide can be detected by a "rotten egg" odor in concentrations from .03 ppm to 150ppm, 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 well site, but also with the kinds of materials that are safe for use in sour gas well response.

[7] www.weather.gov

Physiological Response to Hydrogen Sulfide Gas (H_2S)

TABLE 4.12

10ppm	Beginning eye irritation
50-100 ppm	Slight conjunctivitis and respiratory tract irritation after 1-hour exposure
100 ppm	Coughing, eye irritation, loss of sense of smell after 2-15 minutes. Altered respiration, pain in the eyes and drowsiness after 15-30 minutes followed by throat irritation after 1 hour. Several hours of exposure results in gradual increase in severity of these symptoms and death may occur within the next 48 hours.
200-300 ppm	Marked conjunctivitis and respiratory tract irritation after 1 hour of exposure.
500-700 ppm	Loss of consciousness and possibly death in 30 minutes to 1 hour.
700-1000 ppm	Rapid unconsciousness, cessation of respiration and death.
1000-2000 ppm	Unconsciousness at once, with early cessation of respiration and death in a few minutes. Death may occur even if the individual is removed to fresh air at once.

Oil and Gas Well Accidents Overview

As a general rule, most gas companies prefer to respond to incidents involving their wells themselves – and in the vast majority of cases that is what happens. Because gas companies often have controlled burns, and deal with wells on a daily basis, it is impossible to ascertain how many incidents have actually occurred in the county. However, there is still the possibility that an emergency response agency could find themselves in the situation of responding to an incident at a gas well. Responders must understand the dangers associated with HS2 and must have a working knowledge of these wells that are in their areas of responsibility. These events were given a medium priority, due to the lack of reported events.

PIPELINE (PETROLEUM AND NATURAL GAS) INCIDENTS

Petroleum and natural gas pipeline accident: an uncontrolled release of petroleum or natural gas, or the poisonous by-product hydrogen sulfide, from a pipeline.

Hazard Description

Though often overlooked, petroleum and natural gas pipelines pose a real threat in many Michigan communities. Petroleum and natural gas pipelines can leak or fracture and cause property damage, environmental, contamination, injuries, and even loss of life. The vast 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.

Michigan is both a major consumer and producer of natural gas and petroleum products. According to the Michigan Public Service Commission (MPSC), approximately 25% of the natural gas consumed in Michigan is produced within the state. The remaining 75% 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 ranks 11th in the nation in production of natural gas and ranks 6th in consumption at 937.2 billion cubic feet. Michigan's petroleum product consumption in 1997 was 189 million barrels, ranking it 10th nationally. These figures underscore the fact that vast quantities of petroleum and 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, 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.

While it is true that the petroleum and natural gas industries have historically had a fine safety record, and that pipelines are by far the safest form of transportation for these products, the threat of fires, explosions, ruptures, and spills nevertheless exists. In addition to these hazards, there is the danger of hydrogen sulfide (H2S) release. These dangers (fully explained in the Oil and Natural Gas Well Accidents section) can be found around oil and gas wells, pipeline terminals, storage facilities, and transportation facilities where the gas or oil has a high sulfur content. Hydrogen sulfide is not only an extremely poisonous gas but is also explosive when mixed with air at temperatures of 500 degrees Fahrenheit or above.

Petroleum and Natural Gas Pipeline Events

There have been no significant events that have occurred in recent years.

Petroleum and Natural Gas Pipeline Accidents Overview

There are several petroleum and natural gas pipelines running throughout the SCIT property, both on the Isabella Reservation on/near the Saganing District parcels. Because petroleum and natural gas pipeline accidents are an inevitable occurrence, affected local communities must be prepared to respond to the accident, institute necessary protective actions, and coordinate with federal and state officials and the pipeline company emergency crews to effectively manage and recover from the accident. That can best be accomplished through collaborative planning, training, and exercising of emergency procedures with all potentially involved parties. Due to the relatively small number of miles of pipelines, and lack of significant injuries, this hazard was given a medium priority to address.

GREAT LAKES SHORELINE FLOODING & EROSION

SHORELINE EROSION

Shoreline Erosion: is the loss or displacement of land, or the long-term removal of sediment and rocks along the shoreline due to the action of the waves, currents, tides, wind-driven water, waterborne ice, or other impacts of storms.

Hazard Description

Erosion along Michigan's 3,200-mile-long Great Lakes shoreline is typically caused by high Great Lakes water levels, storm surges, or high winds. Shoreline erosion is a natural process that can occur at normal and even low Lake Huron water levels. During periods of high water; however, erosion is more frequent and can cause damage to structures along the Lake Huron shoreline. Windstorms and differences in barometric pressure can temporarily tilt the surface of a lake up at one end as much as 8 feet. This phenomenon is called a storm surge and can drive lake water inland over large areas. In recent years, the water level has been higher, which has put the properties along the Lake Huron shores at greater risks.

In nearly every decade, high water levels on the Great Lakes have caused significant damage and impact to Michigan coastal communities. Prior to the current high-water levels, the most recent high-water period began in 1997 and resulted in the Great Lakes being at or near record levels set in the mid-1980's. In response to the threat of severe shoreline flooding and erosion, the U. S. Army Corps of Engineers (USACE), at the request of the Governor, implemented its Advance Measures Program to assist Michigan shoreline communities in their flood and erosion mitigation efforts. The USACE implemented its Advance

Measures Program and the State of Michigan implemented three shoreline flooding and erosion mitigation programs aimed at reducing future flood impacts on shoreline communities and homeowners. To date, over 20 Michigan Jurisdictions have taken advantage of this program.

There are multiple structures are built on or near the Lake Huron shoreline on property owned by the SCIT. As new structures are built close to the shoreline, the potential risk for damage will always remain probable. To date, a Presidential or Governor's disaster declaration has not occurred in the county, however, the risk remains due to the existence of Lake Huron and its history of water level fluctuations. Should this happen, even though the potential for loss of life is low, the potential for economic loss is high which makes this hazard a medium vulnerability.

SHORELINE FLOODING

Shoreline Flooding: normally occurs when dry and low-lying land is submerged by lake water.

Hazard Description

Flooding along Michigan's 3,200-mile-long Great Lakes shoreline is typically caused by high Great Lakes water levels, storm surges, or high winds. Shoreline flooding is a natural process that occur at normal and even low Lake Huron water levels. During periods of high water, however, flooding can be more frequent and serious causing damage to structures built along the shoreline. Windstorms and differences in barometric pressure can temporarily tilt the surface of a lake up at one end as much as 8 feet. This phenomenon is called a storm surge and can drive lake water inland over large areas. In recent years, the water level has been higher, which has put the properties along the Lake Huron shores at greater risks.

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Shoreline Flooding/Erosion Events

According to NCEI there were no shoreline flooding/erosion events from 1996 to 2020.

Shoreline Flooding Overview

Even though no events were reported by NCEI, with the recent higher lake levels and more frequent/higher intensity storms in recent years, the probability of an event occurring in future years is possible. No damages or injuries have been reported. Due to the lack of occurrences, but potential to cause damages due to flooding/erosion this was given a medium priority to address.

WIND-BLOWN ICE FLOES

Wind-blown Ice Floes: An ice floe driven on shore by winds in a large body of water.

Hazard Description

A sheet of ice can form on waters surfaces when the temperature falls below 0 degrees Celsius or 32 degrees Fahrenheit. As the temperature remains below the freezing point of water, the ice will thicken. When the temperature warms up and it becomes windy the ice may break up. At this point, should the ice break into large sections, these sections can then move about on the body of water. An Ice floe is formed when a section of the ice breaks away and flows apart from the main body of ice.

Wind-blown ice floes are just sections of ice separated from the rest of the ice on a body of water and carried away by the tide and wind. These floes become dangerous when they are blown into the shore and onto land and/or structures. They can also be a concern when they are blown out into the body of water and there are people or other animals on the ice floe. These events usually occur during the spring thaw or during a warm stretch of weather in the winter.

Wind-Blown Ice Floe Events

With limited property located on Lake Huron, there has been no significant ice floe events impacting SCIT property.

Wind-Blown Ice Floe Overview

Even though no events were reported by NCEI or by the SCIT staff, with the recent higher lake levels and more frequent/higher intensity storms in recent years, the probability of an event occurring in future years is possible. Due to the lack of occurrences, but potential to cause major damage to shoreline properties this was given a medium priority to address.

PUBLIC HEALTH EMERGENCIES

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.

Hazard Description

Public health emergencies can take many forms: 1) disease epidemics/pandemics; 2) large-scale incidents of food or water contamination; 3) extended periods without adequate water and sewer services; 4) harmful exposure to chemical, radiological, or biological agents; 5) large scale infestations of disease-carrying insects or rodents. Public health emergencies can occur as primary events by themselves, or they may be secondary events another disaster or emergency, such as flood, tornado, or hazardous material incident. 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. Public health emergencies can be statewide, regional, or localized in scope and magnitude.

An emerging public health threat would be the intentional release of a radiological, chemical, or biological agent with the potential to adversely impact a large number of people. Such a release would most likely be an act of sabotage aimed at the government or at a specific organization or segment of the population. Fortunately, Michigan has not yet experienced such a release aimed at mass destruction.

Public Health Emergencies

The most common type of public health emergency involves influenza that spreads through educational

institutions, the workplace and other entities that experience a large volume of public traffic. Influenza typically kills between 200 and 500 individuals in Michigan alone and has the potential to change its structure and rapidly affect large populations.

Occurrences of influenza and disease are common to residents, students, and visitors to the Isabella Reservation and Saganing District properties and typically impact only a small portion of the population. Although most of public health related events occur in schools and are quickly managed, the potential does exist for these events to rapidly spread to adjacent populations.

Most public health emergencies within the SCIT community impact only a small number of individuals and occur more than once annually. The potential for these events to continue is high and can be effectively managed. However, increased public awareness of potential outbreaks of influenza or other disease has also raised the real possibility that a large-scale event could occur. For this reason, development and testing of surveillance systems and integrated planning between local, state, and federal sources continues to receive much-needed attention.

One of Michigan's most serious emergencies to hit Michigan occurred in 1973 when a local farmer fed polybrominated biphenyls (PBB) laced feed to his dairy herd. Michigan Chemical Corporation had accidentally supplied the Michigan Farm Bureau Services with sacks of fire-proofing chemical PBB, which is known to cause cancer, genetic mutation, and birth defects, and the PBB was inadvertently substituted for magnesium oxide (commonly used in antacid tablets used for human consumption) in a custom dairy feed # 402. During the crucial eight-month period between the farmer's first observations and the discovery of the accident, serious contamination had already occurred. By 1975 the state had quarantined more than 500 farms. Condemned for slaughter were more than 17,000 cattle; 3,415 hogs; 1.5 million chickens and 4.8 million eggs. The 1973 PBB contamination incident is unprecedented in U.S. history, but the long-term implications of contamination may be less than was feared.

In the 1980s, the state health department confirmed that 95 percent of Michigan's population had PBB in their bodies from eating beef, drinking milk or consuming other products from contaminated farms. A cancer epidemic was feared. Although one has not occurred, so far anyway, studies do show the most exposed families have increased breast and digestive cancer, and lymphoma. Among the effects observed in the exposed populations the daughters of the most highly exposed women began menstruation, on average, before they reached their twelfth birthdays, which is slightly earlier on the average than most girls. ("In the United States, the average age of menarche, the onset of menstruation is 12.8 years; most girls begin menstruating between the ages of 11 and 14, but the normal range extends from 9 to about 17 years."

In 2001, Michigan health officials were introduced to the emerging health threats posed by foot-and-mouth disease and the West Nile encephalitis virus. Although foot-and-mouth disease is a highly contagious disease that only affects animals, a widespread outbreak such as that which occurred in parts of the United Kingdom in the spring of 2001 could have significant public health implications for humans as well, due to the potentially large numbers of dead animal carcasses that would have to be disposed of to prevent disease outbreaks. The Michigan Department of Agriculture and Rural Development, in conjunction with numerous other federal, state, and local agencies and the agriculture industry, continues to monitor the foot-and-mouth disease situation and take the necessary steps to prevent the introduction and spread of the disease in the United States.

Public Health Emergency Events
In 2009/10 the H1N1 virus (swine flu) threatened the health of the residents throughout the US.

In March 2020, the World Health Organization (WHO) declared that the COVID-19 virus to be a global pandemic. COVID1-9 and its variants (at the time of this writing, the fourth variant, Delta, is rampant through the US. AS of September 10,2021, the SCIT staff conducted over 2,500 tests with 480 tests being positive. The staff also administered a total of 3,557 vaccinations. As of October 5, 2021, the total deaths in the U.S. have exceeded 722,000 and the number of cases has exceeded 44,600,000.

Public Health Emergency Overview
Michigan has had several large-scale public health emergencies in recent history; however, only the COVID-19 pandemic causing widespread severe injury or death in the Isabella Reservation and Saganing District.

MODERATE PRIORITY HAZARDS

SABOTAGE (TERRORISM)
Sabotage (terrorism): an intentional, unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives.

Hazard Description
Sabotage/terrorism can take many forms or have many vehicles for delivery, including: 1) bombings; 2) assassinations; 3) organized extortion; 4) use of nuclear, chemical, radiological, and biological weapons; 4) information warfare; 6) ethnic/religious/gender intimidation (hate crimes); 7) state and local militia groups that advocate overthrowing the U.S. Government; 8) eco-extremism, designed to destroy or disrupt specific research or resource-related activities; and 9) widespread and organized narcotics smuggling and distribution organizations. Because sabotage/terrorism objectives are so widely varied, so too are the potential targets of such actions. Virtually any public facility or infrastructure, or place of public assembly, can be considered a potential target. In addition, certain types of businesses engaged in controversial activities are also potential targets, as are large computer systems operated by government agencies, banks, financial institutions, large businesses, health care facilities, and colleges/universities.

One of the first acts of domestic sabotage/terrorism ever carried out occurred in Michigan on May 18, 1927, in Bath. A disgruntled taxpayer and farmer detonated 1,000 pounds of explosives under the newly constructed Bath Consolidated School killing 38 students and 3 teachers and injuring 58 others. The perpetrator then blew himself up, along with the school superintendent. As tragic as that event was, it could have been worse were it not for the fact that half of the explosives failed to detonate as planned, which certainly would have killed many more students and teachers. Concentrated activities to prevent terrorist activities have become even more vital with the passage of time and in the wake of the 9/11 events of destruction in New York City and Washington D.C. Many more resources may anticipate being mobilized to prevent terrorist activities in the near future.

Although at first it might appear Sanilac County is an unlikely target for terrorism, it cannot be totally discounted. Potential targets include the dams, the water treatment plant, the runways at the airports, and all industrial sites in the area. Furthermore, any government building, school, or individual can become a target of domestic terrorism.

Sabotage and Terrorism include a broad range of potential hazards that affect a community from a variety of perspectives. This hazard is defined as an intentional, unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives. Sabotage/terrorism can take many forms or have many vehicles for delivery, including: 1) bombings; 2) assassinations; 3) organized extortion; 4) use of nuclear, chemical, radiological, and biological weapons; 5) information warfare; 6) ethnic/religious/ gender intimidation (hate crimes); 7) state and local militia groups that advocate overthrowing the U.S. Government; 8) eco-extremism, designed to destroy or disrupt specific research or resource-related activities; and 9) widespread and organized narcotics smuggling and distribution organizations.

Sabotage/Terrorism Events

There have been several sabotage/terrorism events impacting the membership of the SCIT. Most of the events were focused on the two casinos, located on the Isabella Reservation and in the Saganing District.

On 12/17/2009 a bomb threat resulted in the total evacuation of the Soaring Eagle Casino and Hotel, along with the Elk Building and the Sagamok gas station for a total of 7 hours. No damages or injuries/ deaths occurred; however, there was lost revenue from the closure of the casino.

On 04/21/2016 a bomb threat resulted in the total evacuation of the Soaring Eagle Casino and Hotel, along with the Elk Building and the Sagamok gas station for a total of 8 hours. No damages or injuries/ deaths occurred; however, there was lost revenue from the closure of the casino.

Sabotage Overview

Even though there have been several recently recorded sabotage/terrorism events occurring at the Soaring Eagle Casino, the Emergency Management staff has regularly scheduled training events to address these circumstances. With the ever-growing threat of local acts, the SCIT is working to prepare their personnel should another event occur. Because of the training that is received by SCIT personnel, this hazard was given a moderate priority to address.

INVASIVE SPECIES

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.

Hazard Description

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.

Hazard Analysis

Hundreds of new species from other countries are introduced intentionally or accidentally into the United States each year. These invasive species may arrive on our shores in a variety of ways. Transportation efficiencies that make it possible to travel around the globe in hours rather than weeks make it possible for organisms to survive transportation from one continent to another. As more adaptable and

generalized species are introduced to environments already impacted adversely by human activities, native species are often at a disadvantage to survive in what was previously a balanced ecosystem.

Invasive Species

The Natural Resource Specialist was contacted and he provided the following list of invasive species that have an adverse impact on the Saginaw Chippewa Indian Tribe (SCIT): Rusty Crayfish, Beach Bark Disease, Bighead Carp, Black Carp, Grass Carp, Silver Carp, Round Goby, Sea Lamprey, Asian Longhorned Beetle, Emerald Ash Borer, Gypsy Moth, Hemlock Woolly Adelgid, Spotted Lanternfly, New Zealand Mud Snail, Quagga Mussel, Zebra Mussel, Eurasian Watermilfoil, Eurasian Frogbit, Flowering Rush, Phragmites, Purple Loosestrife, Starry Stonewort, Japanese Stiltgrass, Garlic Mustard, Autumn Olive, Common Buckthorn, Glossy Buckhorn, Japanese Barberry, Japanese Knotweed, Multiflora Rose, and Black Locust. Emergency Management/ Hazard Mitigation Committee (SCIT EM/HMC

Invasive Species Overview

The SCIT continues to address several invasive species such as phragmites, emerald ash borer, and the Gypsy Moth on a limited basis. Due to the exorbitant costs to eliminate any single one species, they can only address these species in limited fashion. In addition, there is a concern that any or all of these species could be out of control at any given time, such as the case with the emerald ash borer, whose effects are still being felt.

SUBSIDENCE

Subsidence: the lowering or collapse of the land surface caused by natural or human-induced activities that erode or remove subsurface support.

Hazard Description

Subsidence is the lowering or collapse of the land surface due to loss of subsurface support. It can be caused by a variety of natural or human-induced activities. Natural subsidence occurs when the ground collapses into underground cavities produced by the solution of limestone or other soluble materials by groundwater. Human- induced subsidence is caused principally by groundwater withdrawal, drainage of organic soils, and underground mining. In the United States, these activities have caused nearly 17,000 square miles of surface subsidence, with groundwater withdrawal (10,000 square miles of subsidence) being the primary culprit. In addition, approximately 18% of the United States land surface is underlain by cavernous limestone, gypsum, salt, or marble, making the surface of these areas susceptible to collapse into sinkholes.

Generally, subsidence poses a greater risk to property than to life. Nationally, the average annual damage from all types of subsidence is conservatively estimated to be at least $125 million.

Mine Subsidence

In Michigan, the primary cause of subsidence is underground mining. Although mine subsidence is not as significant a hazard in Michigan as in other parts of the country, many areas in Michigan are potentially vulnerable to mine subsidence hazards. Mine subsidence is a geologic hazard that can strike with little or no warning and can result in very costly damage. Mine subsidence occurs when the ground surface collapses into underground mined areas. In addition, the collapse of improperly stabilized mine openings is also a form of subsidence. About the only good thing about mine subsidence is that it generally affects very few people, unlike other natural hazards that may impact a large number of people. Mine subsidence can cause damage to buildings, disrupt underground utilities, and be a potential threat to human life. In extreme cases, mine subsidence can literally swallow whole buildings or sections of ground into sinkholes,

endangering anyone that may be present at that site. Mine subsidence may take years to manifest. Examples of collapses occurring decades after mines were abandoned have been documented in several areas of the country.

Michigan's Mining Experience

Michigan's rich mining heritage has played a significant role in the State's development into a world economic power. Due to its diverse geology, Michigan has a wide variety of mineral resources, most notable of which are copper ore, iron ore, coal, sand, gravel, gypsum, salt, oil and gas. It is not surprising then that underground mining has occurred on a significant scale throughout Michigan's history. The principal types of underground mining that occurs, or has occurred in Michigan, include coal mining, metallic mineral mining, salt mining, gypsum mining, and solution mining.

Copper Mining

Copper mining, in particular, put Michigan on the map as a major mining area. Although native copper ore occurs in other parts of the world, at one time the quantity of Michigan's native ore was unsurpassed. From the mid to late 1800s, Michigan's Keweenaw Peninsula mines produced more native copper ore than any other mining area in North America. As those resources became depleted, copper mining began near White Pine in Ontonagon County. The target strata in the White Pine mining operations were on an anticline that was mined both at depths as shallow as 100 feet and as deep as 2900 feet. Over-mining of pillars in shallow parts of the mine caused collapse and subsidence at the surface, on mine property, during the 1980s. The "Copper County" area generally crosses Ontonagon, Houghton, and Keweenaw Counties.

Salt/Solution Mining

Michigan also has one of the world's largest underground salt accumulations. The thickest salt beds lie under most of the Lower Peninsula. These formations are, in some places, over 3,000 feet thick and composed of layers of salt and other minerals. Michigan ranked first or second in national salt production from 1880 to the late 1920s. The bulk of the salt production was from natural brines pumped from six salt formations. Salt was also produced from artificial brines that were derived by injecting freshwater into salt formations and retrieving the resulting brines (called solution mining). The old Detroit salt mine produced rock salt using the "room and pillar" method until 1983. (The room and pillar method involves creating large underground expanses [rooms] in which to mine, supported by pillars [natural or artificial structural members] that held in place the roofs of these rooms.) The Detroit salt mine was approximately 1,100 feet below ground and encompassed approximately 1,100 acres of subsurface land. The room and pillar method is being used only in the single salt mine that is still operating in Michigan, by the Detroit Salt Company, which has an excellent safety record. Salt is also being produced from brines extracted at various locations within the state.

Gypsum Mining

Gypsum has been mined in Michigan since 1841. In the Grand Rapids area, gypsum is mined by the "room and pillar" method. Open pit mining is used in the Alabaster region (Iosco County). In both of these areas, gypsum beds directly underlie thin layers of glacial drift. Closed topographic lows observed in both areas are believed to be due to groundwater solution of the gypsum and subsequent collapse of the overlying material.

Coal Mining

Michigan also once supported a thriving coal mining industry. Records indicate that over 165 different coal mines operated in Michigan's coal-bearing region, which includes 31 counties in the south-central

portion of the lower Peninsula. Over 100 of the 165 known coal mines in the state were located in the Saginaw Bay area. Coal was first discovered in Michigan in 1835 in Jackson County. From that discovery, several small underground and surface coal mines were opened in that area of the state. In 1861, coal was discovered near Bay City, and in 1897 commercial coal mining began in Bay County. That led to the establishment of numerous additional mines in Saginaw, Tuscola and Genesee counties, which tended to be larger, deeper and more extensive mines. That was the start of Michigan's coal mining industry.

The state's underground coal mines were an average of 110 feet deep and were worked by the "room and pillar" method. Michigan had continuous coal mining from 1897 to 1952, when the last underground coal mine near St. Charles, Saginaw County, closed. From 1860 (the year mine records were first kept) until 1975 (the year the last surface coal mine closed), the 165 commercial coal mines produced a total output of over 46 million tons of coal. The maximum coal output was achieved in 1907, when Michigan's 37 operating coal mines produced two million tons per year - enough to supply 16% of Michigan's total demand for coal.

Mine Subsidence Problem in Michigan

The legacy of underground mining can be felt in numerous locations across the state. Many of the underground mining areas, whether active or abandoned, are vulnerable to subsidence in some form. Unfortunately, records of abandoned mines are often sketchy and sometimes non-existent. Therefore, it is often difficult to determine exactly where the mines were located. Many areas of Michigan may have developed over abandoned mines and may not even be aware of it. Oftentimes, the only way a community or home/business owner becomes aware of a potential hazard is when subsidence actually occurs and damage or destruction results.

Subsidence Overview

The SCIT has not experienced any cases of subsidence on record on either the Isabella Reservation or the Saganing District properties. However, with the number of mines that exist and have been abandoned, it could be possible for a future occurrence(s) of subsidence to still occur somewhere on the SCIT property. This was identified as a moderate priority.

TRANSPORTATION ACCIDENTS: AIR, LAND, AND WATER

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

Hazard Description-Air Transportation Accidents

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 phases of a flight.
4. Two or more airliners colliding with one another on the ground during staging or taxi operations.

The Michigan Aeronautics Commission of the Michigan Department of Transportation administers several programs aimed at improving aviation safety and promoting airport development. The Commission's safety programs include:

1. Registering aircraft dealers, aircraft, and engine manufacturers.
2. Licensing airports and flight schools.
3. Inspecting surfaces and markings on airport runways.

4. Assisting in removal of airspace hazards at airports.

The Commission's airport development program includes providing state funds for airport development and airport capital improvements – many of which contribute to overall air transportation safety.

The Federal Aviation Administration (FAA) contracts with the Michigan Department of Transportation for the inspection of the state's 238 public-use airports on an annual basis. The FAA has regulatory jurisdiction over operational safety and aircraft worthiness. The National Transportation Safety Board (NTSB) investigates all aircraft crashes that involve a fatality and publishes reports on its findings. (See the NTSB section below).

When responding to any of these types of air transportation accidents, emergency personnel may be confronted with a number of problems, including:

1. Suppressing fires.
2. Rescuing and providing emergency first aid for survivors.
3. Establishing mortuary facilities for victims.
4. Detecting the presence of explosive or radioactive materials.
5. Providing crash site security, crowd and traffic control, and protection of evidence.

Hazard Description-Land Transportation Accidents

A land transportation accident in Michigan could involve a commercial intercity passenger bus, a local public transit bus, a school bus, passenger vehicles, or an intercity passenger train. Although these modes of land transportation have a good safety record, accidents do occur. Typically, the bus slipping off a roadway in inclement weather, or colliding with another vehicle causes bus accidents. 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 those types of situations.

School bus safety programs and initiatives generally fall into two categories:

1. Driver skill enhancement and competency training.
2. Physical inspections of bus mechanical and safety equipment.

The Motor Carrier Division, Michigan Department of State Police, inspects all school buses and other school transportation vehicles (21,000 units) on an annual basis. In addition, all school bus drivers in Michigan must a take and pass a bus driver education and training program, and then take regular refresher courses to maintain their certification to operate a school bus. School bus drivers must also pass an annual medical examination.

Local transit and intercity bus safety falls under the purview of the Michigan Department of Transportation's Bureau of Urban and Public Transportation. Generally, the issue of intercity and transit bus safety is handled on a partnership basis with the service providers, with MDOT providing oversight of the initiatives undertaken by the providers to ensure mechanical and operational safety.

The Michigan Department of Transportation is the state regulatory agency for railroad-highway grade crossing safety issues. In this role, MDOT conducts biennial, on-site crossing reviews for Michigan's 5,535 public crossings, and reports observed crossing maintenance deficiencies to the responsible railroad or roadway authority. In addition, MDOT conducts diagnostic study team reviews at selected crossings to

determine whether the current level of warning device requires enhancement. At the present time, 42% of Michigan's public crossings have at least automatic side-of-street flashing light signals, and 16% have automatic gates.

In January 2001 an amendment (367 P.A. 2000) to the Michigan Vehicle Code went into effect allowing the MSP, MDOT, or specified local officials to install video cameras at railroad crossings to serve as a deterrent to motorists who might attempt to go around or through activated railroad crossing lights and gates. Although the ultimate purpose of this law is to reduce pedestrian and vehicular deaths and injuries at railroad crossings, the law will also likely reduce passenger train accidents caused by collisions with vehicles on the tracks – a major cause of many passenger train derailments.

Michigan's "Operation Lifesaver" Coalition – part of a national, non-profit education and awareness program dedicated to ending tragic collisions, fatalities and injuries at highway-rail grade crossings and on railroad rights of way- has helped reduce the number of serious crashes at railroad crossing in the state. The Operation Lifesaver Coalition in Michigan is spearheaded by the MSP and MDOT and is comprised of state and local government officials, law enforcement, and employees of the railroad companies operating in Michigan. The Operation Lifesaver program emphasizes education and enforcement, and its efforts appear to be working. Since 1996, the number of crashes, injuries, and fatalities at railroad crossing in Michigan has shown a steady decline. Any reduction in vehicle-train crashes at railroad crossings helps reduce the likelihood of a passenger transportation accident involving a train, school bus, local transit bus, or commercial intercity passenger bus.

Another MDOT program that can help improve rail safety is the Michigan Rail Loan Assistance Program. Established under Act 117, P.A. 1997, this program was initiated to help finance capital improvements on Michigan's rail infrastructure. Although the program is designed primarily to help preserve and improve rail freight service, any improvements made to the rail infrastructure that serves passenger rail service can only help improve passenger rail safety. Track rehabilitation is one of the eligible projects that can be funded under this program, and the safety value of a project is one of the primary selection criteria.

Transportation Overview

There was a total of 26 automobile accidents that resulted in at least one fatality from 1990 to 2021 or approximately .83 accidents per year. All of the accidents occurred on roads with speed limits greater than 45 mph. In addition to the automobile accidents, there was a train derailment in 2011 that resulted in the derailment of 7 cars. No injuries/deaths or hazard material spill resulted from this event. Based on the number of vehicles on the road, especially visiting the hotels and casinos on SCIT property, transportation accidents were given a moderate priority.

CIVIL DISTURBANCES

Civil disturbance: collective behavior that results in a significant level of law-breaking, perceived threat to public order, or disruption of essential functions and quality of life.

Hazard Description

Civil disturbances can be classified within the following four types: (1) acts or demonstrations of protest, (2) hooliganism, (3) riots, or (4) insurrection. Since most of these types of disturbance share similarities with each other, and the classifications presented here are not absolute and mutually exclusive, it is recommended that this entire section be studied as a whole. The descriptions that follow, while roughly organized by type of disturbance, provide information of interest in evaluating and understanding all types of civil disturbance, and therefore should not be treated as independent subsections or read in isolation

from each other.

The first type, demonstrations of protest, usually contains some level of formal organization or shared discontent that allows goal-oriented activities to be collectively pursued. This first category includes political protests and labor disputes. Many protest actions and demonstrations are orderly, lawful, and peaceful, but some may become threatening, disruptive, and even deliberately malicious (on the part of at least some of those involved either in the protest itself or in reaction to the protest). It is only the latter type of event that should properly be classified as a civil disturbance. The destruction of property, interruption of services, interference with lawful behaviors of ordinary citizens and/or emergency responders, the use of intimidation or civil rights violations, and threats or actual acts of physical violence may all occur during civil disturbance events. Actual Michigan events have included the willful destruction of property and impeded property access during labor strikes, and heated conflicts between opposing participants at political rallies or issue-driven demonstrations. Different risks and forms of disturbance are connected with the nature and perceived importance of the cause, the degree of organization among those who are active in the protest, and the amount of group cohesion among those who are involved.

The second category of civil disturbance, hooliganism, is relatively unorganized and involves individual or collective acts of deviance inspired by the presence of crowds, in which the means (and responsibility) for ordinary levels of social control are perceived to have slackened or broken down. Certain types of events, such as sporting events, "block parties," or concerts, become widely publicized and, in addition to normal citizens who merely seek entertainment, tend to also attract certain types of persons who seek situations in which anonymity, confusion, and a degree of social disorder may allow them to behave in unlawful, victimizing, or unusually expressive ways that would normally be considered unacceptable by most ordinary people. An Example includes the disorder that has followed various championship sporting events. Although the majority of persons present are ordinary citizens (although many may have some level of intoxication), a minority of persons begin making itself known through unlawful or extreme acts of deviance, and it is from this part of the crowd that the hazard primarily stems.

Common problems include the widespread destruction of property, numerous types of assault and disorderly conduct, and criminal victimization. It should also be noted that many persons who are normally law-abiding may temporarily behave in unusually aggressive ways during these events, often prompted by an understandably defensive anxiety about the disorder and behavior exhibited by the deviant minority, but also possibly exacerbated by a level of alcoholic intoxication as well as the temptation by some to engage in appealing deviant behaviors that under normal circumstances of social control would not be selected. Many citizens remain law-abiding but may remain in the area of a civil disturbance either because they live in the area, have activities (including social and recreational ones) that they wish to continue engaging in, have legitimate business to conduct, or because they are curious or concerned and wish to observe or witness the situation as it occurs. The majority of such law-abiding citizens will leave the area in an orderly way when given clear instructions by a legally recognized authority to do so. There are cases in which hooliganism may become combined with protest, and thus complicate the situation for law enforcement personnel. In some circumstances, elements of protest are added only by a small minority of participants after the disturbances have already begun, but in other circumstances, protest activity may arise out of concerns regarding the extent and nature of pre-emptive law enforcement activities that were intended to prevent a civil disturbance.

The third type, riots, may stem from motivations of protest, but lacks the organization that formal protests include. Although legitimate and peaceful protests may spontaneously form when people gather publicly with the perception that they already share certain values and beliefs, riots tend to involve violent

gatherings of persons whose level of shared values and goals is not sufficiently similar to allow their collective concerns or efforts to coalesce in a relatively organized manner. Instead, there tends to be a diffuse sense of shared discontent, but relatively few norms to shape these strivings into clearly coherent action. For example, widespread discontent within a community that is sufficiently cohesive may quickly take on a set of shared leaders and clear organization, such as a march or chant that is clearly in the form of a protest or demonstration, but in an area that doesn't have the same cohesiveness and shared norms and values, a relatively chaotic form of expression may take place instead, involving assaults, intimidation, and unlawfully destructive expressions of discontent, possibly including the victimization of innocent citizens or businesses who have been selected by part of the crowd to function as scapegoats during their expression of discontent. In addition to the sentiments of discontent that may have sparked the initial activities, however, elements of hooliganism may emerge and even come to predominate, as certain persons may attempt to exploit the social disorder for their own individual ends. In other cases, elements of legitimate protest may also form within this type of civil disturbance, and pockets of organized protest may help to channel and contain the negative elements of hooliganism, looting, etc. that might otherwise threaten all area residents. The complexity of these events for law enforcement can be very great, demanding carefully calculated efforts to analyze the nature of the disturbance, and difficult decisions about how to approach and possibly involve the numerous types of persons, gatherings, groups, and behaviors that may have the potential to either mitigate or exacerbate the situation.

The fourth type of civil disturbance, insurrection, involves a deliberate collective effort to disrupt or replace the established authority of a government or its representatives, by persons within a society or under its authority. Some prison uprisings may fall into this category, although others may more properly be classified as riots or protests, depending upon the presence and extent of specific goals and organization, and the type of action used in achieving such goals. An insurrection has the deliberate goal of either replacing established authorities with a new distribution of power, or with the destruction of established power structures in favor of (usually temporary) anarchy or a smaller-scale set of recognized criminals (gang), ethnic, or other group networks and power structures. The latter circumstances tend to involve disturbances that exist on a relatively small scale, such as in a single local area or involving a prison network or "cult compound" (or any other similarly self-aware group or subculture with identified collective interests and a network that allows rapid communication). However, larger-scale insurrections are also possible, involving issues of class conflict or other widespread social inequalities, highly divisive political issues, or other important large-scale events that disrupt the social equilibrium because they illuminate areas in which cultural values are not sufficiently shared throughout the society or region that is experiencing the conflict, disruption, or strain. In many cases, this kind of large-scale social strain has developed gradually over time, and involves an entire series of compromises, concessions, and migrations that may temporarily relieve the disruptive social and value conflicts, only to reemerge after another period of changes and population growth has caused a breakdown in previous arrangements. This description of the causes of social discontent applies to many protests and riots, as well as insurrection. In cases involving the formation or emergence of significant subcultures or counterculture, such as during the Vietnam era, or when dominant values break down or fail to be established on important key issues or mores, there is the potential for insurrection on a larger scale. The Civil War of 1861-1865 was one such instance, in which the authority of the federal government was either accepted or rejected by various states which then aligned themselves in opposition to each other. Between these two extremes (of a purely localized civil disturbance and a national civil war) are numerous other possibilities for regional, political, class, or ethnic conflicts that may involve one or more categories of citizen in conflict with others. Examples could include prisoners versus law enforcement personnel, a countercultural group versus the establishment, or a violent political activist group in conflict with selected representatives of a contrary viewpoint. (Some such actions may overlap with those of terrorism, q.v.)

Civil Disturbance Events

On 08/10/1999 there was an attempted coup of the Tribal Council. Ultimately the coup was quashed with only one minor non-life threatening injury.

Civil Disturbance Overview

Civil disturbances have been infrequent with only one occurrence in recent years. With the utilization of local law enforcement in addition to the SCIT Police Force, and the limited occurrences of civil disturbance, this hazard was given a moderate priority.

WILDFIRES

Wildfire: an uncontrolled fire in grass or brushlands, or forested areas.

Hazard Description

Contrary to popular belief, lightning strikes are not a leading cause of wildfires in Michigan. Today, lightning causes only 4 percent of all wildfires, and the rest are caused by human activity. Outdoor burning is the leading cause of wildfires in Michigan. Debris burning was responsible for 32 percent of the wildfires in Michigan in 1999. Incendiary, or intentional, fires accounted for another 12 percent of the total wildfires.

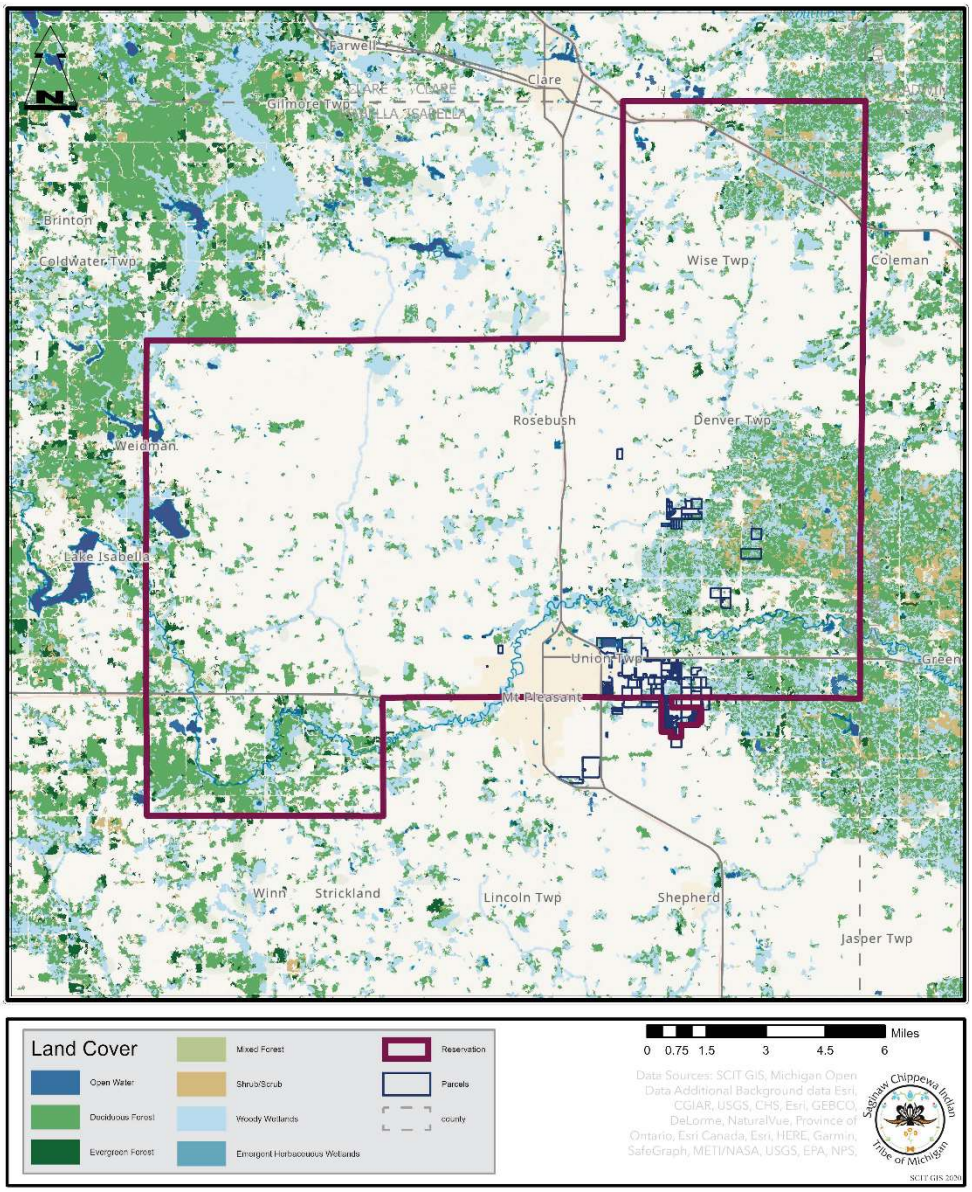
Upon examination of the causes of fire, it becomes apparent that most Michigan wildfires occur close to where people live and recreate, which puts both people and property at risk. The immediate danger from uncontrolled wildfires is the destruction of timber, structures, other property, wildlife, and injury or loss of life to people who live in the affected area or who are using recreational facilities in the area.

Wildfire Events

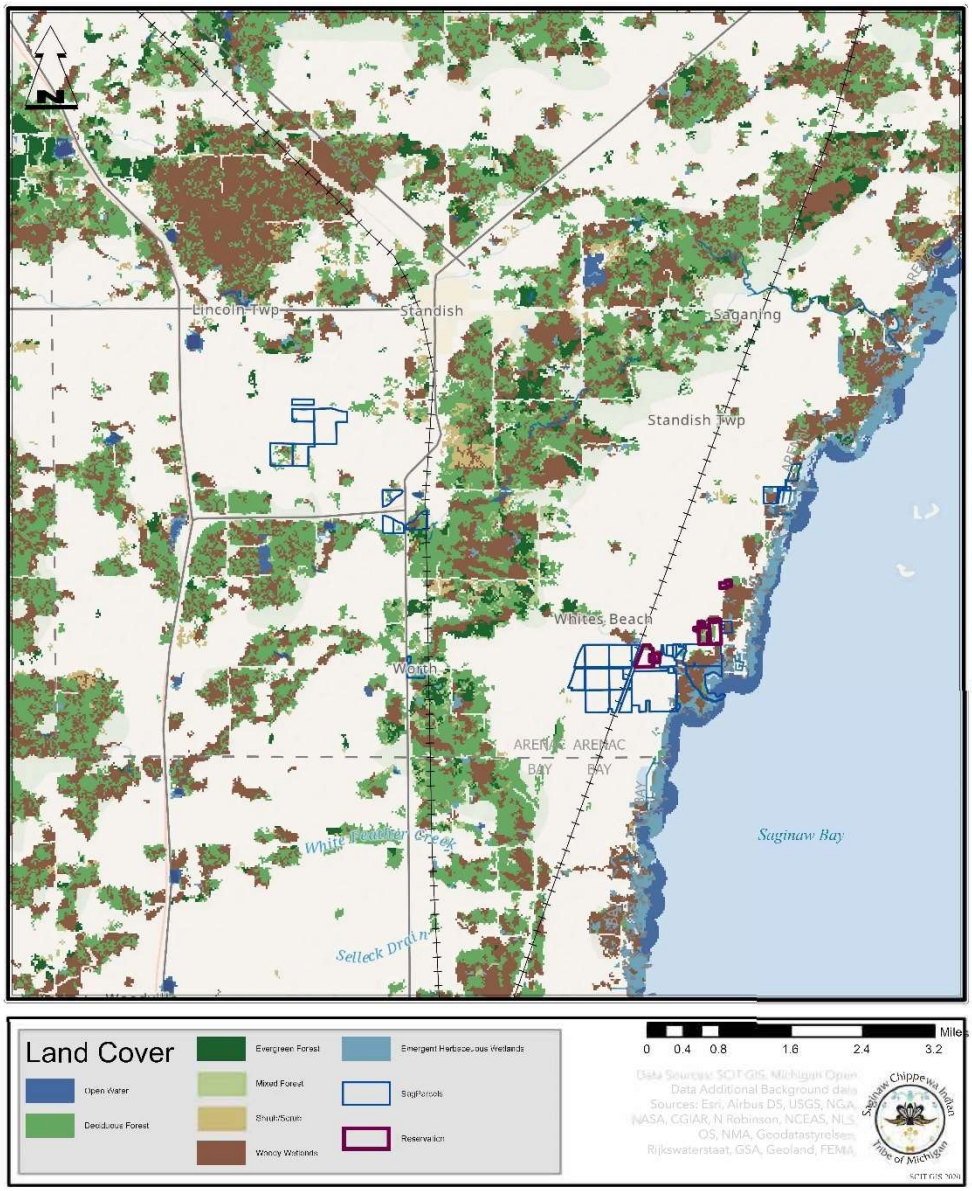
There have been no significant wildfires in either the Isabella Reservation or the Saganing District in recent years. The DNR has reported that in the Isabella Reservation there were 71 grass fires and 9 forest fires in the past 25 years, and 203 fires reported in Arenac County to the DNR, however not all of them were in or near the Saganing District Property, as these could not be separated out by the DNR. It should be noted that none of the fires that occurred during the past 25 years were deemed to be a major threat to the SCIT or the neighboring communities and no injuries/deaths were reported as a result of these fires.

Maps 4.7-4.9 identify the forested areas in both the Isabella Reservation and the Saganing District. They are found on the following three pages. However, as previously stated, there have not been any reported wildfires of significance to identify on the following maps.

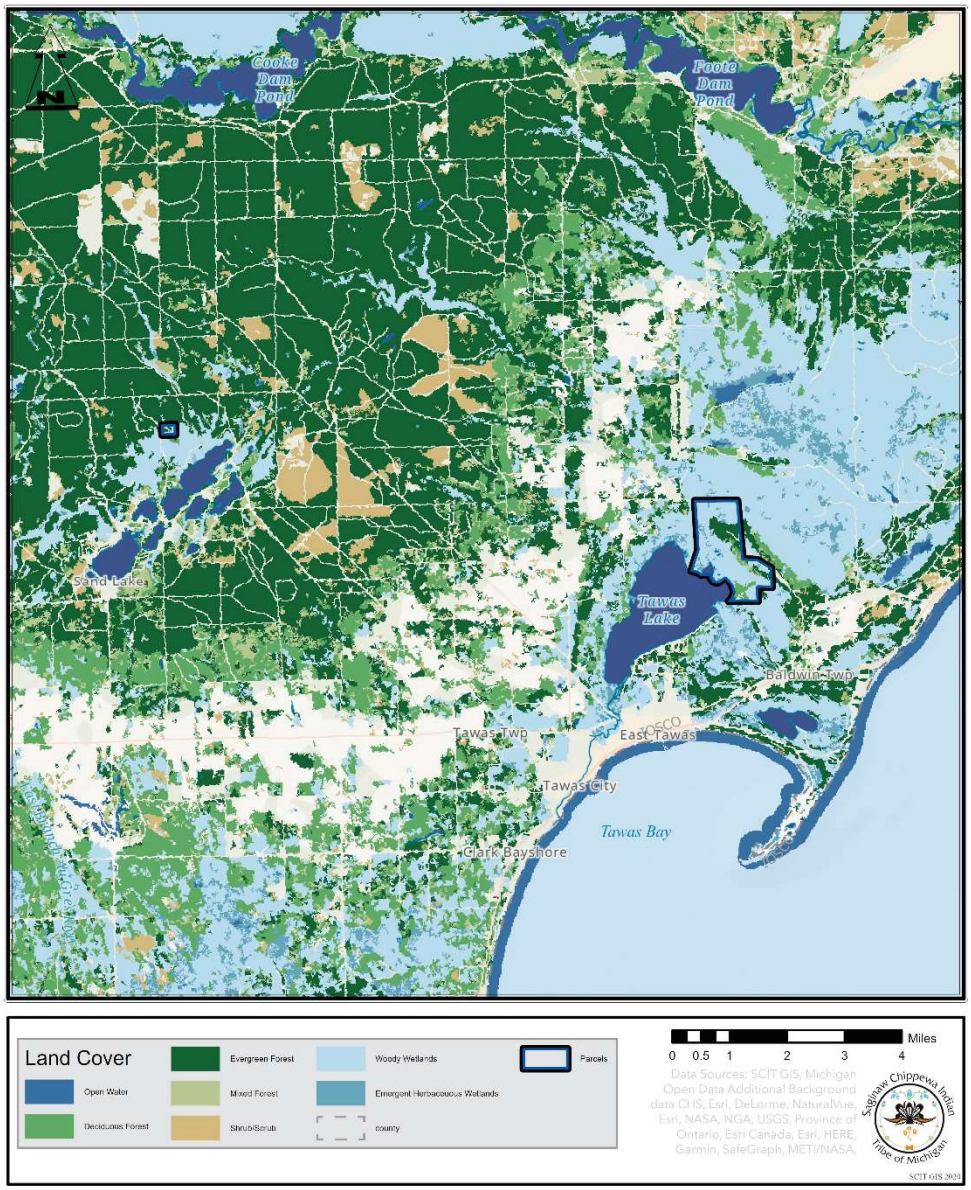
Isabella Reservation
Forest Cover
Map 4.7



Saganing District-Arenac County
Forest Cover
Map 4.8



Saganing District-Iosco County
Forest Cover
Map 4.9



Wildfire Overview

With over 275 fires being reported for the past 25 years, there has been limited property and natural vegetation damage and no deaths or injuries resulted from the fires. Therefore, wildfires were given a moderate priority to address.

DROUGHTS

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

Hazard Description

Drought is the consequence of a reduction in the amount of precipitation that was 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.

A drought can cause many severe hardships for communities and regions. Probably one of the most common and severe impacts to a community like Sanilac County would be the threat of a drop in the quantity and quality of agricultural crops. Other negative impacts that can be attributed to a drought include water shortages for human consumption, industrial, business and agricultural uses, recreation and navigation, declines in water quality in lakes, streams and other natural bodies of water, malnourishment of wildlife and livestock, increases in fires and wildfire related losses to timber, homes, and other property, increases in wind erosion, and declines in tourism in areas dependent on water-related activities.

These direct impacts can further result in indirect impacts to a community, such as reduced revenue due to income losses in agriculture, retail, tourism and other economic sectors; declines in land values due to physical damage from the drought conditions and decreased functional use of the property, and possible loss of human life due to extreme heat, fire, and other heat-related problems.

Two common measurement tools of dry weather conditions are the Palmer Drought Indices (including the Palmer Drought Severity Index and the Palmer Hydrological Drought Index) and the Crop Moisture Index (CMI). The Palmer Drought Severity Index is a good long-term drought monitoring tool. It is a monthly index that indicates the severity of a wet or dry spell. This index is based on average temperature and rainfall information for a particular location in a formula to determine dryness. The CMI evaluates short-term moisture conditions across crop producing regions. It measures how much moisture is in the plant root zone of the soil. This index is based on the mean temperature and total precipitation that occurs each week, as well as the CMI from the previous week. The CMI changes as quickly as the weather changes. A heavy rainstorm can dramatically change the CMI for a region. Since this index changes so quickly and in response to a single weather event, the CMI is not considered a good long-term drought measurement tool.

The Palmer Drought Severity Index uses a value of 0 for the normal amount of rainfall in a particular location, and drought is shown in terms of negative numbers, for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought. Any value above 0 demonstrates that there have been above normal amounts of precipitation. This index can be used for indicating lake levels and surface water supply abnormalities but is not all that good for monitoring climatic impacts on vegetation, especially crops.

Droughts/Drought Related Events

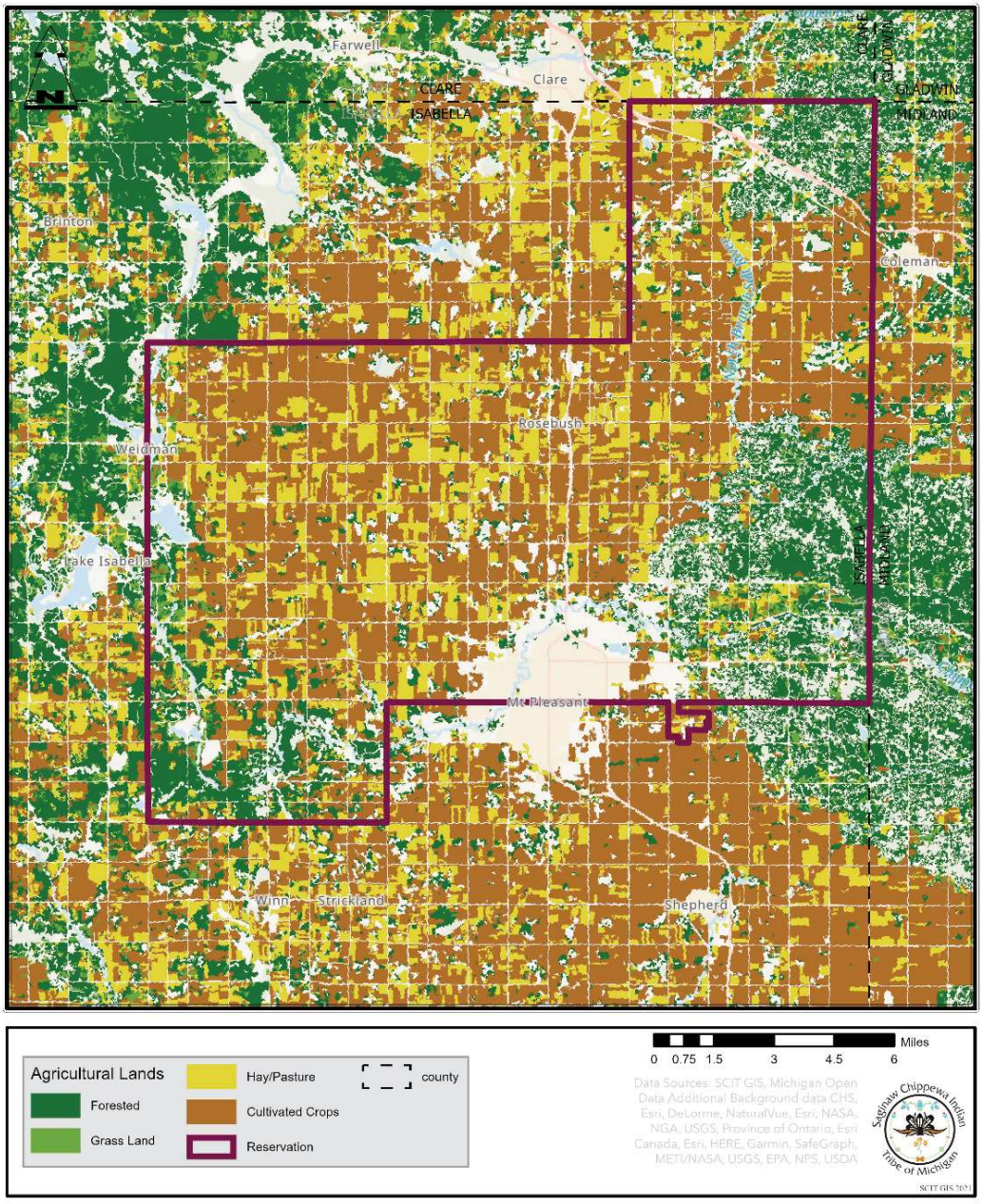
The State of Michigan has been divided into ten (10) climate divisions for drought monitoring an analyses. The Isabella Reservation is located in Division 6, which includes the counties in the heart of the lower peninsula, and the Saganing District is located in Division 7, which is located along southern Saginaw Bay and the three counties that make up the Thumb Region. According to the State of Michigan Hazard Analysis Appendix of the 2019 State of Michigan Hazard Mitigation Plan, since 1895 Division 6 experienced seven (7) lengthy droughts ranging from nine(9) to 18 months in duration, while Division 7 experienced six (6) lengthy droughts ranging from eight (8) months to 18 months in duration.[8] The NCEI identified no droughts occurring from 1996 to 2020.

In 1930-31 the most extreme drought occurred when the Palmer Index reached a record low of -6.22 for Division 6 and -6.25 for Division 7. The drought was 17 months in duration. While drought occurs periodically, in both areas, the Palmer Drought Index indicated drought conditions reached extreme severity only 2% (Saganing District) or 2.4% (Isabella Reservation) of the time. No crop damages or other property damages, or injuries/deaths resulted from the drought events.

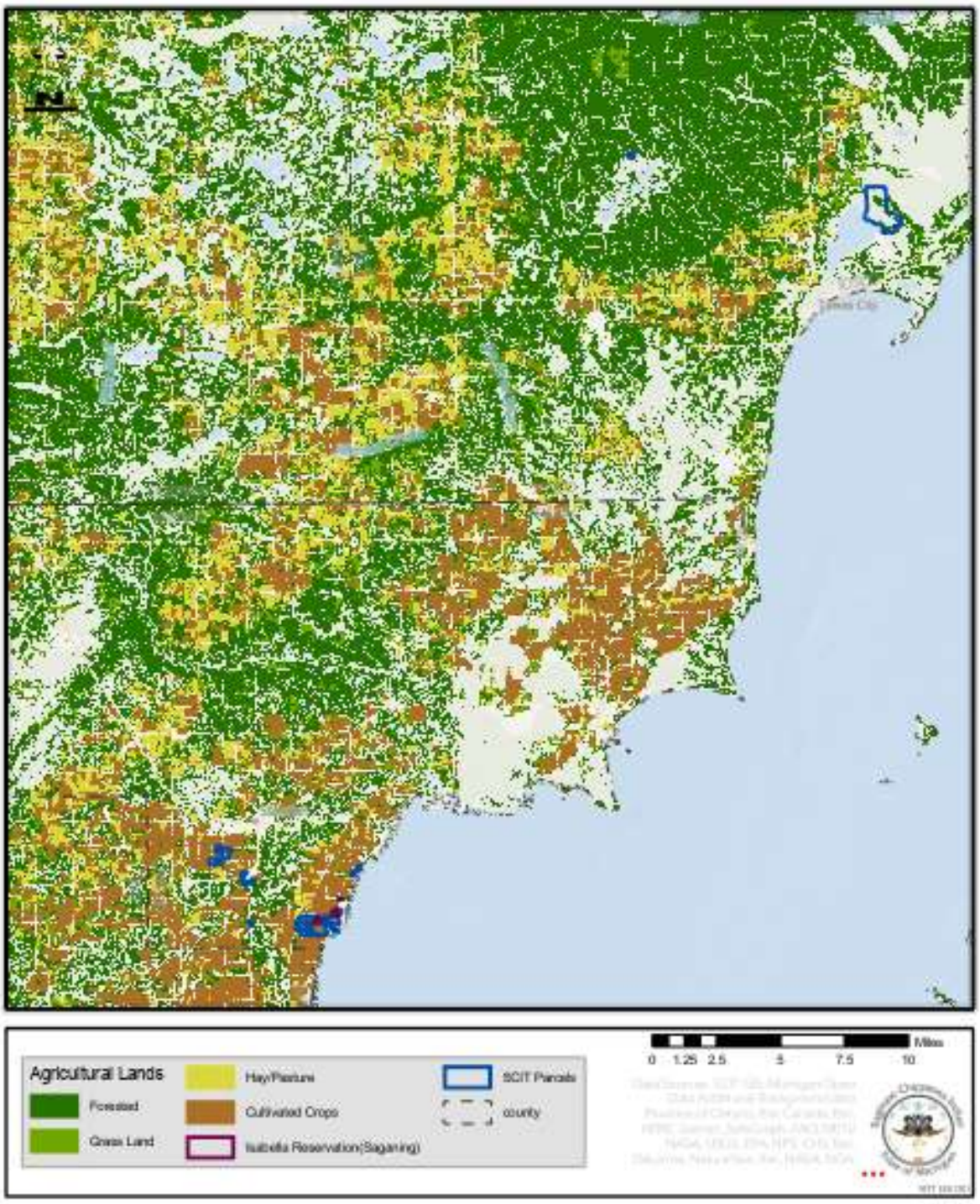
Maps 4.10 and 4.11 identify the agricultural lands for the SCIT properties in both the Isabella Reservation and the Saganing District. While the impact of a drought would be region-wide, the lands more susceptible to be impacted by drought would be the grass lands, the hay/pasture lands, and crops and are identified as the light green, yellow, and brown areas on the maps.

[8] 2019 Michigan Hazard Mitigation Plan

Isabella Reservation
Drought Map
Map 4.10



Saganing District
Drought Map
Map 4.11



Drought Overview

There were no droughts reported at the Isabella Reservation or the Saganing District between 1/1/1996 and 11/30/2020 by the NCEI. However, as previously cited, the 2019 Michigan Hazard Mitigation Plan identified six and seven droughts since 1895 in the two regions. As there is land devoted to agricultural use there is a threat of loss of crops/livestock should an extended drought occur. Even though there have been no documented droughts in recent years, because of their potential limited impact to the SCIT, droughts were given a moderate priority to address.

SPECIAL EVENTS

Special events: an event or series of events resulting in an additional population to a city or region for a period of time.

Hazard Description

The SCIT holds numerous events over the course of a normal year that would be considered to be special events. In the summer months, outdoor concerts are held on the grounds of the Soaring Eagle Casino/Hotel. Other events that could bring in many people would be the Annual Powwows held separately at both locations. These events bring in thousands of people for a brief time period and results in the increase of security at the location of the event. Additionally, due to the increased traffic in the immediate area, there is a concern for the possibility of the threat of multiple traffic accidents and the safety of the visitors to the area.

Added stresses are put on the SCIT and their departments such as fire, police, security, and health along with the local governmental agencies that assist the SCIT during these events. With the additional people traveling to the event the increased staff and resources are put to task. Additionally, many visitors remain at the sight for an extended stay, possibly in a hotel or at the campgrounds, which may also impact the staffing of the fire, police and security departments.

Special Events Occurrences

In September 2005, Hurricane Katrina ravages the gulf coast states of Louisiana, Mississippi, and Alabama, but centered on the City of New Orleans. A Category 5 Hurricane, Katrina devastation resulting in a mass evacuation from the area resulting in unanticipated population increases throughout the State of Michigan. As a result of the sudden population influx, food shortages resulted in portions of the State.

Special Events Overview

Special events are often revenue generating events to bring in additional visitors to the event site. The SCIT will have historical information to predict the approximate number of visitors, and the number of additional staff needed to address any potential concerns of the additional visitors. As a result of hosting many such events without any occurrences, this hazard was given a moderate priority.

FOG

Fog: condensed water vapor in cloudlike masses lying close to the ground and limiting visibility.

Hazard Description

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 are by cooling it to its dew point temperature or by evaporating moisture into it to increase its water vapor content. Although most fog, by itself, 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.

Hazard Analysis

In considering severe and high-impact meteorological events, attention can easily become focused on the more dramatic storms. Tornadoes and hurricanes for example, are readily recognized by the general public and the meteorological community alike for their devastating consequences. Fog, on the other hand, does not lend itself as readily to this categorization.

Fog can be very dangerous because it reduces visibility. Although some forms of transport can penetrate fog using radar, road vehicles have to 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.

Fog Events

There has been no dense or freezing fog events at wither the Isabella Reservation or the Saganing District from 1996 to 2020, as reported by the NCEI. There have been numerous fogs at both locations; however, these events would be considered to be minor in nature as there were no injuries, deaths, or accidents reported as a result of the fogs.

Fog Overview

With no significant event being reported by the NCEI or in the 2019 State of Michigan Hazard Mitigation Plan at either the Isabella Reservation or the Saganing District in the 25-year reporting period, the probability of a future significant would be minimal, but not quite 0%, as there have been fogs occurring during that time period. According to the Michigan State Hazard Mitigation Plan, one major fog event is estimated to occur in Michigan approximately every two years. Property damage can be significant for vehicles, although real property and structures are usually unaffected. Thus, while there has not been a number of fog events impacting the member of the SCIT in recent years, it is not unforeseeable that fogs could become more prevalent at either the Isabella Reservation or the Saganing District in the future. While fog is not considered to be a severe weather event and was not given a high priority to address, residents and visitors are vulnerable to dense fog, as it limits visibility and precautions must be made according, which is why the hazard was given a moderate priority.

LOW PRIORITY HAZARDS

SEASONAL POPULATION CHANGES

Seasonal population increase: a population, in the subject area, beyond the normal level of people to which resources are allocated.

Hazard Description

The SCIT is impacted by seasonal population on several levels, Mt Pleasant in Isabella County is home to Central Michigan University, which has more than 20,000 students on campus during the fall and spring sessions, and both Isabella and Arenac Counties have numerous properties utilized as vacation homes. Both of these changes in population impact the Isabella Reservation, while only the summer use of vacation homes impact the Saganing District. However, the SCIT is dependent upon tourism for its primary source of revenue and encourages visitors to attend their venues (Soaring Eagle Casino & Resort, Soaring Eagle Water Park & Hotel, Saganing Eagles Landing Casino and Hotel, as well as their concerts and other

special events).

For local governments, seasonal population changes can put additional stress on the local services provided by the fire departments, police departments, medical facilities, road commissions, and ambulance services to maintain the status quo of service. However, for the SCIT, their businesses are reliant upon the attraction of visitors for them to succeed. Subsequently, their public safety staff is trained to address ever-changing population levels and to maintain an appropriate level of safety for both the tribal members and their visitors.

Seasonal Population Increases

The Saginaw Chippewa Indian Tribe (SCIT) with its two primary locations, the Isabella Reservation in Isabella County and the Saganing District, with property in both Arenac County and two parcels in Iosco County, experiences constants changes in visitors utilizing SCIT facilities.

In the summer of 2003, a power outage occurred throughout the northeast U.S., including portions of Detroit. As a result, all of mid-Michigan and northern Michigan experienced some influx of people from the Detroit area going to their seasonal homes or just vacationing to escape the power outage. The added population, above and beyond the normal anticipated summer increase, did provide some concern as the unexpected visitors taxed the facilities and their staffs as there was no time to prepare for this sudden increase.

Seasonal Population Increase Overview

Seasonal population increases are a constant for both the Isabella Reservation and the Saganing District, but on different levels. The Isabella Reservation is located near Central Michigan University, which has 20,000 students on campus for eight-nine months out of the year. In addition, both the Isabella Reservation and the Saganing District are located in regions that have many summer homes. However, the SCIT membership is reliant upon visitors to their entertainment facilities. These populations are not only anticipated, but welcome to ensure the success of the two casinos and waterpark. For the above reasons, this hazard was given a low priority and will not be addressed through the Hazard Mitigation Plan.

EARTHQUAKES

Earthquake: a shaking or trembling of the crust of the earth caused by the breaking and shifting of rock beneath the surface.

Hazard Description

Earthquakes range in intensity from slight tremors to great shocks. They may last from a few seconds to several minutes or come as a series of tremors over a period of several days. The energy of an earthquake is released in seismic waves. They usually occur without warning. In some instances, advance warnings of unusual geophysical events may be issued. However, scientists cannot yet predict exactly when or where an earthquake will occur. Earthquakes tend to strike repeatedly along fault lines, which are formed where large plates of the earth's crust below the surface constantly push and move against one another. Risk maps have been produced which show areas where an earthquake is more likely to occur. Earthquake monitoring is conducted by the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, and universities throughout the country.

The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Most casualties result from falling objects and debris. Disruption of communications systems, electric power

lines, gas, sewer, and water mains can be expected. Water supplies can become contaminated by seepage around water mains, or damages to the mains. Damage to roadways and other transportation systems may create food and other resource shortages if transportation is interrupted. In addition, earthquakes may trigger other emergencies such as fires and hazardous material spills, thereby compounding the situation.

Earthquake Overview

No severely destructive earthquake has ever been documented in Michigan. However, several mildly damaging earthquakes have been felt since the early 1800s. The exact number is difficult to determine, as scientific opinion on the matter varies. With most of these earthquakes, damage (if any) was limited to cracked plaster, broken dishes, damaged chimneys, and broken windows. (Biggest Michigan threats would be to pipelines, buildings that are poorly designed and constructed, and shelving, furniture, mirrors, gas cylinders, etc. within structures that could fall and cause injury or personal property damage)

The greatest impact on the SCIT would probably come from damage to the infrastructure system, natural gas and petroleum pipelines, railroad lines, and/or roads and bridges. If the earthquake occurs in the winter, areas of the state could be severely impacted by fuel shortages - which could translate into temporary shortages in for the SCIT.

Damage would probably be negligible in well-designed and constructed buildings. However, poorly designed, and constructed buildings could suffer damage under the right circumstances.

In January 1990, Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, was signed into law. This EO requires that appropriate seismic design and construction standards and practices be adopted for any new construction or replacement of a federal building or federally building during or after an earthquake.

Neither the Isabella Reservation or the Saganing District are in an area designated as being at high risk to ground movement; yet by encouraging awareness of the hazards of poor construction practices and/or routine evaluations of existing structures for deficiencies, vulnerabilities can be identified and repaired before loss is sustained. There may be a chance of a moderate earthquake over the next few decades, which may be strong enough to damage infrastructure. Earthquakes were identified as a low priority and were not addressed in the Plan.

DAM FAILURES

Dam failure: the collapse or failure of an impoundment (water held back by a dam) resulting in downstream flooding.

Hazard Description

A dam failure can result in loss of life and extensive property or natural resource damage for miles downstream from the dam. Dam failures occur not only during flood events, which may cause overtopping of a dam, but also as a result of misoperation, lack of maintenance and repair, or vandalism. A common form of dam failure occurs when tree roots disrupt the integrity of an earthen dam. Water can pass through the dam where the soil has been broken apart by the roots. Such failures can be catastrophic because they occur unexpectedly, with no time for evacuation.

In Michigan, all dams over 6 feet high that create an impoundment with a surface area of more than 5 acres are regulated by Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act

(451 P.A. 1994), as amended. This statute requires the Michigan Department of Environmental Quality (DEQ) to rate each dam as either a low, significant, or high hazard potential this rating system is based solely on the potential downstream impact if the dam were to fail and not according to the physical condition of the dam.

Dam Failure Flooding Overview

According to the National Inventory of Dams, there are no dams listed on the SCIT property. Therefore, there are no dams rated as High or Significant Hazard Potential Dams, and as a result, this hazard has been given a low priority.

NUCLEAR ATTACK

Nuclear attack: A hostile action taken against the United States which involves nuclear weapons and results in destruction of property and/or loss of life.

Hazard Description

Any hostile attack against the United States, using nuclear weapons, which results in destruction of military and/or civilian targets. All areas of the United States are conceivably subject to the threat of nuclear attack. However, the strategic importance of military bases, population centers and certain types of industries place these areas at greater risk than others. The nature of the nuclear attack threat against the U.S. has changed dramatically with the end of the "Cold War" and the conversion of previous adversaries to more democratic forms of government. Even so, the threat still exists for a nuclear attack against this country. Despite the dismantling of thousands of nuclear warheads aimed at U.S. targets, there still exists in the world a large number of nuclear weapons capable of destroying multiple locations simultaneously. In addition, the number of countries capable of developing nuclear weapons continues to grow despite the ratification of an international nuclear non-proliferation treaty. It seems highly plausible that the threat of nuclear attack will continue to be a hazard in this country for some time in the future.

At this point, attack-planning guidance prepared by the Federal government in the late 1980s still provides the best basis for a population protection strategy for Michigan. That guidance has identified 25 potential target areas in Michigan, and 4 in Ohio and Indiana that would impact Michigan communities, classified as follows: 1) commercial power plants; 2) chemical facilities; 3) counterforce military installations; 4) other military bases; 5) military support industries; 6) refineries; and 7) political targets. For each of these target areas, detailed plans have been developed for evacuating and sheltering the impacted population, protecting critical resources, and resuming vital governmental functions in the post-attack environment. Even though Iosco County has an airbase; the threat of a nuclear attack has been lowered due to the end of the "Cold War" and the closure of the base. There still may be a small threat to the former base because it could still be reused for B-52 Stratofortress bomber operations in case the current Stratofortress base is destroyed. The airfield could also have the potential for terrorism/sabotage and is being looked at under that category.

Nuclear weapons are explosive devices that manipulate atoms to release enormous amounts of energy. Compared to normal chemical explosives such as TNT or gunpowder, nuclear weapons are far more powerful and create harmful effects not seen with conventional bombs. A single nuclear weapon is able to devastate an area several miles across and inflict thousands of casualties. Although nuclear attack is an unlikely threat, the severe damage that would be caused by even one weapon requires the danger to be taken seriously.

The threat of nuclear attack has primarily been associated with the Cold War between the United States and the Soviet Union in the last half of the 20th Century. Although the Cold War is over, there remains a threat of nuclear attack. More nations have developed nuclear weapons and there is also the possibility that terrorists could use a nuclear weapon against the United States.

Hazard Analysis

Understanding Nuclear Weapons

The following information about nuclear weapons is important for understanding the threat of nuclear attack: (1) types of nuclear weapons, (2) measures of weapon power, (3) forms of attack, and (4) types of delivery systems.

Nuclear weapons have been built in a wide variety of types for several different purposes. The first weapons relied on nuclear fission, or the splitting of heavy atoms to release energy and create an explosion. Later, new weapons were invented that used a combination of fission and fusion, which involves the creation of heavier atoms from lighter ones. Fusion bombs are also referred to as hydrogen bombs or H-bombs. For emergency planning purposes, the important differences are that (1) fusion bombs are more difficult to build and (2) that they can be much more powerful. Otherwise, all types of nuclear weapons create the same types of effects.

The power of nuclear weapons is measured by comparing the energy released by the weapon to the energy released by large amounts of conventional high explosive. The strengths of smaller weapons are measured in kilotons (or thousands of tons) of TNT explosive. A twenty-kiloton bomb produces as much energy as twenty thousand tons of TNT exploded all at once. The strength of larger weapons is measured in megatons, or millions of tons of TNT. A two-megaton bomb produces as much energy as two million tons of high explosive.

Smaller nuclear weapons are generally designed to be used against military targets on the battlefield. These are called tactical nuclear weapons. Larger devices designed to attack cities, infrastructure, and military bases are called strategic nuclear weapons.

Bombs can be set off at varying heights above the target. If the bomb is set off high in the air, its effects are spread out over a wider area and generally more damage is done. This is called an air burst. A bomb that is set off at or near the Earth's surface level wastes much of its energy against the ground. This is called a ground burst. Ground bursts have some specific military uses and terrorists may use ground bursts because they are unable to lift their weapons high enough to create an air burst.

Like any weapon, a nuclear device must be carried to its target by a delivery system. The first nuclear weapons were bombs dropped out of aircraft. Later, tactical weapons were made small enough to fire out of cannons or carry in large backpacks. Intercontinental ballistic missiles (ICBMs) are rockets that can carry one or more nuclear weapons across thousands of miles in less than an hour. Terrorists may lack sophisticated missiles, but they could create effective delivery systems by transporting a nuclear weapon in the back of a truck, aboard a cargo plane, or within a shipping container.

Effects of Nuclear Weapons

The effects of nuclear weapons are more complicated than those of conventional explosives. Nuclear devices cause damage through six major effects: (1) thermal pulse, (2) blast, (3) prompt radiation, (4) electromagnetic effects, (5) mass fire, and (6) residual radiation. THERMAL PULSE is an intense flash of light and heat released within the first few seconds of a nuclear explosion. The damage from thermal pulse is almost instantaneous and covers a wide area. People and animals exposed to the pulse can be

badly burned. Flammable objects such as buildings, vehicles, and trees may be set on fire. The flash is strongest close to the bomb and becomes weaker with distance. Even people located far away from the explosion may still be blinded by the intense light of the pulse.

BLAST is a powerful wave of force that moves out from the center of the explosion through the air and the ground. The farther the blast travels, the weaker it becomes. Very close to the bomb, the blast will destroy even the most strongly built buildings and will kill everyone not hidden deep underground. Farther away, buildings may survive, but with severe damage, and people will be injured by being picked up and smashed against objects. At still greater ranges, buildings will be less damaged, and injuries will largely result from shattered glass and thrown debris. At all distances, a powerful wind follows the initial blast wave and adds to the destruction. The blast from a ground burst will dig a large crater into the ground, but this cratering will not occur with an air burst.

PROMPT RADIATION is the harmful blast of high energy radiation given off at the same time as the thermal pulse. Prompt radiation includes gamma rays and neutron radiation. This radiation is capable of killing or injuring living beings by damaging tissues and organs. Prompt radiation is quickly absorbed by the atmosphere and does not impact as wide an area as other nuclear weapons effect. In most instances, a person close enough to receive a harmful dose of prompt radiation is also close enough to be immediately killed by the explosion's thermal pulse or blast. However, in unusual cases, some people who survive the immediate effects of the bomb may sicken or die days later, from radiation poisoning.

ELECTROMAGNETIC EFFECTS occur immediately after a nuclear explosion and may damage communications equipment, computers, and electronics. Radios, cell phones, and power lines are especially vulnerable. In most cases, the effects are limited to an area near to the explosion. Some equipment may recover after a period of time, while other devices will need to be replaced. One special type of nuclear attack might cause more widespread electromagnetic effects: a very large nuclear weapon carried high into the atmosphere by a missile is capable of damaging communications and electronics over a very large area.

MASS FIRE results from the ignition of thousands of individual fires by a bomb's thermal pulse, combined with widespread destruction from its blast. Over a period of hours, small fires merge and feed on damaged buildings and debris. Controlling these fires would be very difficult, due to damaged water mains, destroyed fire-fighting equipment, and blocked roads. The result is an extremely intense fire that can spread quickly and reach very high temperatures. Mass fire may significantly expand the area devastated by a bomb, destroying areas that might otherwise be only lightly damaged by other types of effects.

RESIDUAL RADIATION is unlike prompt radiation in that it lasts well after the nuclear explosion has ended. The ground immediately underneath the center of the explosion will be dangerously radioactive for several days due to "induced radiation." There will also be some radioactive dust and debris that will drift downwind of the explosion. This radioactive dust is called "fallout." Fallout will be a minor problem in the case of an air burst explosion but will be very intense in the case of a ground burst attack. Regardless of the type of attack, the danger from fallout will tend to be greatest close to the site of the attack. The cloud of fallout will weaken the longer it lasts and the farther it travels. Note that the effects of a nuclear attack will depend on the size of the weapon. A larger bomb will cause damage over a wider area. The importance of different types of damage will also vary with the weapon. Large strategic nuclear weapons will create most of their damage though thermal pulse and mass fires, while with small tactical bombs the blast effect and prompt radiation will be relatively more important.

Hazard Mitigation Alternatives for Nuclear Attack

- Designated fallout shelters and public warning systems.
- Construction of concrete safe rooms (or shelters) in houses, trailer parks, community facilities, and business districts.
- Using laminated glass, metal shutters, structural bracing, and other hazard-resistant, durable construction techniques in public buildings and critical facilities.
- Increased coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including enemy attack).

Nuclear Attack Overview

Nuclear attack is an unlikely hazard, but even a single weapon could cause death and destruction on a massive scale. Nuclear weapons inflict damage over a wide area and through a variety of effects, including thermal pulse, blast, fire, and radiation. Despite the end of the Cold War, nuclear attack by foreign nations remains a real possibility, and this danger has been joined by the threat of terrorist nuclear attack. It makes sense to continue to prepare for the nuclear attack hazard as part of an overall emergency management strategy. (Note: Should a nuclear attack occur, the emergency management will be taken over by the Department of Homeland Security.)

OTHER HAZARDS

NUCLEAR POWER PLANT ACCIDENTS

Nuclear power plant accidents: an actual or potential release of radioactive material at a commercial nuclear power plant or other nuclear facility, in sufficient quantity to constitute a threat to the health and safety of the off-site population.

Hazard Description

Such an occurrence, though not probable, could affect the short and long-term health and safety of the public living near the nuclear power plant, and cause long-term environmental contamination around the plant. As a result, the construction and operation of nuclear power plants are closely monitored and regulated by the Federal government.

Nuclear Power Plant Failures Overview

Communities with a nuclear power plant must develop detailed plans for responding to and recovering from such an incident, focusing on the 10-mile Emergency Planning Zone (EPZ) around the plant, and a 50-mile Secondary EPZ that exists to prevent the introduction of radioactive contamination into the food chain. Michigan has 3 active and 1 in-active commercial nuclear power plants, in addition to 4 small nuclear testing/research facilities located at 3 state universities and within the City of Midland.

Sanilac County does not have a nuclear power plant located within 50 miles and is not within the Secondary EPZ or ingestion pathway zone. Thus, they are not required to have a plan in place for that zone. The closest active Nuclear Power Plant is located within Michigan is over 100 miles, at the Fermi 2 Nuclear Plant in Monroe County. Should an event occur, that would impact the County, the Emergency Management Director would defer to the governing agency.

SCRAP TIRE FIRES

Scrap tire fire: a large fire that burns scrap tires being stored for recycling/re-use.

Hazard Description

Michigan generates some 7.5 to 9 million scrap tires each year. Although responsible means of disposal have become more common, tire dumps of the last forty years present environmental and safety hazards that will last into the foreseeable future. By 2001, the State of Michigan had identified a total in excess of 24 million scrap tires in disposal sites scattered around the state. By 2010, these were all reported as removed from the county.

The Scrap Tire Regulatory Program is implemented by the Waste Management Division of the Michigan Department of Environmental Quality, under the authority of Part 169 of the Natural Resources and Environmental Protection Act (451 P.A. 1994), as amended. Policies and regulations established under this law provide the basis for EGLE to implement and administer an effective scrap tire management program per the following initiatives: 1) a compliance and enforcement program was implemented; 2) a scrap tire policy recycling hierarchy was established; 3) special uses of scrap tires were approved; and 4) a grant program was established to address abandoned tires.

In 1997, Part 169 was amended to require that a statewide emergency response plan be put into place to address response to fires at collection sites.

Scrap Tire Fires on Saginaw Chippewa Indian Tribe Property

The SCIT has not had a significant tire fire in recent memory.

Scrap Tire Overview

With the elimination of scrap tire sites, this hazard has been greatly reduced and was given a low priority. Low priority hazards have not been addressed in this plan, as high, medium, and moderate priority hazards all were viewed as greater risks to the SCIT and its members.

CLIMATE CHANGE OVERVIEW

Definition-A change in global or regional climate patterns, in particular a change apparent from the late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

As identified in the weather-related hazards, a majority, if not all, of multiple events have occurred in the past 20 years. Not only has the number increased, but the intensity of the events has also increased. Thunderstorms causing flooding has resulted in “100-year floods” occurring annually if not more often. These events can be attributed to Climate Change and are anticipated to continue, if not worsen, in the near future. Subsequently, communities should prepare for more events and as well as more intense weather-related events.

ASSET VULNERABILITY

Asset Vulnerability is identifying vulnerable assets (people and facilities) for the two districts of the Saginaw Chippewa Indian Tribe. Assets were identified by the advisory committee for weather-related events. Those assets that could be vulnerable during an event are identified in the appropriate cell below.

Asset Vulnerability
For Saginaw Chippewa Districts
Table 4.13

Weather Event	Isabella Reservation	Saganing District
Hail	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Lightning	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Severe Winds	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Tornadoes	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Extreme Heat	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Ice/Sleet Storms	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Snowstorms	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Extreme Cold	A,B,C,D,E,F,G,H,I,J	A,B,E,H,I
Flooding	A,B,G	A,B,E,H,I
Shoreline Flooding		A,B,H,I
Shoreline Erosion		A,B,H,I
Wind-blown Ice Floe		A,B,H,I
Drought	D,J	
Fog	A	A

Assets: A-People; B-Tribal Offices; C-Police Station; D-Fire Station; E-Warning Siren; F-School; G-Health Care Facility; H-Casino; I-Hotel; J-Indoor Waterpark

CHAPTER 5: ACTION PLAN

Through a systematic process that included the possible mitigation strategies as identified in the 2003 Local Hazard Mitigation Planning Workbook (Workbook), the Saginaw Chippewa Indian Tribe Emergency Management/Hazard Mitigation Committee (SCIT EM/HMC)) was able to identify the following actions to be the most effective strategies for hazard mitigation in the 2021 Hazard Mitigation Plan for The Saginaw Chippewa Indian Tribe.

The SCIT EM/HMC initiated the selection process with the development of goals and objectives. These goals and objectives are identified on the following page. The SCIT EM/HMC then began review of the possible mitigation strategies as identified in the Workbook. After reviewing over 250 possible mitigation strategies (many of them duplicate strategies for multiple hazards) the SCIT EM/HMC was able to eliminate multiple strategies to reduce the number of possible strategies to 108. The final list of 108 strategies is found in Appendix C. The list of original strategies is found in Appendix D.

The SCIT EM/HMD was then asked to identify hazard mitigation projects/processes that address the hazards items on the list. The projects/processes that address hazards that can be identified as addressing human safety were given a high preference. Those projects that addressed human safety and were deemed readily achievable were then given as a high priority. Projects/processes that were less achievable were identified as medium priorities. Those projects that did not directly address human safety were given moderate priorities. It should be noted those projects that met the high or medium priority criteria but were identified as not being as cost effective as other projects, were given a lower priority.

A total of 22 projects were given high or medium priorities. These projects are found in the action list items. However, due to the total number of projects identified, the entire list is not included in the following list. The complete list of potential projects is listed in Appendix E. These projects will be reevaluated annually and modified appropriately.

GOALS AND OBJECTIVES

GOAL 1: Protect Public Health and Safety

OBJECTIVES

a. Provide community wide hazard warning systems (natural, health, and terrorism events)
b. Provide information and resources to increase hazard awareness
c. Maintain existing resources and equipment provide necessary training on how to use them
d. Identify and obtain necessary resources and equipment to prevent or minimize hazard effects
e. Maintain/protect tribal residents and property, including native flora and fauna

GOAL 2: Minimize damage to public and private property

OBJECTIVES

a. Adopt policies to make property less vulnerable
b. Apply mitigation measures to prevent hazard damage
c. Obtain necessary equipment, resources, and training to protect property if hazard occurs
d. Conduct training sessions and exercises to prepare for possible hazards

GOAL 3: Maintain essential services

OBJECTIVES

a. Identify, inspect, and maintain all critical infrastructure and facilities
b. improve security for tribal facilities
c. Repair or replace critical infrastructure and facilities that are damaged or degraded
d. Protect critical infrastructure and facilities from hazard damage
e. Obtain necessary resources and equipment to ensure essential services are maintained in the event of a hazard
f. Work with Department of Environmental Protection Agency (EPA) and the Army Corps of Engineers to identify how to minimize/mitigate disaster effects on vital natural resources

GOAL 4: Manage growth/development

OBJECTIVES

a. Develop hazard resistant land use and growth policies
b. Restrict development in high hazard areas
c. Integrate hazard mitigation planning into land use planning
d. Encourage sustainable development
e. Protect and conserve natural resources

HIGH PRIORITY HAZARD MITIGATION ACTIONS

Item 1

Improve warning system to warn residents of oncoming hazards

Action: Install warning system (similar to Code Red or NIXLE) tribal-wide to warn tribal members and employees of oncoming hazards and events such as amber alerts.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Dispatch, Tribal Information Technology (IT)
- Participating Agencies: Tribal Risk Management, Tribal Police, Tribal Fire
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, Bureau of Indian Affairs (BIA) Grants
- Project Cost: $50,000
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives a and e
- Benefit(s): Improved notification of oncoming hazards/events

Item 2

Install warning siren(s)

Action: Install a warning siren at the Saganing Eagles Landing Casino and other sites as needed.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Fire Department
- Participating Agencies: Tribal Police, Tribal Planning Dept, and Tribal Emergency Services
- Hazards Addressed: All hazards
- Potential Funding Source(s): United States Department of Agriculture (USDA) Grants, BIA Grants
- Project Cost: $60,000
- Schedule: 2022/23
- Priority: High
- Goal/Objective Achieved: Goal 1, objectives a and e; goal 2, objective c
- Benefit(s): Providing advance notice of oncoming hazards/events

Item 3

Maintain a budget line item to be used for hazardous events (pandemics)

Action: Maintain the existing line item in the budget for COVID-19 and utilize for funding of equipment for first responders, educational materials, and other items for hazard mitigation activities.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Administration, Nimkee Health Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal budget
- Project Cost: $25,000
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c, d, and e; goal 3, objective e
- Benefit(s): Creating a fund for a future source to assist in the recovery from hazards/events

Item 4

Training for first responders

Action: Train first responders in handling emergency calls.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Public Safety
- Participating Agencies: Nimkee Health Department, Tribal Emergency Management, Saganing Security
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants, Tribal budget, Department of Justice (DOJ) Grants
- Project Cost: $10,000/annually
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c and e, goal 2, objective d; goal 3, objective e
- Benefit(s): Quicker and more consistent responses from first responders

Item 5

Water rescue training for first responders

Action: Train first responders for water rescue missions.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Public Safety
- Participating Agencies: Isabella County Dive Team, Michigan DNR personnel, and U.S. Coast Guard
- Hazards Addressed: All water hazards
- Potential Funding Source(s): BIA Grants, Tribal Budget
- Project Cost: $50,000
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c and e; goal 2, objective d
- Benefit(s): Trained personnel to handle emergency events, more consistent/improved responses

Item 6

Purchase generators

Action: Purchase generators to be used as back-up power sources for critical facilities during hazardous events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Facility Department
- Participating Agencies: Tribal Administration, Tribal Planning Department
- Hazards Addressed: Energy emergencies, infrastructure failures
- Potential Funding Source(s): BIA grants
- Project Cost: TBD
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objective e; goal 2, objective c; goal 3, objectives d and e
- Benefit(s): Keep facilities functioning during emergencies.

Item 7

Upgrade technology

Action: Upgrade technology to allow operations to continue on a remote basis. Several possible solutions include upgrade broadband and convert PCs to laptops.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Information Technology Department
- Participating Agencies: All Departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, BIA Grants, EDA Cares Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objective c; goal 3, objective b
- Benefit(s): Continued communications/operations during hazardous events.

Item 8

Install River Gauges

Action: Install gauges/mile markers to monitor river height and to assist first responders.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: United States Geological Survey (USGS), Bureau of Indian Affairs (BIA), Arenac, Iosco, and Isabella County Road Commissions
- Hazards Addressed: Flooding, infrastructure failure, public health emergency
- Potential Funding Source(s): BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD ($38,000/gauge with $10,000 annual maintenance fee)
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives b and e; goal 2, objective c; goal 3, objective d
- Benefit(s): Monitoring of river water levels and response to personal emergencies will both improve due to better information being provided.

Item 9

Video critical infrastructure

Action: Install video surveillance equipment on critical infrastructure.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Utilities Department, Tribal Information Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objective c; goal 3, objective c
- Benefit(s): Identifying problems and potential problems will lead to them being addressed more quickly.

Item 10

Develop standards for warming/cooling station locations

Action: Develop standards for the development of warming/cooling stations to be used by tribal members and employees.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Council, Tribal Administration, and Tribal Risk Management Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: 2021
- Priority: High
- Goal/Objective Achieved: goal 1, objectives b, c, and e; goal 2, objective b
- Benefit(s): Providing standards will allow the stations to be designed consistently to address the needs of the persons utilizing the stations.

Item 11

Encourage the inclusion of hazard mitigation into all planning documents

Action: Incorporate hazard mitigation goals and objectives into existing planning documents and operating procedural documents.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 4, objectives b, c, and d
- Benefit(s): Improved awareness and coordinated effort to mitigate the impacts of hazards.

Item 12

Training for hotel/casino employees

Action: Host tabletop exercise for all hotels/casinos to address hazardous situations.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Security Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Human Relations Department, Tribal Police, Tribal Fire, Tribal Risk Management Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 2, objective d
- Benefit(s): Employees will be better trained to handle emergency situations, which will lead to quicker/improved responses.

MEDIUM PRIORITY HAZARD MITIGATION ACTIONS

Item 13

Create shelter for families with pets

Action: Identify and develop emergency shelter for families with pets.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Housing Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Planning Department, Tribal Risk Management, Tribal Public Relations Department
- Hazards Addressed: Weather-related hazards, infrastructure failure, energy emergencies
- Potential Funding Source(s): FEMA Grants , BIA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objective e
- Benefit(s): Families with pets will now have a safe place during hazards, while eliminating public health and safety concerns for persons with animal allergies.

Item 14

Assess trailer parks

Action: Complete an assessment on trailer parks to identify improvements needed at these location during tornados, straight winds, and other weather-related events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Housing Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Planning Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, BIA Grants, USDA Grants
- Project Cost: TBD
- Schedule: 2026
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives b and e
- Benefit(s): Determine the living conditions as they relate to hazards for the residents of the trailer park.

Item 15

Update Best Practices Manual

Action: Update Best Practices Manual to address proper procedures, including maintenance of equipment, during pandemic situations. (This may include the retaining of Personal protective equipment beyond the expiration date.)

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal administration
- Participating Agencies: All tribal departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives, b, c, and e; goal 2, objective d

- Benefit(s): Having a consistent means to address hazards and other events.

Item 16

Develop action plan to address PFAS

Action: Develop action plan to address PFAS and emerging water quality issues in Isabella and Arenac Counties. Work with local officials to assure drinking water is safe and potable.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: All departments
- Hazards Addressed: Public health (potable water quality)
- Potential Funding Source(s): Indian Health Services, FEMA Grants, BIA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives b and e; goal 2, objective a; goal 3, objective f
- Benefit(s): Maintain potable water quality, protecting the public health, safety, and welfare of the residents.

Item 17

Infrastructure hydraulic assessment on road crossings and waterways

Action: Complete a hydraulic study on road crossings and waterways to identify potentially hazardous conditions during extreme weather events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Tribal Council, Tribal Administration, BIA, Arenac, Iosco, and Isabella Road and Drain Commissions, Michigan Department of Transportation (MDOT)
- Hazards Addressed: Flooding, infrastructure failure, public health issues
- Potential Funding Source(s): FEMA Grants, BIA Grants, Outside Agency Partnerships
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 3, objective a
- Benefit(s): Identify and prioritize the improvements needing to be completed to improve infrastructure.

Item 18

Study to identify water infiltration

Action: Complete study to identify water infiltration on proper sanitary facilities and associated infrastructure.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Utilities Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Public Relations, Tribal Risk Management Department, and Tribal Planning Department
- Hazards Addressed: Public health, infrastructure failures, and flooding
- Potential Funding Source(s): FEMA Grants, Environmental Protection Agency (EPA) Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium

- Goal/Objective Achieved: goal 3, objective a
- Benefit(s): Identify sites that can be improved and upgraded to provide better support during future events

Item 19

Tabletop exercise

Action: Tabletop exercise to develop standard operating procedures (SOP) to address emergency management of facilities during hazardous situations (COVID-19).

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, BIA Grants, DOJ Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 2, objective d
- Benefit(s): Staff better prepared to handle emergency situations.

Item 20

Upgrade infrastructure

Action: Replace culverts and/or upgrade infrastructure based on hydraulic study in Item 20.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Tribal Council, Tribal Administration, BIA, Arenac, Iosco, and Isabella Road and Drain Commissions, Michigan Department of Transportation (MDOT)
- Hazards Addressed: All weather-related hazards, infrastructure failures
- Potential Funding Source(s): TBD
- Project Cost: TBD
- Schedule: TBD
- Priority: Medium
- Goal/Objective Achieved: goal 3, objective c
- Benefit(s): Upgrade infrastructure to better address hazardous (flooding) events.

Item 21

Coordination of mitigation activities

Action: Work with local municipalities in Isabella and Arenac Counties to coordinate hazard mitigation activities.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: Arena, Iosco, and Isabella County Emergency Management Departments, all tribal departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, Local Agencies, BIA Grants, Tribal Budget
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 2, objectives a, c, and d

- Benefit(s): Coordinated effort with local agencies to better handle hazardous events.

Item 22

Join National Flood Insurance Program (NFIP)

Action: Tribal Council to formally join NFIP and incorporate program regulations.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Planning Department
- Participating Agencies: FEMA, Tribal Council
- Hazards Addressed: Flooding
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: 2022/23
- Priority: Medium
- Goal/Objective Achieved: goal 2, objectives a and b
- Benefit(s): Joining the NFIP and incorporating program regulations will reduce damages resulting from floods. Flood insurance premiums for residents will be reduced.

CHAPTER 6: FOLLOW-UP

The annual follow-up for the Hazard Mitigation Plan is an important part of the planning process. Follow-up is the process in which the plan will be monitored, evaluated, and updated within the five-year cycle. When updated, the plan will be resubmitted to the Federal Emergency Management Agency (FEMA) for approval. As appropriate, the plan will also be evaluated after a disaster, or after unexpected changes in land use or demographics in or near hazard areas. These evaluations will be addressed in the plan and may affect the action items for mitigation goals and activities. The hazard mitigation plan should be considered by SCIT officials when future updates of their comprehensive plans or other planning documents are taking place.

The Saginaw Chippewa Indian Tribe Emergency Management/Hazard Mitigation Committee (SCIT EM/HMC) will continue to monitor the status and track the progress of the plan elements on an annual basis. The SCIT EM/HMC will oversee the progress made on the implementation of the identified action items and update the plan as needed to reflect changing conditions. Representatives will also meet annually to evaluate plan progress and recommend updates. The Emergency Management staff will facilitate the meetings.

Evaluation of the plan will not only include checking the implementation status of mitigation action items, but also assessing their degree of effectiveness and assessing whether other natural hazards need to be addressed and added to the plan. This will be accomplished by reviewing the benefits (or avoided losses) of the mitigation activities that were in place. These will be compared to the goals the Plan has set to achieve. The SXCIT EM/HMC will also evaluate whether mitigation action items need to be discontinued or modified in light of new developments or changes within the Tribal properties.

As required, this plan will be updated within five (5) years of the date of FEMA's approval of the plan. The plan may be updated earlier, at the discretion of the SCIT EM/HMC or the Tribal Council. The SCIT EM/HMC's ability to update the mitigation process by adding new data and incorporating it into the mitigation plan will allow for the efficient use of available resources, staff, and programs. They will meet to discuss the plan and document data collected including hazard events, completed mitigation activities, new mitigation activities, and FEMA grant application efforts. The information will be used for the five (5) year update. The Emergency Management staff will coordinate the annual meeting and keep records of the participants and information received.

Upon completion of grant-funded projects, the grants department within the SCIT will closeout the grants according to the requirements of the program. This will include FEMA-funded grans, BIA grants, MDOT grants, and all other potential grant programs used to fund projects identified in this Plan.

In order to have continued public support of the mitigation process, it is important that the public be involved not only in the preparation of the initial plan, but also in any modifications or updates to the plan. The public is invited to the annual meetings, in compliance with the Public Meetings Act.

To ensure that public support is maintained, the following actions may be taken by SCIT EM/HMC:

- Updates to the plan.
- The Hazard Mitigation Plan has been posted on the SCIT's website along with contact information that allows any citizen to read it and provide feedback.
- Develop informational mailings to be distributed to the public about mitigation efforts in the county and updates made to the plan.

- Develop mitigation flyers or mailings that contain mitigation activities and action items that promote reducing damages and risks of natural hazards.

CHAPTER 7: ASSURANCES AND PLAN ADOPTION

The Saginaw Chippewa Indian Tribe (SCIT) assures that it will comply wit all applicable regulations and federal statutes in effect with respect to the periods for which it has received grant funding in compliance with 44 CFR Parts 200 and 3002. The SCIT will amend the SCIT Hazard Mitigation Plan in accordance with the process as identified in Chapter 6: Follow-up, which identifies the annual review and amendment process for the SCIT Hazard Mitigation Plan.

The Tribal Council will formally adopt the SCIT Hazard Mitigation Plan ("Plan") after receiving a letter from FEMA stating that the Plan is approved pending adoption. The Plan adoption resolution will be signed by the appropriate parties and will follow this page in the final document. This Plan shows the SCIT's commitment to developing mitigation strategies in the plan and authorizes the appropriate parties/departments to proceed with these actions.

APPENDIX A

Saginaw Chippewa Indian Tribe Emergency Management
Hazard Mitigation Committee
Attendance Sheets

SCIT EM/HMC Attendance Sheet

April 27, 2021

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski	X	Fred Cantu Jr.	
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick	X	Dan Martin (Isabella County)	
Jenifer Bailey		Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy		Julie Adams	
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	Phil Jackson	X
Michelle Colwell		Carey Pauquette	
Michael Bower (Arenac County)		Lorena Reyes (FEMA)	X

SCIT EM/HMC Attendance Sheet

March 30, 2021

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski	X	Fred Cantu Jr.	
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker		Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Bailey		Kelly Pilarski	
Sally Kniffen		Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs		Phil Jackson	X
Michelle Colwell	X	Carey Pauquette	X
Michael Bower (Arenac County)	X	Lorena Reyes	X

SCIT EM/HMC Attendance Sheet

February 23, 2021

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski		Fred Cantu Jr.	X
Don Seal	X	Jonas Wilcox	
Kelly Pilarski	X	Pete Kopp	
Dan Stark		Shannon Peters	X
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Bailey	X	Kelly Pilarski	
Sally Kniffen		Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	Phil Jackson	X
Michelle Colwell	X	Carey Pauquette	X
Michael Bower (Arenac County)	X		

SCIT EM/HMC Attendance Sheet

January 26, 2021

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski	X	Fred Cantu Jr.	X
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	X
Paul J. Walker		Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen		Michael McCreery	
Walt Kennedy	X	Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	Phil Jackson	X
Michael Bower (Arenac County)		Carey Pauquette	X

SCIT EM/HMC Attendance Sheet

November 24, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski	X	Fred Cantu Jr.	X
Don Seal		Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs	X		
Michael Bower (Arenac County)			

SCIT EM/HMC Attendance Sheet

October 27, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	
Michael Peruski		Fred Cantu Jr.	X
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	X
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		William Vaught	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	
Harry Ambs	X		
Michael Bower (Arenac County)			

SCIT EM/HMC Attendance Sheet

September 29, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski		Fred Cantu Jr.	
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	X
Susan Sowmick	X	Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	William Vaught	
Michael Bower	X		

SCIT EM/HMC Attendance Sheet

August 25, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	
Michael Peruski		Fred Cantu Jr.	X
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	X
Anthony Clark	X	Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick	X	Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen		Michael McCreery	
Walt Kennedy		Julie Adams	
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	William Vaught	X
Michael Bower	X		

SCIT EM/HMC Attendance Sheet

July 28, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	X
Michael Peruski		Fred Cantu Jr.	
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker	X	Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy		Julie Adams	X
Tim Nelson		Frank Cloutier	X
Harry Ambs	X	William Vaught	X

SCIT EM/HMC Attendance Sheet

June 24, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	
Michael Peruski		Fred Cantu Jr.	
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker		Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt	X	Kelly Pilarski	
Sally Kniffen	X	Michael McCreery	
Walt Kennedy			
Tim Nelson			
Harry Ambs	X		

SCIT EM/HMC Attendance Sheet

May 27, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	
Michael Peruski		Fred Cantu Jr.	X
Don Seal		Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker		Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark		Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt		Kelly Pilarski	
Sally Kniffen			
Walt Kennedy			
Tim Nelson			
Harry Ambs	X		

SCIT EM/HMC Attendance Sheet

April 29, 2020

Person	In Attendance	Person	In Attendance
Troy Techlin	X	Rebecca Cogswell	
Joe J. Johnson		Stacy Paname	
Dave Bryant		Theresa Teeter	
Dave Winegardner		David Chatfield	
Michael Peruski	X	Fred Cantu Jr.	X
Don Seal	X	Jonas Wilcox	
Kelly Pilarski		Pete Kopp	
Dan Stark		Shannon Peters	
Paul J. Walker		Charles Wright	
Luke Dixon		Rick Hamilton	
Anthony Clark	X	Ed Rohn (Arenac County)	
Ed Bryant		Mitchell Oliver (Arenac County)	
Bill Ernat	X	Marc Griffis (Isabella County)	
Susan Sowmick		Dan Martin (Isabella County)	
Jenifer Seibt	X	Kelly Pilarski	
Sally Kniffen		Michael McCreery	X
Walt Kennedy	X		
Tim Nelson			
Harry Ambs	X		

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

February 26th, 2020

Name	Department/Title
Troy Techlin	Planning
Joe J Johnson	WTP Sag Chip
DAVE BRYANT	Security Supervisor
David Winegardner	Security Manager
Michael Pernski	SELCH SECURITY MANAGER
Don Seal	Planning
Kelly Pilarski	I.T.
Dan Stark	Security Supervisor
Paul J. WALKER	Facilities Supervisor SELC
Luke Dixon	Sergeant Tribal Police
Anthony Clark	Sagchip Safety Director
Ed Bryant	Saganing Safety Manager
BILL ERNAT	EMCOG
SUSAN SOMMICK	NIMKEE PUBLIC HEALTH

Start Time: _____ End Time: _____

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

January 29, 2020

Name	Department/Title
Troy Techlin	Planning / Env. Response Program Specialist
Joe J Johnson	WATER PLANT MANAGER
Sally Kruffen	Planning / Env. Specialist
Anthony Clerk	Surveillance
Bill Ernst	EMCOG
Sue Sowerick	Nurse
Fred Cantu Jr.	Fire Dept.
Paul J Wilkerson	Sag Maint Supervisor
Harry Ambs	Tribal PD - Police Chief
Charles Wright	Wastewater Treatment Plant / Intern (operator)
Jennifer Seth	Tribal Member

Start Time: _____ End Time: _____

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

November 20, 2019

Name	Department/Title
DAVID Bryant	Security - Security Supervisor
DAVE WINEGARDNER	SECURITY - MANAGER
Michael P. McGeorge	Natural Resources Specialist - Tribal Member
Tray Techlin	Env Response Program Specialist
Jeff J Johnson	Utilities DRINKWATER Plant T
BILL ERNAT	EMCOG
Harry Ambs	Police / chief
Rebecca Cogswell	Nimkee Public Health
[signature]	Planning-Environmental Resource Tech
[signature]	Tribal Council EM
[signature]	Isabella County 911 - Administrative Supervisor

Start Time: 10 A.M.

End Time: 11 A.M.

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in sheet (cont'd)

October 30, 2019

Name	Department/Title
Joe J Johnson	Water Plant Manager
Anthony Clark	Sag Chip Swd.
Ed Rohn	Arenac Co Emerg. Mgmt.
Harry Ambs	Police / chief
Luke Dixon	Police / Sergeant
Michael Perushi	SELCH SECURITY
Mitchell Oliver	SAFA fire chief
Don Seal	SCIT Planning
Jennifer Sibbt	SCIT Planning - Environmental resource Technician
Bill Ernat	EMCOG

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

September 25, 2019

Name	Department/Title
Jennifer Seibl	Planning - Environmental Resource
Mike Thompson	IT
Tray Techlin	Planning - Env. Response Specialist
Bill Ernat	EMCOG
Don Seal	SCIT Planning
Fred Cantu Jr.	SCITFD - Fire Chief.
Joe J Johnson	Utilities Operator and Supervisor
Rebecca Cogswell	Public Health RN
David Chatfield	Safety Coor
Dave Winegardner	Security - Manager
Dave Bryant	Security - Supervisor
Harry Ambs	Tribal Police - Chief of Police
Charles Wright	Waste Water Treatment Plant Intern / Operator
Michael Petruski	Sagaming Security

Start Time: 10 A.M.

End Time: 11 A.M.

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

August 28, 2019

Name	Department/Title
Jennifer Sabo	Env Resource Tech/Planning
Bill Ernst	EMCOG
Troy Teahlin	Planning / Env. Region Prgm Spec. I
Don Seal	Planning / Community Engineer
Luke Dixon	Tribal Police Sergeant
Joe J Johnson	WTP Supervisor
Charles Wright	WWTP - OPERATOR INTERN
Jonas Wilcox	Saganing Water + Wastewater Manager
Anthony Clerk	Supervisor
Dan Stark	SELC SECURITY
Paul J. Walker	Saganing Facilities
Michael Peach	SELC SECURITY
Susan Sowmick	Member

Start Time: 10 AM

End Time: 11:25 AM

Saginaw Chippewa Indian Tribe
Emergency Management Meeting
Sign-in Sheet

July 31, 2019

Name	Department/Title
Bill Ernat	EMCOG
Shanna Peters	SCIT Utilities
Joe J Johnson	SCIT Utilities
Dave Winegardner	Security - Manager
Dave Bryant	Security - Supervisor
Anthony Clark	SCIT SysAd
Rebecca Cogswell	Winkler Public Health RN
Charles Wright	SCIT UTILITIES/MWWTP
DAVE Chatfield	Risk Mng Safety
Don Seal	SCIT
Sue Sourek	Member
Sally Knipfer	SCIT
Harry Ambs	Police Chief
Jennifer Seibt	Planning Environmental Resources Tech.

Start Time: 10 9:05 A.M.

End Time: 11:35 A.M.

Saganing Emergency Management Meeting

Sign-in Sheet

June 19, 2019

Name	Department/Title
Rebecca Cogswell	Nimkee Public Health RN, EPC
Bill Ernst	EMCOG/Regional Planner
Walt Kinnunen	Nimkee Public Health
Michael Pernski	SELC SECURITY DEPARTMENT MANAGER
Stacy Panamc	Eagle Bay Marina
Theresa Teeter	Area Manager of Retail Operations, Mnjikaning EDC
Paul J. WALKER	Facilities Supervisor SELC
Don Seal	Planning
Jennifer Stibb	Planning/Environmental Resources Tech.
Troy Techlin	Planning /Environmental Program Program Specialist
DAVID Chatfield	Risk Mang. Safety coor
Fred Cauley Jr.	Fire Dept.
Jonas Wilcox	Saganing WWTP
Luke Dixon	Tribal Police
Pete KoPP	Fire C.P.

Start Time: 2:05 pm

End Time: 3:00 pm.

Saganing Emergency Management Meeting

Sign-in sheet (cont'd)

Name	Department/Title
Tim Nelson	Saganing Outreach
Harry Ambs	Police / Chief

Saginaw Chippewa Indian Tribe of Michigan

Tribal Hazard Mitigation Plan Update Sign-in

June 13, 2019

Name (Please Print)	Organization	SCIT Affiliation Member/Descendant Employee/Community	Primary Contact Number	Primary Email	Miles Driven (Round Trip)
Troy Techlin	SCIT	Employee	(989) 775-4080	TTechlin@sagchip.org	8
Jennifer Seibt	SCIT	member + Employee	(989) 775-4147	JSeibt@sagchip.org	0
Sally Kniffen	SCIT	employee	(989) 775-4015	skniffen@sagchip.org	0
Don Seal	SCIT	Employee	(989) 775-4151	dseal@sagchip.org	0
Bill Ernat	EMCOG	N/A	(989) 992-8700	bernat@emcog.org	—
★ Walt (KENNEDY) Kennedy	N. in KM	NA	(989) 775-4605	WKennedy@sagchip.org	—
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			( )		
			( )		
			( )		

Start time 11:18 AM.

End time 11:40 AM.

APPENDIX B

Saginaw Chippewa Indian Tribe
Residential Hazard Mitigation Survey

The Saginaw Chippewa Indian Tribe is in the process of creating a Hazard Mitigation Plan, required by the Federal Emergency Management Agency to qualify for pre-disaster funding. As part of this process, the Saginaw Chippewa Indian Tribe Emergency Management/Hazard Mitigation Committee (SCIT EM/HMC) wants feedback from the tribal members and is seeking your assistance to identify the concerns of the Saginaw Chippewa Tribe Members as they relate to natural and man-made hazards. Please take the survey, as any and all information is useful as the Hazard Mitigation Plan is being developed.

1. What is your zip code? _____
2. Do you own your home? Yes ❑ No ❑
3. Do you rent your home? Yes ❑ No ❑
4. Do you have internet access? Yes ❑ No ❑

5. How concerned are you about the hazards potentially impacting you and your community? Please use the following rankings: 0-Not Concerned 1-Somewhat Concerned 2- Moderately Concerned 3-Very Concerned

_____ Thunderstorms
_____ Hail
_____ Lightning
_____ Ice/Sleet Storms
_____ Snowstorms
_____ Severe Winds
_____ Tornadoes
_____ Extreme Heat
_____ Extreme Cold
_____ Fog
_____ Flooding
_____ Shoreline Flooding
_____ Shoreline Erosion
_____ Dam Failures
_____ Drought
_____ Wildfires
_____ Invasive Species
_____ Earthquakes
_____ Subsidence (sinkholes)
_____ Structural Fires
_____ Scrap Tire Fires
_____ Hazardous Material Accident-Transportation
_____ Hazardous Material Accident-Fixed Site
_____ Petroleum/Gas Pipeline Accident
_____ Oil/Natural Gas Well Accident
_____ Infrastructure Failure
_____ Energy Emergency
_____ Transportation Accident (Commercial)
_____ Civil Disturbance
_____ Nuclear Attack
_____ Public Health Emergency
_____ Terrorism/Sabotage
_____ Seasonal Population Change
_____ Special Events
_____ Cyber Crimes
_____ Nuclear Plant Failure

6. What is the most effective way for you to receive information about how to make your home and family safer from hazardous situations? (Please check all that apply.)
   - ❑ Radio
   - ❑ Phone
   - ❑ Newspaper
   - ❑ Television
   - ❑ Schools
   - ❑ Outdoor warning Siren
   - ❑ Public Meeting
   - ❑ Church
   - ❑ Employer
   - ❑ Mail
   - ❑ Fire Department
   - ❑ Other _____

7. How aware are you of the natural hazards that could affect your home?
   ❑ Not at all ❑ Somewhat ❑ Moderately ❑ Very Much

8. Please check your status accordingly to the following activities.

Has someone in your household:	Completed	In process	Not Started	Unable to do
Attended meetings or received written information on natural disasters or emergency preparedness?				
Talked with family members about what to do in case of a disaster or emergency?				
Developed a "Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?				
Prepared a Family Disaster Kit (extra water, food, batteries, medications, first aid supplies, and other emergency supplies)				
In the last year as someone in your household been trained in first aid or Cardio-Pulmonary Resuscitation (CPR)?				

9. Natural and man-made disasters can have a significant impact on a community but planning for these events can help mitigate3 (lessen) the impact. The following statements will help provide direction for the Committee in planning for these hazards. Please indicate how important these factors are to you and your family.

	Very Important	Somewhat Important	Neutral	Not very Important	Not Important
Protecting private property					
Protecting critical facilities (hospitals, critical infrastructure facilities, fire stations)					
Preventing development in hazard areas					
Protecting natural environment					
Protecting historical/cultural landmarks					
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses					

Protecting and reducing damage to utilities					
Strengthening emergency services (police, fire, ems)					

10. In the table below, please list the 5 worst disasters (man-made or natural) that have impacted the Bay County along with any additional information about the event. Any information is greatly appreciated.

Event Type	Date	Location	Description

Thank you for taking time to complete this survey. Please email your response to ttechlin@sagchip.org so that your information can be included.

RESIDENTIAL SURVEY RESPONSE TABULATION

1. What is your zip code?	48858	33	48878	1	Other (48650)	1
2. Do your own your home?	Yes	30	No	4		
3. Do you rent?	Yes	3	No	31		
4. Do you have internet access?	Yes	34	No	1		

5. How concerned are you about the hazards potentially impacting you and the SCIT Community? Please use the following rankings: 0-not concerned, 1-somewhat concerned, 2-moderately concerned, 3-very concerned

Hazard	0	1	2	3	Hazard	0	1	2	3
Thunderstorm	8	16	6	3	Structural Fires	5	10	9	8
Hail	7	11	13	1	Scrap Tire Fires	14	10	1	5
Lightning	4	18	7	2	Hazardous Material Incident	6	15	7	4
Ice/Sleet Storms	2	5	13	14	Transportation	8	14	7	3
Snowstorms	3	5	12	13	Hazard Material Fixed Site	6	17	8	1
Severe Winds	1	7	18	7	Petroleum/Gas Pipeline Accident	8	6	11	7
Tornadoes	4	10	5	14	Oil/Natural Gas Well Accident	7	7	11	7
Extreme Heat	5	13	9	6	Infrastructure Failure	4	10	9	9
Extreme Cold	8	8	12	11	Energy Emergency	3	14	12	3
Fog	11	16	3	2	Transportation Accident (Commercial)	9	10	10	3
Flooding	6	7	10	11	Civil Disturbance	4	7	13	8
Shoreline Flooding	19	4	6	2	Nuclear Attack	10	11	5	6
Shoreline Erosion	17	6	6	2	Public Health Emergency	1	6	5	20
Dam Failures	15	9	2	6	Terrorism/Sabotage	4	7	9	11
Drought	12	9	9	2	Seasonal Population Change	18	7	3	2
Wildfires	16	9	2	5	Special Events	14	9	5	3
Invasive Species	6	13	5	8	Cyber Crimes	3	9	8	12
Earthquakes	12	11	7	2	Nuclear Plant Failure	16	6	2	8
Subsidence	11	11	7	2					

6. What is the most effective way for you to receive information about how to make your home and family safer from hazardous situations? (Check all that apply)

Source	Number	Source	Number
Radio	16	Public Meeting	13
Phone	26	Church	3
Newspaper	6	Employer	17
Television	22	Mail	15
Schools	4	Fire Department	8
Outdoor Warning Sirens	24	Other: Text messaging (3) Facebook (2), emails (3), Tribal Police (1)	8

7. How aware are you of the natural hazards that could affect your home?

t at all	2
mewhat	11
derately	17
ry much	4

8. Please check you status accordingly to the following activities.

s someone in your household:	mpleted	process	t started	able to do
tended meetings or received written information on natural disasters or emergency preparedness?	13	8	12	2
lked with family members about what to do in case of a disaster or emergency?	13	12	10	
veloped a "Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?	8	13	13	
epared a Family Disaster Kit (extra water, food, batteries, medications, first aid supplies, and other emergency supplies).	9	11	15	
n the last year as someone in your household been trained in firs aid or CPR>	22	3	8	2

9. Natural and man-made disasters cam have a significant impact on a community but planning for these events can help mitigate the impact. The following statements will help provide direction for the SCIT EM/HMC in planning for these hazards. Please indicate how important these factors are to you and your family.

	Very important	Somewhat important	Neutral	Not very important	Not important
Protecting private property	21	14			
Protecting critical facilities (hospitals, fire stations, critical infrastructure facilities)	30	3	1	1	
Preventing development in hazard areas	19	11	5		
Protecting natural environment	28	5	2		

Protecting historical /cultural landmarks	25	5	2	1	1
Promoting cooperation among public agencies, citizens, non-profit organizations and businesses	24	8	3		
Protecting and reducing damage to utilities	22	8	4		1
Strengthening emergency services (police, fire, ems)	29	3	2	1	

Question 10. In the table below, list the five worst disasters (man-made or natural) that have impacted the Saginaw Chippewa Indian Tribe, along with information about the event.

Year	Event	Location	Comments
	Capitalism		Humans continue to stray from nature and rely on governments and agencies to protect and provide. Failure of humans to provide for themselves and their families. Failure to grow food, failure to build in smart places, failure to find safe alternatives for fuels, cleaning products. Reliance on the capital system to come to their aide in times of disaster. Now native populations continue down the same roads, we have no disaster of nature just human failures of preparedness and a reliance on corporations to provide food, fuels, medicines, comfort, and in many cases protection.
	Flood	Mt Pleasant	Took out roads, lost gardens, erosion
	Flood	Mt Pleasant	Our rivers and area were impacted by flood waters.
2017	Flash flood	Central Michigan	Localized flooding that took out roads and damaged property.
	Flooding	Reservation Boundary	FEMA came out and talked to use about applying for aid.
	Flooding	Tribal property	Flooding that took place in the past few years.
2018	Flooding	Isabella County	We got more rain in 6 hours that we get in a month (10")
2018?	Flood	Tribal property	Large amounts of rain, Isabella County and surrounding areas, tribal buildings received flood damage along with various roof leaks.
2017	Flood	Isabella County	The 1 in a 100-year flood a few years ago was terrible.
2020	Pandemic	Everywhere	Pandemic, no other words to describe it. Casino shut down and being laid off.
2020	Pandemic	Global	COVID-19 pandemic.
2020	Infectious diseases	United States	COVID-19and all infectious diseases.
2020	COVID-19	Globally	COVID-19 has been shown many disparities in our access to healthcare and has taken our elders.
2020	COVID-19	Everywhere	The "medical" situation is destroying our economy and way of life.
2001	SECR Chemical Leak	Isabella Reservation	Chlorine and other materials caused a vapor that affected staff in the immediate area, which caused the hotel and casino to stop operations.
1998	Chemical	SERC	Laundry chemical event.
	Chemical leaks	Casino	SECR laundry, chemicals causing shutdown and evacuation.
Recurring	Winds/Tornado/ Lightning	Mt Pleasant	Straight line winds and downwind drafts (essentially tornado stuff).

Year	Event	Location	Comments
2004	Straight Line Winds	Isabella County	Caused power outages, power lines, downed, and trees blown over.
	Power outages	Isabella County	Sometimes these are weather relate, but there is allow response to restore.
2009	Tornado	Saganing	Fast moving tornado during Saganing Pow Wow.
Recurring	Freezing rain	Mt Pleasant	This has been occurring more often and has impacted safety issues around and in the community.
2005	Ice storm	Isabella County	Ice storm took out power for most of Central Michigan.
	Snow and ice	Isabella County	
2019	Snow/blizzard	Isabella County	Strong winds and large amounts of snowfall causing hazardous driving conditions, power outages, heating issues with the elderly.
Recurring	Extreme heat/cold		While it has not overly affected my home, it has affected our community.
	Severe winter weather	Tribal housing	Severe cold has caused many pipes in houses to freeze/burst.
	Heating /cooling	Tribe	Is there a back-up system for emergency heating and cooling issues withing the tribal organization for the tribal community?
	Concert traffic		Worry of car accidents after concerts.
	Traffic	Mt Pleasant	It seems that traffic problems are man-made due to the lights not being synchronized or streets not designed well (traffic directed).
	Plant emergency	Midland	We were warned if there was a Dow accident/ explosion that it would reach here in a short period of time. Don't know what to do.
2009	Hydraulic fluid spill	Broadway/Leaton	Hydraulic spill from vehicle.
1992	Biohazard	Home	Black mold found in basement.
	Drugs	Everywhere	Too many young people with bright futures lost.
2006	Power outage	Isabella County	Power outage prolonged.
	Bomb threats	Casinos	People have called in bomb threats to the casino while there are people in the buildings.
	Boarding schools	Mt Pleasant	Elders still suffering from PTSD.
	Competitive casinos	Michigan	We lost our competitive advantage which changed TOPS landscape.
	Language lost	Reservation	If you lose our language, we have no Tribe.

APPENDIX C

SAGINAW CHIPPEWA INDIAN TRIBE
POTENTIAL HAZARD MITIGATION STRATEGIES

1. Increased coverage and use of NOAA Weather Radio, public early warning systems and networks, or comparable device-based notifications.
2. Tree trimming and maintenance to prevent limb breakage and safeguard nearby utility lines. (Ideal: Establishment of a community forestry program with a main goal of creating and maintaining a disaster-resistant landscape in public rights-of-way.)
3. Buried/protected power and utility lines. (NOTE: Where appropriate: Burial may sometimes cause additional problems and costs in cases where eventual cable breakages are harder to locate and more expensive to repair.)
4. Provide and publicize designated heating and cooling centers within the community, where persons in need may go to obtain relief from outdoor temperatures, especially vulnerable populations.
5. Higher engineering standards for drain and sewer capacity, or the expansion of infrastructure to higher capacity.
6. Acceptable land use densities, coverage and planning for particular soil types and topography (decreasing amount of impermeable ground coverage in upland and drainage areas, zoning and open space requirements suited to the capacity of soils and drainage systems to absorb rainwater runoff, appropriate land use and capital improvements planning) and involving drain commissioners, hydrologic studies, etc. in these analyses and decisions.
7. Dry floodproofing of structures within known flood areas (strengthening walls, sealing openings, use of waterproof compounds or plastic sheeting on walls).
8. Wet floodproofing of structures (controlled flooding of structures to balance water forces and discourage structural collapse during floods).
9. Elevation of flood-prone structures above the 100-year flood level.
10. Construction of elevated or alternative roads that are unaffected by flooding or making roads more flood-resistant through better drainage and/or stabilization/armoring of vulnerable shoulders and embankments.
11. Government acquisition, relocation, or condemnation of structures within floodplain or floodway areas.
12. Employing techniques of erosion control within the watershed area (proper bank stabilization, techniques such as planting of vegetation on slopes, creation of terraces on hillsides, use of riprap boulders and geotextile fabric, etc.).
13. Joining the National Flood Insurance Program (NFIP).
14. Obtaining flood insurance. (Requires community participation in the NFIP.)
15. Participation in the Community Rating System (CRS).
16. Homeowner's and rental insurance.
17. Structural projects to channel water away from people and property (dikes, levees, floodwalls) or to increase drainage or absorption capacities (spillways, water detention and retention basins, relief drains, drain widening/dredging or rerouting, debris detention basins, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, wetlands protection and restoration).
18. Elevating mechanical and utility devices above expected flood levels.
19. Flood warning systems and the monitoring of water levels with stream gauges and trained monitors.

20. Using surge protectors on critical electronic equipment.
21. Installing lightning protection devices on the community's communications infrastructure and critical structures. More widespread use of lightning protection devices might also occur.
22. Organizing outreach to vulnerable populations during periods of extreme temperatures, including establishing and building awareness of accessible heating and/or cooling centers in the community, and other public information campaigns about this hazard.
23. Home and public building design and maintenance to prevent roof and wall damage from "ice dams."
24. Using snow fences or "living snow fences" (rows of trees or vegetation) to limit blowing and drifting of snow over critical roadway segments.
25. Protection (or restoration) of wetlands and natural water retention areas.
26. Stormwater management-Adequate design, installation, maintenance, and monitoring of municipal storm sewer systems. Ordinances or amendments to assist in stormwater management (e.g., forbidding illicit discharges). Planning for and regulating areas prone to flooding (acceptable uses and development restrictions through comprehensive planning, code enforcement, zoning, open space requirements, subdivision regulations, purchased or transferred development rights, land use and capital improvements planning) and involving drain commissioners, hydrologic studies, etc. in these analyses and decisions.
27. Drainage easements (allowing the planned and regulated public use of privately-owned land for temporary water retention and drainage).
28. Farmland and open space preservation.
29. Back-up generators for pumping and lift stations in sanitary sewer systems, and other measures (alarms, meters, remote controls, switchgear upgrades) to ensure that drainage infrastructure is not impeded.
30. Detection and prevention/discouragement of illegal discharges into storm-water sewer systems, from home footing drains, downspouts and sump pumps.
31. Employing techniques of erosion control in the area (bank stabilization, planting of vegetation on slopes, creation of terraces on hillsides).
32. Increasing the function and capacity of sewage lift stations and treatment plants (installation, expansion, and maintenance), including possible separation of combined storm/sanitary sewer systems, if appropriate.
33. Wetlands protection regulations and policies.
34. Use of check valves, sump pumps and backflow preventers in homes and buildings.
35. Floodplain/coastal zone management - planning acceptable uses for areas prone to flooding (comprehensive planning, zoning, open space requirements, subdivision regulations, land use and capital improvements planning).
36. Enforcement of basic building code requirements related to flood mitigation.
37. Locating structures and infrastructure landward of the established setbacks.
38. Regular inspection and maintenance of dams.
39. Garnering community support for a funding mechanism to assist dam owners in the removal or repair of dams in disrepair.
40. Regulate development in the dam's hydraulic shadow (where flooding would occur if a severe dam failure occurred).
41. Ensuring that dams meet or exceed the design criteria required by law.
42. Increased funding for dam inspections and enforcement of the Dam Safety Program (Part 315 of the Natural Resources and Environmental Protection Act) requirements and goals.
43. Constructing emergency access roads to dams, where needed.

44. Pump and flood gate installation/automation.
45. Proper maintenance of property in or near wildland areas (including short grass; thinned trees and removal of low- hanging branches; selection of fire-resistant vegetation; use of fire resistant roofing and building materials; use of functional shutters on windows; keeping flammables such as curtains securely away from windows or using heavy fire-resistant drapes; creating and maintaining a buffer zone (defensible space) between structures and adjacent wild lands; use of the fire department's home safety inspections; sweeping/cleaning dead or dry leaves, needles, twigs, and combustibles from roofs, decks, eaves, porches, and yards; keeping woodpiles and other combustibles away from structures; use of boxed or enclosed eaves on houses; thorough cleaning-up of spilled flammable fluids; and keeping garage areas protected from blowing embers).
46. Arson prevention activities, including reduction of blight (cleaning up areas of abandoned or collapsed structures, accumulated junk or debris, and lands with a history of flammable substances stored, spilled, or dumped on them).
47. Public notification of fire weather and fire warnings.
48. Prescribed burns and fuel management (thinning of flammable vegetation, possibly including selective logging to thin out some areas. Fuels cleared can be given away as firewood or made into wood chips for distribution.)
49. The creation of fuel breaks (areas where the spread of wildfires will be slowed or stopped due to removal of fuels, or the use of fire-retardant materials/vegetation) in high-risk forest or other areas.
50. Have adequate water supplies for emergency firefighting (in accordance with NFPA standards).
51. Restrictions on the import and transport of species carriers.
52. Adjustments to hunting, fishing, and other policies and regulations related to wildlife populations.
53. Use of barriers to prevent invasive species travel.
54. Use of competing species or other population control techniques.
55. Adopt and enforce appropriate building codes.
56. "Harden" critical infrastructure systems to meet seismic design standards for "lifelines."
57. Identifying and mapping old mining areas and geologically unstable terrain and limiting or preventing development in high-risk areas.
58. Hydrological monitoring of groundwater levels in subsidence prone areas.
59. Real estate disclosure laws.
60. Operating procedures that include back-up systems allowing complex systems (e.g., air traffic control) to continue to function when key technological systems (e.g., GPS, radio communications, satellites) malfunction. For example, some "legacy'' systems might be retained as a back-up, new GPS signals and codes could be used to remove ranging errors, and protective and back-up components could be installed in vulnerable systems.
61. Code existence and enforcement.
62. Designs that include the use of firewalls and sprinkler systems (especially in tall buildings, dormitories, attached structures, and special facilities).
63. Landlords and families can install and maintain smoke detectors and fire extinguishers. Install a smoke alarm on each level of homes (to be tested monthly, with the batteries changed twice each year). Family members and residents should know how to use a fire extinguisher.
64. Measures to reduce urban blight and associated arson (possibly including Crime Prevention through Environmental Design).
65. Defensible space around structures in fire-prone wildland areas.

66. Proper maintenance of power lines, and efficient response to fallen power lines.
67. Transportation planning that provides roads, overpasses, etc. to maximize access and improve emergency response times to all inhabited or developed areas of a community. (Not just planning for average traffic volumes in the community.)
68. Discourage civil disturbances and criminal activities that could lead to arson.
69. Enforced fireworks regulations.
70. Elimination of clandestine methamphetamine laboratories through law enforcement and public education.
71. Condominium-type associations for maintaining safety in attached housing/building units or multi-unit structures.
72. Compliance with/enforcement of Resource Conservation and Recovery Act (RCRA) standards.
73. Identification of radioactive soils and high-radon areas
74. Proper separation and buffering between industrial areas and other land uses.
75. Location of industrial areas away from schools, nursing homes, etc.
76. Compliance with all industrial, fire, and safety regulations.
77. Enhanced security and anti-terrorist/sabotage/civil disturbance measures.
78. Improved design, routing, and traffic control at problem roadway areas.
79. Long-term planning that provides more connector roads for reduced congestion of arterial roads.
80. Railroad inspections, maintenance and improved designs at problem railway/roadway intersections (at grade crossings, rural signs/signals for RR crossing).
81. Proper planning, design, maintenance of, and enhancements to designated truck routes.
82. Use of ITS (intelligent transportation systems) technology.
83. Locating schools, nursing homes, and other special facilities away from major hazardous material transportation routes.
84. Locating pipelines away from dense development, critical facilities, special needs populations, and environmentally vulnerable areas whenever possible.
85. Increasing public awareness and widespread use of the "MISS DIG" utility damage prevention service (800-482- 7171).
86. Using buffer strips to segregate wells, storage tanks, and other production facilities from transportation routes and adjacent land uses, in accordance with state regulations, and consistent with the level of risk.
87. Proper location, design, and maintenance of water and sewer systems (to include insulation of critical components to prevent damage from ground freeze).
88. Burying electrical and phone lines, where beneficial and appropriate, to resist damage from severe winds, lightning, ice, and other hazards.
89. Redundancies in utility, communication, and energy supply systems, especially "lifeline" systems to increase resilience (even if at the cost of some efficiency) and provide backup supply systems.
90. Use of generators for backup power at critical facilities.
91. "Rolling blackouts" in electrical systems that will otherwise fail completely due to overloading.
92. Replacement or renovation of aging structures and equipment (to be made as hazard-resistant as economically possible).
93. Physical protection of electrical and communications systems from lightning strikes.
94. Tree-trimming programs to protect utility wires from falling branches. (Ideal: Establishment of a community forestry program with a main goal of creating and maintaining a disaster-resistant landscape in public rights-of- way.)
95. The capacity to use more than one type of fuel to sustain necessary operations and functions.
96. Use of alternative sources of energy (e.g., solar, wind sources) for key functions.
97. Design requirements for schools, factories, office buildings, shopping malls, hospitals, correctional

facilities, stadiums, recreation areas, etc. that take into consideration emergency and security needs.

98. Construction of concrete safe rooms (or shelters) in houses, trailer parks, community facilities, and business districts.
99. Using laminated glass, metal shutters, structural bracing, and other hazard-resistant, durable construction techniques in public buildings and critical facilities.
100. Immunization programs to vaccinate against communicable diseases.
101. Improving ventilation techniques in areas, facilities, or vehicles that are prone to crowding, or that may involve exposure to contagion or noxious atmospheres.
102. Radon detection and abatement activities, to reduce concentrations of radon in homes and buildings.
103. Maintaining community water and sewer infrastructure at acceptable operating standards.
104. Demolition and clearance of vacant condemned structures to prevent rodent infestations.
105. Free or reduced-expense community clinics and school health services.
106. Brownfield and urban blight clean-up activities.
107. Proper location, installation, cleaning, monitoring, and maintenance of septic tanks.
108. Establishing avenues of reporting (and rewards) for information preventing terrorist incidents and sabotage.

APPENDIX D

SAGINAW CHIPPEWA INDIAN TRIBE
HAZARD MITIGATION STRATEGIES
GENERAL IDEAS FROM THE 2019 MICHIGAN HAZARD ANALYSIS

Summer Weather Hazards

1. Increased coverage and use of NOAA Weather Radio.
2. Producing and distributing family emergency preparedness information relating to thunderstorm hazards.
3. Public education and awareness of summer weather dangers.
4. Training and increased use of weather spotters.
5. Public early warning systems and networks.
6. Tree trimming and maintenance to prevent limb breakage and safeguard nearby utility lines. (Ideal: Establishment of a community forestry program with a main goal of creating and maintaining a disaster-resistant landscape in public rights-of-way.)
7. Buried/protected power and utility lines.
8. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.
9. Pre-planning for debris management staging and storage areas. (Debris could be rubble, vehicles, objects from destroyed/damaged structures, vegetation or other items knocked down or blown by winds.)
10. Pre-planning for debris management staging and storage areas. (Debris is usually vegetation such as tree branches that have fallen under the impact of hail, or broken power or phone lines that had frozen or been weighted down by ice or fallen branches.)
11. Using surge protectors on critical electronic equipment.
12. Installing lightning protection devices on the community's communications infrastructure.
13. Proper anchoring of manufactured homes and exterior structures such as carports and porches.
14. Establishing safe and appropriate locations for temporary debris disposal sites.
15. Securing loose materials, yard, and patio items indoors or where winds cannot blow them about.
16. Pre-planning for debris management staging and storage areas. (Debris could be rubble, vehicles, objects from destroyed/damaged structures, vegetation or other items knocked down or blown by winds, or broken power or phone lines that had frozen or been weighted down by fallen branches and trees.)

Drought

17. Anticipation of potential drought conditions, and preparation of drought contingency plans.
18. Obtaining agricultural insurance.

Winter Weather Hazards

19. Increased coverage and use of NOAA Weather Radio.
20. Producing and distributing family emergency preparedness information relating to severe winter weather hazards.
21. Tree trimming and maintenance to prevent limb breakage and safeguard nearby utility lines. (Ideal: Establishment of a community forestry program with a main goal of creating and maintaining a disaster-resistant landscape in public rights-of-way.)
22. Buried/protected power and utility lines.
23. Establishing heating centers/shelters for vulnerable populations.
24. Organizing outreach to isolated, vulnerable, or special-needs populations.

25. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.
26. Pre-planning for debris management staging and storage areas. (Debris is usually the snow and ice itself, or vegetation such as tree branches that have fallen under the impact of winds or the weight of ice. Broken power or phone lines that had frozen or been weighted down by ice or fallen branches could be part of the problem. Some storage areas will definitely be needed for snow removal during blizzards.)
27. Home and public building maintenance to prevent roof and wall damage from "ice dams."
28. Pre-planning for debris management staging and storage areas. (Debris is usually the sleet and ice itself being cleared from roads and roofs, or vegetation such as tree branches that have fallen under the impact of winds or the weight of ice. Broken power or phone lines that had frozen or been weighted down by ice or fallen branches could be part of the problem. In some cases, roofs may collapse under the weight of ice and snow.)
29. Proper building/site design and code enforcement relating to snow loads, roof slope, snow removal and storage, etc.
30. Farmer preparedness to address livestock needs/problems.
31. Pre-arranging for shelters for stranded motorists/travelers, and others.
32. Maintaining adequate road and debris clearing capabilities.
33. Pre-planning for debris management staging and storage areas. (Debris is usually the sleet and ice itself being cleared from roads and roofs, or vegetation such as tree branches that have fallen under the impact of winds or the weight of ice. Broken power or phone lines that had frozen or been weighted down by ice or fallen branches could be part of the problem. In some cases, roofs may collapse under the weight of ice and snow. Some storage areas will definitely be needed for snow removal during blizzards.)

Extreme Temperatures

34. Organizing outreach to vulnerable populations during periods of extreme temperatures, including establishing and building awareness of accessible heating and/or cooling centers in the community, and other public information campaigns about this hazard.
35. Increased coverage and use of NOAA Weather Radio.
36. Special arrangements for payment of heating bills.

Wildfires

37. Proper maintenance of property in or near wildland areas (including short grass; thinned trees and removal of low hanging branches; selection of fire-resistant vegetation; use of fire resistant roofing and building materials; use of functional shutters on windows; keeping flammables such as curtains securely away from windows or using heavy fire-resistant drapes; creating and maintaining a buffer zone (defensible space) between structures and adjacent wild lands; use of the fire department's home safety inspections; sweeping/ cleaning dead or dry leaves, needles, twigs, and combustibles from roofs, decks, eaves, porches, and yards; keeping woodpiles and other combustibles away from structures; use of boxed or enclosed eaves on house; thorough cleaning-up of spilled flammable fluids; and keeping garage areas protected from blowing embers).
38. Safe disposal of yard and house waste rather than through open burning.
39. Use of fire spotters, towers, planes.
40. Keep handy household items that can be used as fire tools; a rake, axe, hand/chainsaw, bucket and shovel. Install and maintain smoke detectors and fire extinguishers. Install a smoke alarm on each floor of buildings and homes. Test monthly and change the batteries two times each year. Teach family members how to use the fire extinguisher.
41. Post fire emergency telephone numbers.

42. Organizing neighborhood wildfire safety coalitions (to plan how the neighborhood could work together to prevent a wildfire).
43. Residents should plan several escape routes away from their homes - by car and by foot.
44. Use of structural fire mitigation systems such as interior and exterior sprinklers, smoke detectors, and fire extinguishers.
45. Arson prevention activities, including reduction of blight (cleaning up areas of abandoned or collapsed structures, accumulated junk or debris, and with any history of flammable substances stored, spilled, or dumped on them).
46. Public education on smoking hazards and recreational fires.
47. Proper maintenance and separation of power lines. Ask the power company to clear branches from power lines.
48. Efficient response to fallen power lines.
49. Training and exercises for response personnel.
50. GIS mapping of vegetative coverage, for use in planning decisions and analyses through comparison with topography, zoning, developments, infrastructure, etc.
51. Media broadcasts of fire weather and fire warnings.
52. Create and enforce local ordinances that require burn permits and restrict campfires and outdoor burning.
53. Mutual aid pacts with neighboring communities.
54. Prescribed burns and fuel management (thinning of flammable vegetation, possibly including selective logging to thin out some areas. Fuels cleared can be given away as firewood or chipped into wood chips for distribution.)
55. The creation of fuel breaks (areas where the spread of wildfires will be slowed or stopped due to removal of fuels, or the use of fire-retardant materials/vegetation) in high-risk forest or other areas.
56. Keeping roads and driveways accessible to vehicles and fire equipment—driveways should be relatively straight and flat, with at least some open spaces to turn, bridges that can support emergency vehicles, and clearance wide and high enough for two-way traffic and emergency vehicle access (spare keys to gates around property should be provided to the local fire department, and an address should be visible from the road so homes can be located quickly).
57. Enclosing the foundations of homes and buildings rather than leaving them open and the underside exposed to blown embers or materials.
58. Safe use and maintenance/cleaning of fireplaces and chimneys (with the use of spark arresters and emphasis on proper storage of flammable items). Residents should be encouraged to inspect chimneys at least twice a year and clean them at least once a year.
59. Proper maintenance and storage of motorized equipment that could catch on fire.
60. Proper storage and use of flammables, including the use of flammable substances (such as when fueling machinery). Store gasoline, oily rags and other flammable materials in approved safety cans. Stack firewood at least 100 feet away and uphill from homes.
61. Obtaining insurance.
62. Including wildfire safety information in materials provided by insurance companies to area residents.
63. Residents should be instructed on proper evacuation procedures, such as wearing protective clothing (sturdy shoes, cotton or woolen clothing, long pants, a long-sleeved shirt, gloves and a handkerchief to protect the face); taking a Disaster Supplies Kit; and choosing a route away from fire hazards.
64. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Dam Failures

65. Ensuring consistency of dam Emergency Action Plan (EAP) with the local Emergency Operations Plan (EOP).
66. Regulate development in the dam's hydraulic shadow (where flooding would occur if there was a severe dam failure).
67. Public awareness and warning systems.
68. Obtaining insurance.
69. Increased coverage and use of NOAA Weather Radio.
70. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
71. Constructing emergency access roads to dams.
72. Real estate disclosure laws that identify a home's location within a dam's hydraulic shadow.
73. Trained, equipped, and prepared search and rescue teams.
74. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Riverine and Urban Flooding/Shoreline Flooding and Erosion

75. Accurate identification and mapping of flood-prone areas.
76. Floodplain/coastal zone management – planning acceptable uses for areas prone to flooding (through comprehensive planning, code enforcement, zoning, open space requirements, subdivision regulations, land use and capital improvements planning) and involving drain commissioners, hydrologic studies, etc. in these analyses and decisions.
77. Acceptable land use densities, coverage and planning for particular soil types and topography (decreasing amount of impermeable ground coverage in upland and drainage areas, zoning and open space requirements suited to the capacity of soils and drainage systems to absorb rainwater runoff, appropriate land use and capital improvements planning) and involving drain commissioners, hydrologic studies, etc. in these analyses and decisions.
78. Dry floodproofing of structures within known flood areas (strengthening walls, sealing openings, use of waterproof compounds or plastic sheeting on walls).
79. Wet floodproofing of structures (controlled flooding of structures to balance water forces and discourage structural collapse during floods).
80. Elevation of flood-prone structures above the 100-year flood level.
81. Government acquisition, relocation, or condemnation of structures within floodplain or floodway areas.
82. Public awareness of the need for permits (EGLE Part 31) for building in floodplain areas.
83. Employing techniques of erosion control within the watershed area (proper bank stabilization, techniques such as planting of vegetation on slopes, creation of terraces on hillsides, use of riprap boulders and geotextile fabric, etc.).
84. Dredging and clearance of sediment and debris from drainage channels.
85. Protection (or restoration) of wetlands and natural water retention areas.
86. Enforcement of basic building code requirements related to flood mitigation.
87. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
88. Obtaining insurance.
89. Joining the National Flood Insurance Program.
90. Participating in the Community Rating System (CRS).
91. Drainage easements (allowing the planned and regulated public use of privately owned land for temporary water retention and drainage).
92. Farmland and open space preservation.
93. Elevating mechanical and utility devices above expected flood levels.

94. Improved/updated floodplain mapping.
95. Real estate disclosure laws.
96. Public education and flood warning systems.
97. Monitoring of water levels with stream gauges and trained monitors.
98. Increased coverage and use of NOAA Weather Radio.
99. Training for local officials on flood fighting, floodplain management, floodproofing, etc.
100. Anchoring of manufactured homes to a permanent foundation, but preferably these structures would be readily movable if necessary or else permanently relocated outside of flood-prone areas.
101. Road closures and traffic control in flooded areas.
102. Trained, equipped, and prepared search and rescue teams.
103. Control and securing of debris, yard items, or stored objects (including oil, gasoline, and propane tanks, and paint and chemical barrels) in floodplains that may be swept away, damaged, or pose a hazard when flooding occurs.
104. Back-up generators for pumping and lift stations in sanitary sewer systems, and other measures (alarms, meters, remote controls, switchgear upgrades) to ensure that drainage infrastructure is not impeded.
105. Employing techniques of erosion control in the area (bank stabilization, planting of vegetation on slopes, creation of terraces on hillsides).
106. Purchase or transfer of development rights – to discourage development in floodplain areas.
107. Stormwater management ordinances or amendments.
108. Wetlands protection regulations and policies.
109. Regional/watershed cooperation.
110. Use of check valves, sump pumps and backflow preventers in homes and buildings.
111. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Fixed Site Hazardous Material Incidents (including explosions and industrial accidents)

112. Maintaining an active and viable Local Emergency Planning Committee (LEPC).
113. Developing and exercising site emergency plans and community response plans as required under SARA Title III.
114. Development of Risk Management Plans for sites that manufacture, store, or handle hazardous materials, to comply with EPA regulations. (For guidance, see the EPA's CEPPO web site at http://www.epa.gov/swercepp/acc-pre.html .)
115. Training in and compliance with all safety procedures and systems related to the manufacture, storage, transport, use, and disposal of hazardous materials.
116. Policies stressing the importance of safety above other considerations.
117. Trained, equipped, and prepared site and local hazardous material emergency response teams.
118. Compliance with/enforcement of Resource Conservation and Recovery Act (RCRA) standards.
119. Elimination of clandestine methamphetamine laboratories through law enforcement and public education.
120. Hazardous material public awareness and worker education programs.
121. Facility and community training and exercise programs.
122. Brownfield cleanup activities.
123. Proper separation and buffering between industrial areas and other land uses.
124. Location of industrial areas away from schools, nursing homes, etc.
125. Evacuation plans and community awareness of them.
126. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
127. Public warning systems and networks for hazardous material releases.

128. Increased coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including large scale hazardous material incidents).
129. Road closures and traffic control in accident areas.
130. Trained, equipped, and prepared search and rescue teams.
131. Compliance with all industrial, fire, and safety regulations.
132. Insurance coverage.
133. Enhanced security and anti-terrorist/sabotage/civil disturbance measures.
134. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Hazardous Material Transportation Incidents

135. Improvements in driver education, traffic law enforcement, and transportation planning that balance the needs of hazardous material transporters with the safety of the general public.
136. Improved design, routing, and traffic control at problem roadway areas.
137. Long-term planning that provides more connector roads for reduced congestion of arterial roads.
138. Railroad inspections and improved designs at problem railway/roadway intersections (at grade crossings, rural signs/signals for RR crossing).
139. Proper planning, design, maintenance of, and enhancements to designated truck routes.
140. Enforcement of weight and travel restrictions for truck traffic.
141. Training, planning, and preparedness for hazardous material incidents along roadways and railways (in addition to fixed site emergencies).
142. Public warning systems and networks.
143. Increased coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including large scale hazardous material incidents).
144. Use of ITS (intelligent transportation systems) technology.
145. Compliance with and enforcement of USDOT and MDOT regulations regarding hazardous materials transport.
146. Locating schools, nursing homes, and other special facilities away from major hazardous material transportation routes.
147. Road closures and traffic control in accident areas.
148. Trained, equipped and prepared local hazardous materials emergency response teams.
149. Trained, equipped, and prepared search and rescue teams.
150. Evacuation plans and community awareness of them.
151. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Infrastructure Failures

152. Proper location, design, and maintenance of water and sewer systems (to include insulation of critical components to prevent damage from ground freeze).
153. Burying electrical and phone lines, where possible, to resist damage from severe winds, lightning, ice, and other hazards.
154. Redundancies in utility and communications systems, especially "lifeline" systems.
155. Mutual aid assistance for failures in utility and communications systems (including 9-1-1).
156. Programs/networks for contacting elderly or homebound persons during periods of infrastructure failure, to assess whether they have unmet needs.
157. Use of generators for backup power at critical facilities.
158. Regular maintenance and equipment checks.
159. Replacement or renovation of aging structures and equipment (to be made as hazard-resistant as economically possible).
160. Protecting electrical and communications systems from lightning strikes.

161. Tree-trimming programs to protect utility wires from falling branches. (Ideal: Establishment of a community forestry program with a main goal of creating and maintaining a disaster-resistant landscape in public rights-of-way.)
162. Increasing public awareness and widespread use of the "MISS DIG" utility damage prevention service (1-800-482-7171).
163. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Oil and Natural Gas Well Accidents

164. Community and operator compliance with industry safety regulations and standards.
165. Awareness of hydrogen sulfide gas dangers and personal protection actions for these dangers.
166. Using buffer strips to segregate wells, storage tanks, and other production facilities from transportation routes and adjacent land uses, in accordance with state regulations, and consistent with the level of risk.
167. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
168. Contingency plans for worker and public protection, including the inclusion of rescue and evacuation procedures for well hazard areas in the local emergency operations plan.
169. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Public Health Emergencies

170. Encouraging residents to receive immunizations against communicable diseases.
171. Maintaining community water and sewer infrastructure at acceptable operating standards.
172. Providing back-up generators for water and wastewater treatment facilities to maintain acceptable operating levels during power failures.
173. Demolition and clearance of vacant condemned structures to prevent rodent infestations.
174. Maintaining a community public health system with sufficient disease monitoring and surveillance capabilities to adequately protect the population from large-scale outbreaks.
175. Increasing public awareness of the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies.
176. Community support of free or reduced-expense clinics and school health services.
177. Preventing public contact with contaminated sites or waters (including floodwaters).
178. Brownfield and urban blight clean-up activities.
179. Pollution control, enforcement, and cleanup; proper disposal of chemicals and scrap materials.
180. Proper location, installation, cleaning, monitoring, and maintenance of septic tanks.
181. Separation of storm and sanitary sewer systems.

Sabotage/Terrorism/Weapons of Mass Destruction (WMD)

182. Development of a thorough community risk and threat assessment that identifies potential vulnerabilities and targets for a sabotage/terrorism/WMD attack.
183. Alertness, awareness, and monitoring of organizations and activities that may threaten the community.
184. Implementing school safety and violence prevention programs.
185. Providing legitimate channels of political and public expression.
186. Heightening security at public gatherings, special events, and critical community facilities and industries.
187. Using laminated glass and other hazard-resistant, durable construction techniques in public buildings and critical facilities.
188. Greater awareness of, and provision for, mental health services in schools, workplaces, and institutional settings.

189. Training, planning, and preparedness by local law enforcement and other responders for terrorist/ sabotage/WMD attacks.
190. The development and testing of internal emergency plans and procedures by businesses and organizations.
191. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
192. Establishing avenues of reporting (and rewards) for information preventing terrorist incidents and sabotage.
193. Consistent use of computer data back-up systems and anti-virus software.
194. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.
195. Pre-planning for debris management staging and storage areas. (Debris could be rubble, vehicles, etc. that would get in the way or be left over following an attack or incident. The area may simultaneously need to be treated as a crime scene, site of urban search and rescue, area of hazardous materials, and/or a public health threat.

Population Increase (Seasonal/Event)

196. Provide personnel on a temporary basis to handle greater loads on public services.
197. Provide for emergency equipment to deal with higher call rates.
198. Develop plans for excessive traffic patterns.

Civil Disturbances (prison or institutional rebellions, disruptive political gatherings, violent labor disputes, urban protests or riots, or large-scale uncontrolled festivities)

199. Law enforcement training, staffing, and resource provision.
200. Incident anticipation and planning, and video documentation of events for later study and use.
201. Local law enforcement mutual aid, and support from the Michigan State Police and National Guard.
202. It is possible that design, management, integration, and lowered density of poor or blighted areas may reduce vandalism, crime, and some types of riot events. Crime Prevention Through Environmental Design (CPTED) is a field of planning that deals with this.
203. Insure structures and property in risky areas.
204. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
205. Design requirements for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, etc. that take into consideration emergency and security needs.

Earthquakes (biggest Michigan threats would be to pipelines, buildings that are poorly designed and constructed, and shelving, furniture, mirrors, gas cylinders, etc. within structures that could fall and cause injury or personal property damage)

206. Adopt and enforce appropriate building codes.
207. Use of safe interior designs and furniture arrangements.
208. Obtain insurance.
209. "Harden" critical infrastructure systems to meet seismic design standards for "lifelines."
210. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Scrap Tire Fires

211. Policies for regulated disposal and management of scrap tires, and enforcement of regulations related to them (separation of stored scrap tires from other materials; limits on the size of each pile; minimum distances between piles and property lines; covering, chemically treating, or

shredding tires to limit mosquito breeding; providing for fire vehicle access to scrap tire piles; training employees in emergency response operations; installation of earthen berms around storage areas; prevention of pools of standing water in the area; control of nearby vegetation; an emergency plan posted on the property; storing only the permitted volume of tires authorized for that site).

212. Proper siting of tire storage and processing facilities (land use planning that recognizes scrap tire sites as a real hazard and environmental threat).
213. Local awareness of scrap tire risk, training and preparedness of responders.
214. Law enforcement to prevent illegal dumping of tires at the site.
215. Pest-control measures for mosquitoes and other nuisances around scrap tire yards.

Structural Fires

216. Code existence and enforcement.
217. Designs that include the use of firewalls and sprinkler systems (especially in tall buildings, dormitories, attached structures, and special facilities).
218. Public education and school programs (especially about the use of stoves, heaters, fireworks, matches/ lighters, etc.)
219. Landlords and families can install and maintain smoke detectors and fire extinguishers. Install a smoke alarm on each level of homes (to be tested monthly, with the batteries changed twice each year).
220. Family members and residents should know how to use a fire extinguisher.
221. Proper installation and maintenance of heating systems (especially those requiring regular cleaning, those using hand-loaded fuels such as wood, or using concentrated fuels such as liquid propane).
222. Safe and responsible use of electric and "space" heaters (placed at least 3 feet from objects, with space near hot elements free of combustibles).
223. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
224. Safe use and maintenance/cleaning of fireplaces and chimneys (with the use of spark arresters and emphasis on proper storage of flammable items). Residents should be encouraged to inspect chimneys at least twice a year and clean them at least once a year.
225. Post fire emergency telephone numbers.
226. Education and practice of safe cigarette handling and disposal (also candles, fireworks, campfires, holiday lights)
227. Measures to reduce urban blight and associated arson (including CPTED?).
228. Proper workplace procedures, training and exercising, and handling of explosive and flammable materials and substances.
229. Pre-planned escape routes and fire alert responses.
230. Improved and continuing training for emergency responders, and provision of equipment for them.
231. Defensible space around structures in fire-prone wildland areas.
232. Proper maintenance of power lines, and efficient response to fallen power lines.
233. Transportation planning that provides roads, overpasses, etc. to maximize access and improve emergency response times, and evacuation potential, for all inhabited or developed areas of a community (not just designing for the minimum amount of road capacity to handle normal traffic volumes in the community.) This includes transportation access <u>within</u> developed sites (shopping malls, stadiums, office & commercial parking lots, etc.)
234. Control of civil disturbances and criminal activities that could lead to arson.
235. Enforced fireworks regulations.

236. Elimination of clandestine methamphetamine laboratories through law enforcement and public education.
237. Condominium-type associations for maintaining safety in attached housing/building units or multi-unit structures.
238. Obtain insurance.
239. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Nuclear Attack

240. Community awareness of designated fallout shelters and attack warning systems.
241. Developing and promoting workable population protection plans (evacuation and in-place sheltering plans, as appropriate).
242. Construction of concrete safe rooms (or shelters) in houses, trailer parks, community facilities, and business districts.
243. Using laminated glass and other hazard-resistant, durable construction techniques in public buildings and critical facilities.
244. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
245. Increased coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including enemy attack).
246. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Nuclear Power Plant Accidents

247. Proper awareness of, training on, and implementation of radiological emergency procedures (to include both primary and secondary Emergency Planning Zones, as appropriate).
248. Community awareness of designated shelters and accident warning systems.
249. Increased coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including enemy attack).
250. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
251. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Pipeline Accidents (Petroleum and Natural Gas)

252. Locating pipelines away from dense development, critical facilities, special needs populations, and environmentally vulnerable areas whenever possible.
253. Increasing public awareness of pipeline locations and appropriate emergency procedures.
254. Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.
255. Increasing public awareness and widespread use of the “MISS DIG” utility damage prevention service (800 482-7171).
256. Proper pipeline design, construction, maintenance and inspection.
257. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Subsidence

258. Identification, mapping, and preventing or limiting development in old mining areas or geologically unstable terrain.

259. Filling or buttressing subterranean open spaces (such as abandoned mines) to discourage their collapse.
260. Hydrological monitoring of groundwater levels in subsidence-prone areas.
261. Obtain insurance for subsidence hazards.
262. Real estate disclosure laws.
263. Community awareness of subsidence risks and effects.
264. Encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.

Transportation Accidents

265. Improvements in driver education, traffic law enforcement, and transportation planning that balance the needs of hazardous material transporters with the safety of the general public.
266. Improved design, routing, and traffic control at problem roadway areas.
267. Long-term planning that provides more connector roads for reduced congestion of arterial roads.
268. Railroad inspections and improved designs at problem railway/roadway intersections (at grade crossings, rural signs/signals for RR crossing).
269. Enforcement of weight and travel restrictions for truck traffic.
270. Use of ITS (intelligent transportation systems) technology.
271. Use of designated truck routes.
272. Marine safety and general boater awareness programs.
273. Commercial operator training and skill enhancement programs.
274. Training, planning, and preparedness for mass-casualty incidents involving all modes of public transportation.
275. Trained, equipped, and prepared search and rescue teams.

APPENDIX E
PROPOSED ACTION ITEMS

Item 1

Improve warning system to warn residents of oncoming hazards

Action: Install warning system (similar to Code Red or NIXLE) tribal-wide to warn tribal members and employees of oncoming hazards and events such as amber alerts.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Dispatch, Tribal Information Technology (IT)
- Participating Agencies: Tribal Risk Management, Tribal Police, Tribal Fire
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, Bureau of Indian Affairs (BIA) Grants
- Project Cost: $50,000
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives a and e
- Benefit(s): Improved notification of oncoming hazards/events

Item 2

Install warning siren(s)

Action: Install a warning siren at the Saganing Eagles Landing Casino and other sites as needed.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Fire Department
- Participating Agencies: Tribal Police, Tribal Planning Dept, and Tribal Emergency Services
- Hazards Addressed: All hazards
- Potential Funding Source(s): United States Department of Agriculture (USDA) Grants, BIA Grants
- Project Cost: $60,000
- Schedule: 2022/23
- Priority: High
- Goal/Objective Achieved: Goal 1, objectives a and e; goal 2, objective c
- Benefit(s): Providing advance notice of oncoming hazards/events

Item 3

Maintain a budget line item to be used for hazardous events (pandemics)

Action: Maintain the existing line item in the budget for COVID-19 and utilize for funding of equipment for first responders, educational materials, and other items for hazard mitigation activities.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Administration, Nimkee Health Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal budget
- Project Cost: $25,000
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c, d, and e; goal 3, objective e
- Benefit(s): Creating a fund for a future source to assist in the recovery from hazards/events

Item 4

Training for first responders

Action: Train first responders in handling emergency calls.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Public Safety
- Participating Agencies: Nimkee Health Department, Tribal Emergency Management, Saganing Security
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants, Tribal budget, Department of Justice (DOJ) Grants
- Project Cost: $10,000/annually
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c and e, goal 2, objective d; goal 3, objective e
- Benefit(s): Quicker and more consistent responses from first responders

Item 5

Water rescue training for first responders

Action: Train first responders for water rescue missions.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Public Safety
- Participating Agencies: Isabella County Dive Team, Michigan DNR personnel, and U.S. Coast Guard
- Hazards Addressed: All water hazards
- Potential Funding Source(s): BIA Grants, Tribal Budget
- Project Cost: $50,000
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives c and e; goal 2, objective d
- Benefit(s): Trained personnel to handle emergency events, more consistent/improved responses

Item 6

Purchase generators

Action: Purchase generators to be used as back-up power sources for critical facilities during hazardous events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Facility Department
- Participating Agencies: Tribal Administration, Tribal Planning Department
- Hazards Addressed: Energy emergencies, infrastructure failures
- Potential Funding Source(s): BIA grants
- Project Cost: TBD
- Schedule: 2022
- Priority: High
- Goal/Objective Achieved: goal 1, objective e; goal 2, objective c; goal 3, objectives d and e
- Benefit(s): Keep facilities functioning during emergencies.

Item 7

Upgrade technology

Action: Upgrade technology to allow operations to continue on a remote basis. Several possible solutions include upgrade broadband and convert PCs to laptops.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Information Technology Department
- Participating Agencies: All Departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, BIA Grants, EDA Cares Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objective c; goal 3, objective b
- Benefit(s): Continued communications/operations during hazardous events.

Item 8

Install River Gauges

Action: Install gauges/mile markers to monitor river height and to assist first responders.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: United States Geological Survey (USGS), Bureau of Indian Affairs (BIA), Arenac, Iosco, and Isabella County Road Commissions
- Hazards Addressed: Flooding, infrastructure failure, public health emergency
- Potential Funding Source(s): BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD ($38,000/gauge with $10,000 annual maintenance fee)
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives b and e; goal 2, objective c; goal 3, objective d
- Benefit(s): Monitoring of river water levels and response to personal emergencies will both improve due to better information being provided.

Item 9

Video critical infrastructure

Action: Install video surveillance equipment on critical infrastructure.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Utilities Department, Tribal Information Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget, BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objective c; goal 3, objective c
- Benefit(s): Identifying problems and potential problems will lead to them being addressed more quickly.

Item 10

Develop standards for warming/cooling station locations

Action: Develop standards for the development of warming/cooling stations to be used by tribal members and employees.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Council, Tribal Administration, and Tribal Risk Management Department
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: 2021
- Priority: High
- Goal/Objective Achieved: goal 1, objectives b, c, and e; goal 2, objective b
- Benefit(s): Providing standards will allow the stations to be designed consistently to address the needs of the persons utilizing the stations.

Item 11

Encourage the inclusion of hazard mitigation into all planning documents

Action: Incorporate hazard mitigation goals and objectives into existing planning documents and operating procedural documents.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 4, objectives b, c, and d
- Benefit(s): Improved awareness and coordinated effort to mitigate the impacts of hazards.

Item 12

Training for hotel/casino employees

Action: Host tabletop exercise for all hotels/casinos to address hazardous situations.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Security Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Human Relations Department, Tribal Police, Tribal Fire, Tribal Risk Management Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants, FEMA Grants, USDA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: High
- Goal/Objective Achieved: goal 2, objective d
- Benefit(s): Employees will be better trained to handle emergency situations, which will lead to quicker/improved responses.

Item 13

Create shelter for families with pets

Action: Identify and develop emergency shelter for families with pets.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Housing Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Planning Department, Tribal Risk Management, Tribal Public Relations Department
- Hazards Addressed: Weather-related hazards, infrastructure failure, energy emergencies
- Potential Funding Source(s): FEMA Grants , BIA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objective e
- Benefit(s): Families with pets will now have a safe place during hazards, while eliminating public health and safety concerns for persons with animal allergies.

Item 14

Assess trailer parks

Action: Complete an assessment on trailer parks to identify improvements needed at these location during tornados, straight winds, and other weather-related events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Housing Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Planning Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, BIA Grants, USDA Grants
- Project Cost: TBD
- Schedule: 2026
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives b and e
- Benefit(s): Determine the living conditions as they relate to hazards for the residents of the trailer park.

Item 15

Update Best Practices Manual

Action: Update Best Practices Manual to address proper procedures, including maintenance of equipment, during pandemic situations. (This may include the retaining of Personal protective equipment beyond the expiration date.)

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal administration
- Participating Agencies: All tribal departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives, b, c, and e; goal 2, objective d
- Benefit(s): Having a consistent means to address hazards and other events.

Item 16

Develop action plan to address PFAS

Action: Develop action plan to address PFAS and emerging water quality issues in Isabella and Arenac Counties. Work with local officials to assure drinking water is safe and potable.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: All departments
- Hazards Addressed: Public health (potable water quality)
- Potential Funding Source(s): Indian Health Services, FEMA Grants, BIA Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 1, objectives b and e; goal 2, objective a; goal 3, objective f
- Benefit(s): Maintain potable water quality, protecting the public health, safety, and welfare of the residents.

Item 17

Infrastructure hydraulic assessment on road crossings and waterways

Action: Complete a hydraulic study on road crossings and waterways to identify potentially hazardous conditions during extreme weather events.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Tribal Council, Tribal Administration, BIA, Arenac, Iosco, and Isabella Road and Drain Commissions, Michigan Department of Transportation (MDOT)
- Hazards Addressed: Flooding, infrastructure failure, public health issues
- Potential Funding Source(s): FEMA Grants, BIA Grants, Outside Agency Partnerships
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 3, objective a
- Benefit(s): Identify and prioritize the improvements needing to be completed to improve infrastructure.

Item 18

Study to identify water infiltration

Action: Complete study to identify water infiltration on proper sanitary facilities and associated infrastructure.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Utilities Department
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Public Relations, Tribal Risk Management Department, and Tribal Planning Department
- Hazards Addressed: Public health, infrastructure failures, and flooding
- Potential Funding Source(s): FEMA Grants, Environmental Protection Agency (EPA) Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 3, objective a
- Benefit(s): Identify sites that can be improved and upgraded to provide better support during future events

Item 19

Tabletop exercise

Action: Tabletop exercise to develop standard operating procedures (SOP) to address emergency management of facilities during hazardous situations (COVID-19).

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: All departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, BIA Grants, DOJ Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 2, objective d
- Benefit(s): Staff better prepared to handle emergency situations.

Item 20

Upgrade infrastructure

Action: Replace culverts and/or upgrade infrastructure based on hydraulic study in Item 20.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Tribal Council, Tribal Administration, BIA, Arenac, Iosco, and Isabella Road and Drain Commissions, Michigan Department of Transportation (MDOT)
- Hazards Addressed: All weather-related hazards, infrastructure failures
- Potential Funding Source(s): TBD
- Project Cost: TBD
- Schedule: TBD
- Priority: Medium
- Goal/Objective Achieved: goal 3, objective c
- Benefit(s): Upgrade infrastructure to better address hazardous (flooding) events.

Item 21

Coordination of mitigation activities

Action: Work with local municipalities in Isabella and Arenac Counties to coordinate hazard mitigation activities.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Emergency Management
- Participating Agencies: Arena, Iosco, and Isabella County Emergency Management Departments, all tribal departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): FEMA Grants, Local Agencies, BIA Grants, Tribal Budget
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Medium
- Goal/Objective Achieved: goal 2, objectives a, c, and d
- Benefit(s): Coordinated effort with local agencies to better handle hazardous events.

Item 22

Join National Flood Insurance Program (NFIP)

Action: Tribal Council to formally join NFIP and incorporate program regulations.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Planning Department
- Participating Agencies: FEMA, Tribal Council
- Hazards Addressed: Flooding
- Potential Funding Source(s): NA
- Project Cost: NA
- Schedule: 2022/23
- Priority: Medium
- Goal/Objective Achieved: goal 2, objectives a and b
- Benefit(s): Joining the NFIP and incorporating program regulations will reduce damages resulting from floods. Flood insurance premiums for residents will be reduced.

Item 23

Public service announcements

Action: Utilize public service announcements to inform public on proper procedures during emergency situations.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Public Relations
- Participating Agencies: All tribal departments
- Hazards Addressed: All hazards
- Potential Funding Source(s): Tribal Budget Line Items
- Project Cost: NA
- Schedule: Ongoing
- Priority: Moderate
- Goal/Objective Achieved: goal 1, objectives b and e
- Benefit(s): Improved notification system of oncoming hazards/events

Item 24

Develop Plan to mitigate the impact of invasive species throughout tribal properties

Action: Complete/implement plan to mitigate the effects of invasive species, both flora and fauna, throughout the tribal properties on the Isabella Reservation and the Saganing District.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: BIA, EPA, EGLE, Saginaw Bay and Central Michigan Cooperative Invasive Species Management (CISMA), Tribal Council, Tribal Administration, and Tribal Risk Mgmt.
- Hazards Addressed: Invasive Species
- Potential Funding Source(s): BIA Grants, Cooperative Invasive Species Management Areas (CISMA) Grants, Tribal Budget
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Moderate
- Goal/Objective Achieved: goal 2, objective a, goal 4, objectives a and e
- Benefit(s): Improving the natural environment and reducing the impact of hazards resulting from the invasive species.

Item 25

Upgrade security at tribal facilities

Action: Upgrade security features at tribal courthouse/public safety building and other facilities to protect tribal officials. Upgrades to possibly include metal protectors and bulletproof glass.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Court
- Participating Agencies: Tribal Council, Tribal Administration, Tribal Risk Mgmt., Tribal Police, and Tribal Fire
- Hazards Addressed: Terrorism/sabotage, civil disturbances
- Potential Funding Source(s): FEMA Grants, DOJ Grants
- Project Cost: $250,000+
- Schedule: Ongoing
- Priority: Moderate
- Goal/Objective Achieved: goal 2, objectives b, c, and d; goal 3, objectives b, d, and e
- Benefit(s): Provide an improved, safer worn environment for employees at these locations.

Item 26

Construct fire station

Action: Construct fire station at Saganing Eagles Landing that can also be utilized as an emergency shelter.

- Location: Saganing District
- Lead Agency: Tribal Public Safety
- Participating Agencies: Tribal Emergency Management Team, Saganing Facilities Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants
- Project Cost: TBD
- Schedule: 2026
- Priority: Moderate
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objective c; goal 3, objective e
- Benefit(s): Tribal fire department available in Saganing District, which would provide trained personnel, and quicker responses to fire and medical emergencies.

Item 27

Construct a training facility to be used by all first responders

Action: Design and construct a training facility that can be utilized for multiple training exercises by all first responders.

- Location: Isabella Reservation
- Lead Agency: Tribal Public Safety
- Participating Agencies: Tribal Administration, Tribal Planning Department
- Hazards Addressed: All hazards
- Potential Funding Source(s): BIA Grants
- Project Cost: TBD
- Schedule: 2026
- Priority: Moderate
- Goal/Objective Achieved: goal 1, objectives d and e; goal 2, objectives c and d
- Benefit(s): Better trained personnel providing more consistent responses to hazards.

Item 28

Assess tribal roads for drifting snow

Action: Identify problem areas that result in dangerous road conditions due to drifting snow.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Arenac, Iosco, and Isabella County Road Commission, MDOT, Tribal Council, Tribal Administration, Tribal Utilities Department, Tribal Risk Mgmt., and Tribal Police
- Hazards Addressed: All winter weather-related hazards, infrastructure failure
- Potential Funding Source(s): BIA Grants, County Road Commissions, USDA Grants, Department of Transportation (DOT) Grants
- Project Cost: $50,000
- Schedule: Ongoing
- Priority: Moderate
- Goal/Objective Achieved: goal 3, objective a
- Benefit(s): Identification and prioritization of improvement to sites that can be dangerous due to drifting snow.

Item 29

Plant natural snow fences

Action: Install natural snow fences and/or winter crops to mitigate poor road conditions resulting from snow drifts.

- Location: Isabella Reservation, Saganing District
- Lead Agency: Tribal Planning Department
- Participating Agencies: Arenac, Iosco, and Isabella County Road Commission, MDOT, Tribal Council, Tribal Administration, Tribal Utilities Department, Tribal Risk Mgmt., and Tribal Police
- Hazards Addressed: All winter weather-related hazards, infrastructure failure
- Potential Funding Source(s): BIA Grants, County Road Commissions, USDA Grants, Department of Transportation (DOT) Grants
- Project Cost: TBD
- Schedule: Ongoing
- Priority: Moderate
- Goal/Objective Achieved: goal 2, objective c; goal 3, objective e
- Benefit(s): Improved road conditions during winter weather, creating better public infrastructure.