

Emmet County Community Meeting

Technological and Human-Related Hazards

April 5, 2023



**Networks
Northwest**

Talent / Business / Community

Introductions

- Networks Northwest - Community Planners
 - Jennifer Neal, AICP
 - Stephanie Marchbanks
- Community Partners
 - Matthew Blythe, Emmet County Emergency Management Coordinator
 - Emmet County Local Emergency Planning Committee

Agenda

- Thank you for joining us!
- We will be discussing the following:
 - Purpose of the Hazard Mitigation Plan
 - Technological Hazards and Human-Related Hazards
 - Community Survey Results
 - Hazard Background and Event History
 - Community Vulnerabilities
 - Potential Impacts

Purpose and Process

Hazard mitigation is defined as the **sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.**



Terminology*

- **Hazardous Materials Fixed Site Incident:**
 - An uncontrolled release of hazardous materials from a specific location capable of posing a risk to life, health, safety, property, or the environment.
- **Hazardous Materials Transportation Incident:**
 - An uncontrolled release of hazardous materials cargo during transport, capable of posing a risk to life, health, safety, property, or the environment.
- **Pipeline and Wellhead Incident:**
 - An uncontrolled release of petroleum or natural gas from a pipeline or wellhead, including the release of poisonous hydrogen sulfide gas associated with the production, processing or transportation of these materials.

* Michigan State Police, *Michigan Hazard Analysis Supplement*, 2020

Terminology*

- **Structure Fire:**
 - A fire or explosion that ignites one or several buildings, spreading to cause injury or loss of life, property damage, or the loss of important services.
- **Nuclear Power Plant Emergency:**
 - An actual or potential release of radioactive material at a commercial nuclear power plant, in sufficient quantity, to constitute a threat to the health and safety of the off-site population.
- **Energy Failure or Shortage:**
 - A lack or shortage of electric power, natural gas, fuel oil, propane, or gasoline of a sufficient magnitude and duration to threaten public safety, technological capabilities, or economic stability.

* Michigan State Police, *Michigan Hazard Analysis Supplement*, 2020

Terminology*

- **Terrorism and Similar Criminal Incidents:**

- *“Activities that involve violent...or life-threatening acts...that are a violation of the criminal laws of the United States or of any State and...appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping”* (Excerpts from Federal Criminal Code. 18 U.S.C. §2331)

- **Cyberattacks and Major Network Disruptions:**

- Human-caused actions designed to disable or gain unauthorized access to computers and their networks for the purposes of electronic data manipulation (exposure, erasure, theft, recoding) or changed functionality (including repurposing or inoperability). Major network disruptions are sometimes accidental or secondary to other hazards.

Terminology*

- **Civil Disturbance:**

- An escalation of collective behavior by a group of people stemming from a desire for societal change or as a showing of mass support that may manifest as marches, demonstrations, or protests. Predominantly lawful and peaceful, events may escalate into a civil disturbance when there is a threat to public order, a disruption of essential services, or an outbreak of violence. Some civil disturbances may come about for the primary purpose of mass law breaking.

- **Nuclear Attack:**

- A hostile action taken against the United States or its citizens involving nuclear weapons and resulting in the loss of life and/or destruction of infrastructure and environment.

- **Public Health Emergency:**

- Widespread or severe infectious disease, contaminated water or food supply chains, sanitation breakdowns, or similar hazards that transmit or threaten to transmit significant sickness within the general public.

Terminology*

- **Built Infrastructure Failure:**
 - The failure of critical public infrastructure that results in a temporary loss of essential services. This primarily includes water supply infrastructure, sewer systems, bridges and communication systems.
- **Major Transportation Incidents:**
 - A major crash or incident of air, land, or water-based vehicles, predominantly involving commercial passenger carriers.

● Using your **5 sticky notes**, please write down the **5 technological/human-induced hazards** that you think would have the **greatest impact** in Emmet County:

- Communications Failure
- Civil Disturbance
- Cyberattack
- Dam Failure
- Energy Failure
- Hazardous Materials Fixed Site Incident
- Hazardous Materials Transportation Incident
- Major Transportation Accident
- Pipeline/Wellhead Incident
- Public Health Emergency
- Public Water System Failure
- Road or Bridge Failure
- Scrap Tire Fire
- Storm/Sanitary Sewer Failure
- Terrorism Incident

Survey Results

Community Representation

58 responses (answered at least 42% of questions) from Nov 9, 2022 to Jan 4, 2023

All Cities, Village, and Townships have at least two responses

Role/Organization Role

Resident

Property or Business Owner

Appointed or Elected Official

Local Government Employee

Chamber of Commerce

Environmental Non-Profit

Other organization stakeholder

Survey Results

Q9: Please rate your level of concern regarding each type of potential Technological Hazard affecting your community.

(Not A Concern = 1, Somewhat of a Concern = 2, A Serious Concern = 3)

Rank	Technological Hazard	Mean Score
1	Energy Failure (electric, natural gas, or petroleum)	2.23
2	Communications Failure	2.14
3	Oil and Gas Accident (well and pipeline)	2.09
4	Structural Fire	2.04
5	Transportation Hazardous Materials Accident (i.e., railcar, aircraft, road vehicle or watercraft)	1.98
6	Transportation Accident (air, land, or marine vehicle crashes)	1.89
7	Road or Bridge Failure	1.88
8	Sanitary Sewer Failure	1.86
9	Hazardous Materials Release From a Fixed Site	1.79
10	Storm Sewer Failure	1.72
11	Dam Failure	1.35
12	Scrap Tire Fire	1.33

Survey Results

Q10: Please describe your concerns regarding impacts from the above Technological Hazards.

RESPONSE BY CATEGORY	REPRESENTATION
Electricity and Communications	
<ul style="list-style-type: none"> The airport is at the end of two provider's "runs" and experiences power fluctuations. 	Emmet County Airport in Pellston
<ul style="list-style-type: none"> Long duration electrical outages pose a threat. 	Center Twp., Cross Village Twp., Readmond Twp.
<ul style="list-style-type: none"> Renting an old home and concerned for electrical safety 	Bear Creek Township
<ul style="list-style-type: none"> Need to be able to access all systems hardware & software with up to date backups in order to collect & distribute monies. 	Emmet County Government
<ul style="list-style-type: none"> electric & communications are vital to operation of the fairgrounds particularly during disasters because of being an emergency shelter. 	Emmet County Fairgrounds
<ul style="list-style-type: none"> electrical outages are frequent 	Pleasantview Township
<ul style="list-style-type: none"> Communication is so important and so dependent on outside influences. Many buildings lack backup electricity. 	
<ul style="list-style-type: none"> City of Petoskey has over 70% of their utilities underground so electrical outages are rare. 	
Pipeline Incident	
<ul style="list-style-type: none"> A rupture in Line 5, an oil spill @ the straights of mackinaw is an imminent disaster waiting to happen, only one way to resolve, shut it down. Infrastructure failures are a concern, 	
<ul style="list-style-type: none"> Oil and gas pipelines in lakes and watersheds are very dangerous 	
<ul style="list-style-type: none"> Pipeline leaks and or explosions are a concern for the ageing Line 5 both under water and in ground. 	
<ul style="list-style-type: none"> Definitely concerned that a line 5 spill would impact our community. 	
<ul style="list-style-type: none"> Line 5 	

Survey Results

Q10: Please describe your concerns regarding impacts from the above Technological Hazards.

RESPONSE BY CATEGORY	REPRESENTATION
Structural Fires <ul style="list-style-type: none">• how do you help people with fires• fires are a very likely concern as well.	Carp Lake Township Little Traverse Township
Wastewater Infrastructure <ul style="list-style-type: none">• Waste water infrastructure is sound as city has invested millions in the past decade. City of Petoskey has a livable petoskey master plan and CIP's for every department.• Discharge of contaminates in waterways.	City of Petoskey
Hazardous Materials Release - Fixed Site Incident <ul style="list-style-type: none">• The Old Big Rock Nuclear power plant in Bay Shore (formerly Consumers Power) has spent, radioactive fuel rods stored in cement casks 100 feet from an ever eroding shoreline.	

Survey Results

Q10: Please describe your concerns regarding impacts from the above Technological Hazards.

RESPONSE BY CATEGORY	REPRESENTATION
General Concerns	
<ul style="list-style-type: none"> • Do we have the infrastructure to deal with any of these if they happen??? • The lack of any plan to restore power, sewer, or roads after a significant event effecting these resources. • safety of residents and visitors, utility services availability • Again, my responses relate only to concerns as they impact county residents' access to the courts. • damage or results that effect our home and lively hood • Adverse economic impact 	
<ul style="list-style-type: none"> • Ensuring that any event of this nature near our campus is contained so as not to impact resident safety. • Failure to respond to incident or emergency. • Human injury or loss of life. 	Emmet County Medical Care Facility
<ul style="list-style-type: none"> • We are a rural community in the center of the county. Most items on this page would be outside of the township • Some of these events would be concerning if they occurred. 	Pleasantview Township

Survey Results

Q11: Please rate your level of concern regarding each type of potential Human-Related Hazard affecting your community.

(Not A Concern = 1, Somewhat of a Concern = 2, A Serious Concern = 3)

Rank	Human-Related Hazard	Mean Score
1	Public Health Emergency (i.e., epidemic, drinking water contamination)	2.18
2	Cyber Attack	2.11
3	Terrorism & Similar Criminal Incidents (i.e., biological/nuclear/chemical weapons, active shooter)	1.93
4	Civil Disturbance (i.e., protests, riots, insurrection)	1.77

Survey Results

Q12: Please describe your concerns regarding impacts from the above Human-Related Hazards.

RESPONSE BY CATEGORY

Cyber-Attack

- Cyber-attacks are insured against.
- Cyber-Attack without real-time backups would be devastating.
- Cyber attacks seem potentially more likely.
- Cyber-attacks are increasing on pipeline infrastructure across the country and we have Line 5 in our service area that is a potential target.
- Have concern about other countries interfering with our communication system.
- The effect on our communication.

Public Health Emergency

- The response to our recent pandemic was not efficient and lacked clear guidelines for the community to access.
- Our response to pandemics needs better communication and community cooperation
- the effect on our health and welfare
- Most people are on wells so ground water contamination is a concern.
- We have already experienced epidemics and drinking water contamination.

Civil Disturbance

- Civil disturbances related to politics, which have divided our community beyond what I thought possible. What happened to agreeing to disagreeing and being neighbors?
- With the polarization around a lot of things recently, civil disturbances seem potentially more likely.
- Protest for the most part have remained peaceful, but it seems there has been an increase in frustrations by friends and neighbors.

Survey Results

Q12: Please describe your concerns regarding impacts from the above Human-Related Hazards.

RESPONSE BY CATEGORY

Terrorism/Criminal Incidents

- Terrorism is something to be planned for but not worried about.
- Highly politicized environment with a lot of antigovernment sentiment. Never really secure. Feel our [County Building] is not prepared for a criminal incident.
- Concerned about safety in the courtroom/county building and the security of court communications.

General Concerns

- These types of hazards seem to come up so suddenly and without provocation. Difficult to predict.
- What are you plans and how do you train for this kind of thing
- All of the above can affect all county operations.
- We should be prepared for any of the above events.
- All are somewhat of a concern
- If any of these events occurred they would be of concern. I'm just not sure if some would directly impact
- Loss of life and panic in the Citizenry.
- safety of residents and visitors, utility services availability

Survey Results

Q13: Please describe any disruptive or damaging hazard event that have occurred within your community in the last ten years.

Event Type	# of Times Mentioned	Description
Shoreline Erosion/Flooding	10	Lake MI shoreline; high lake water events causing damage to public investment/infrastructure; collapse of LTW due to erosion in 2020; road and trail closures due to erosion; snowmelt and rainfall resulting in landslides causing significant property damage; hardening of the shoreline which causes further erosion and other ecological problems for the waters
Power Outages	10	Caused by storms. There are still pockets of Emmet County that occasionally go 3-4 days without power following even a mild inclement weather event; Not able to perform county government work functions due to communication and power disruptions.
COVID Pandemic	7	
Inland Flooding	4	Roads crumbling. Roads flooded after a storm; excessive flooding and stormwater overflow. Septic failures due to high water tables or failure to maintain systems. Tannery Creek flooding on US-31.

Survey Results

Q14-15: Has your community considered mitigation strategies for potential or current hazards? If so, please identify potential strategies you would like to explore in the future.

<ul style="list-style-type: none"> • Feasibility studies for shoreline restoration and native plantings, rerouting bike path to Highway, a suspension bridge as a replacement for bike path etc... 	County employee/City of Petoskey Council member
<ul style="list-style-type: none"> • It continues to dumbfound me that Emmet County WILL NOT embrace a comprehensive, sustainably-financed, countywide public transit system. For hazards where masses of people need to be efficiently moved and/or traffic congestion is not ideal, public transit is a critical piece of infrastructure. 	City of Petoskey resident/business owner
<ul style="list-style-type: none"> • Our emergency operations plan includes risk mitigation strategies for many types of events. 	County Medical Care Facility Administrator
<ul style="list-style-type: none"> • Green Infrastructure • Flooding Management • Shoreline Bioengineering 	Tip of the Mitt Watershed Council
<ul style="list-style-type: none"> • Tannery Creek flooding study started. Need property owner cooperation and grant funding to correct the issues. 	Emmet County Planning & Zoning
<ul style="list-style-type: none"> • Flood mitigation. 	City of Harbor Springs
<ul style="list-style-type: none"> • Update emergency preparedness plan and hold emergency response exercises. 	Little Traverse Township Supervisor
<ul style="list-style-type: none"> • PFAS contamination 	Emmet County BOC
<ul style="list-style-type: none"> • Removal of hazardous and dead trees along road rights of way. 	Harbor Springs Outdoor Club



Potential Impact

People

Economy

Built

Natural

Environment

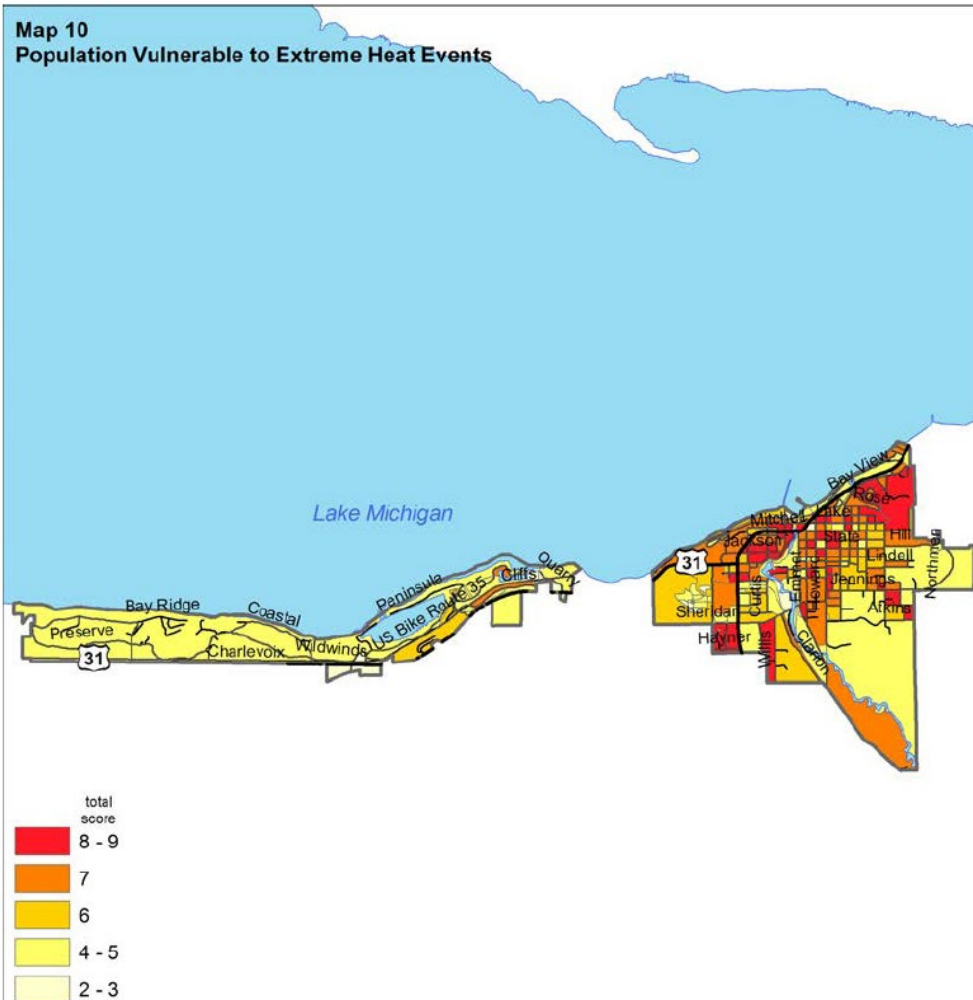
Environment

Vulnerable Populations

LIAA's NW MI Coastal Resilience Atlas – Heat Vulnerability Assessment

- Vulnerability = Exposure to the hazard (tree canopy and impervious surface) + Sensitivity
- Population Characteristics of Sensitivity:
 - Persons > age 65
 - Persons living alone
 - Minority (non-white) persons
 - Persons living below the poverty threshold
 - People > age 25 with less than a high school education
 - Disability status (i.e., ambulatory difficulty, mental disability)

Northwest Lower Michigan Coastal Resilience Atlas



Community Resilience: The ability of a community to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.

● **FEMA Community Resilience Index (CRI) for Emmet County = 0.19**






- The CRI is a relative assessment of a community's potential resilience and gives insights into population and community characteristics from which to build emergency operations plans and targeted outreach strategies.
- It is measured as an average of counts of standard deviations from the national mean for each indicator.
- The 2022 FEMA CRI uses the most currently available census data, the 2016-2020 ACS 5-year estimates, and will be updated annually.

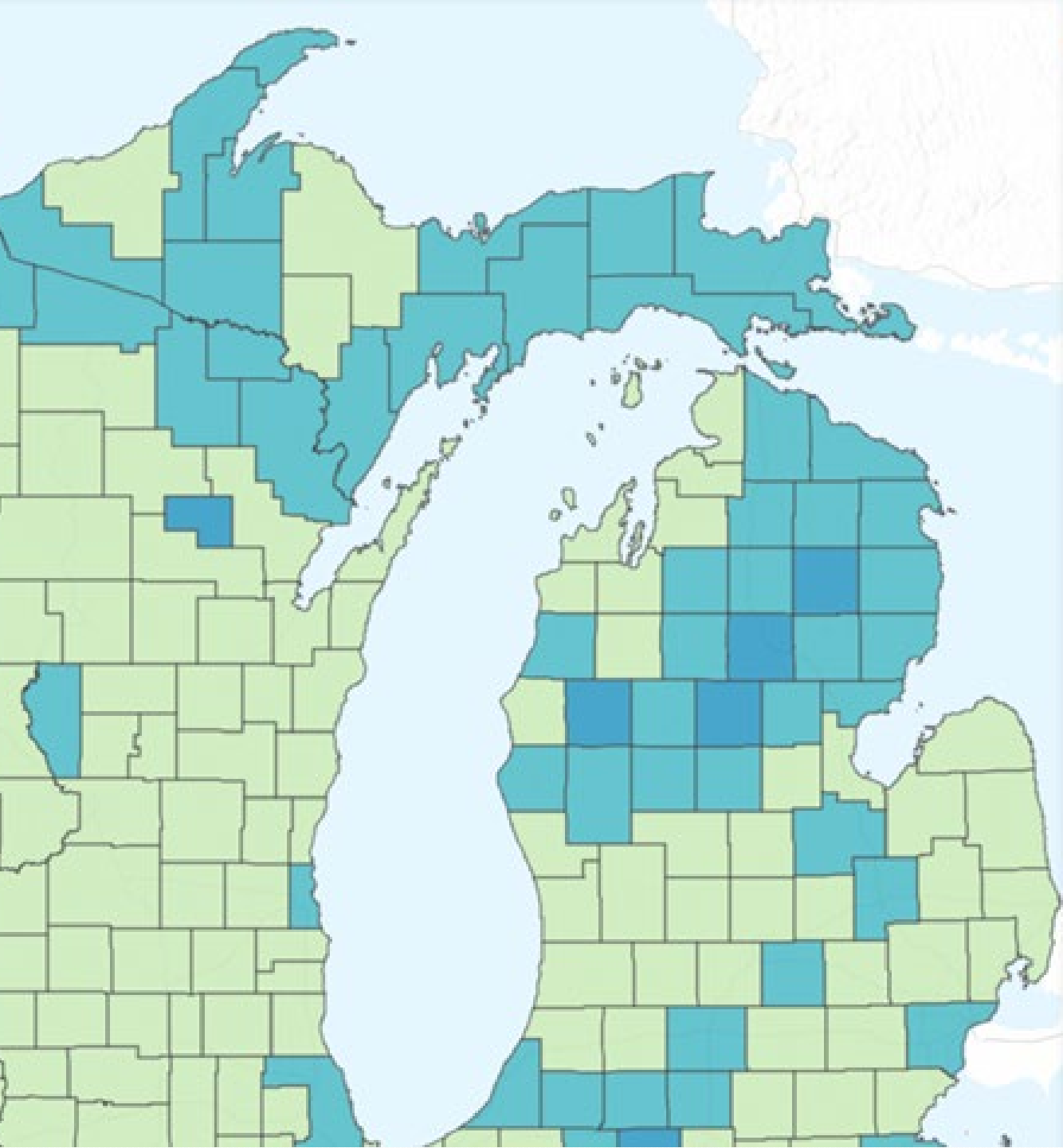
Legend

County Boundaries (click on county for CRI Indicators)

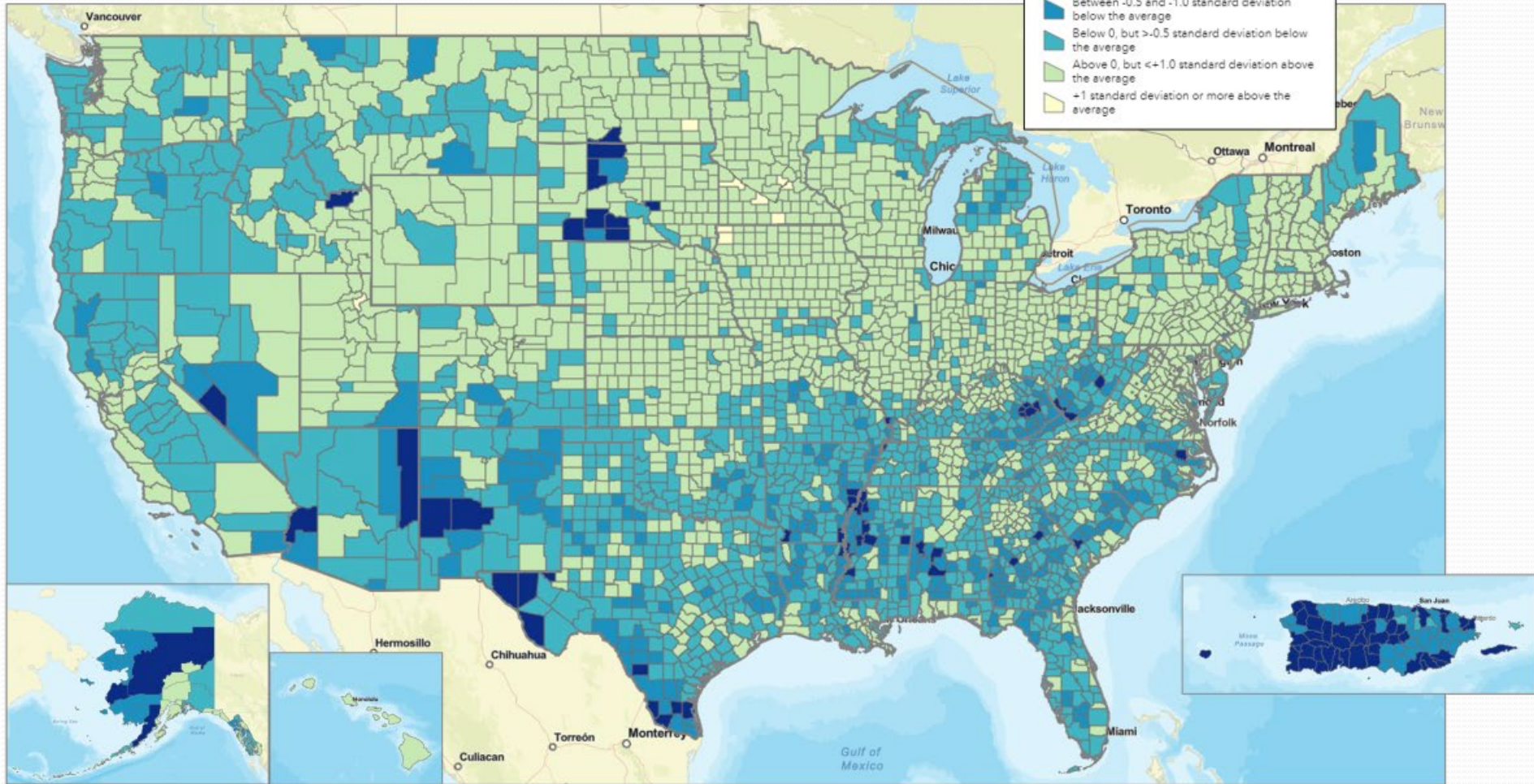


Counties - FEMA Community Resilience Index (CRI)

-  -1 standard deviation or more below the average
-  Between -0.5 and -1.0 standard deviation below the average
-  Below 0, but >-0.5 standard deviation below the average
-  Above 0, but <=1.0 standard deviation above the average
-  +1 standard deviation or more above the average



FEMA Community Resilience Index by County



Community Resilience

● Top 3 Indicators of the CRI Value that represent population and community attributes that researchers have identified as potential challenges to resilience in Emmet County:

● 1. **Population Change: 0.47** (2016-2020 ACS Estimates from US Census)

● 2. **Social/Civic Organizations per 10,000 People: 1.51**

● 3. **Percent Age 65 and Over: 22.43%**

Percent with a Disability: 13.55%

Percent without HS Diploma: 5.17%

Percent Unemployed Labor Force: 3.98%

Percent without Health Insurance: 6.57%

Percent HH with Limited English: 0.06%

Median HH Income: \$55,947.00

Percent Mobile Homes Relative to Housing: 6.16%

Percent Owner-Occupied Housing: 48.45%

Percent Single Parent HH: 20.11%

Percent of HH without a Vehicle: 5.37%

Income Inequality (Gini Index): 48.09

Percent without Religious Affiliation: 0.62%

Number of Health Practitioners per 1,000 People: 24.57

Number of Hospitals per 10,000 People: 0.00 (The national avg. is .2 hospitals per 10,000 people)

Percent Unemployed Women in Labor Force: 3.83%

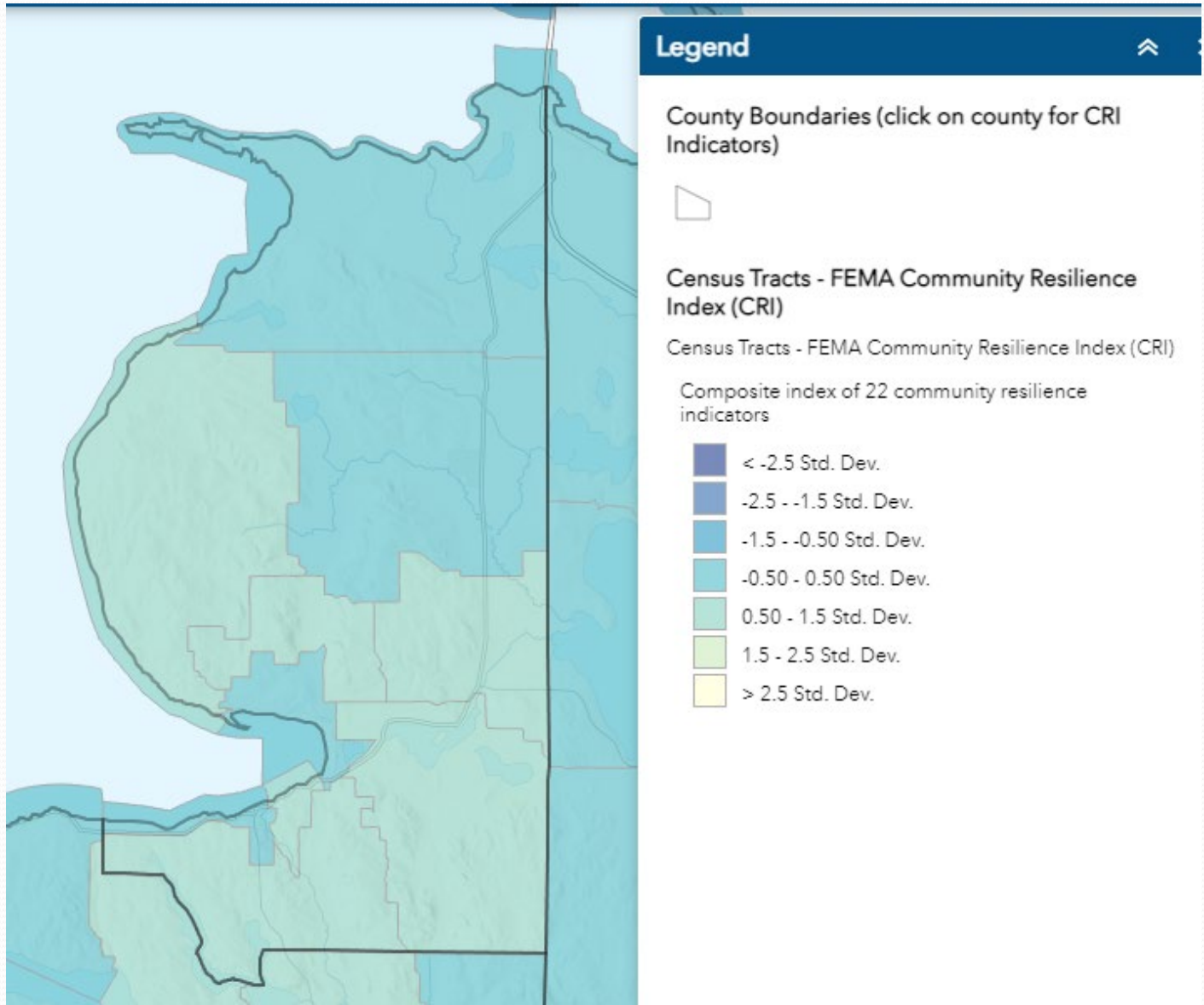
Percent Workforce Employed in Predominant Sector: 22.71%

Percent Inactive Voters: 10.40%

Percent Living Below Poverty Level: 8.95%

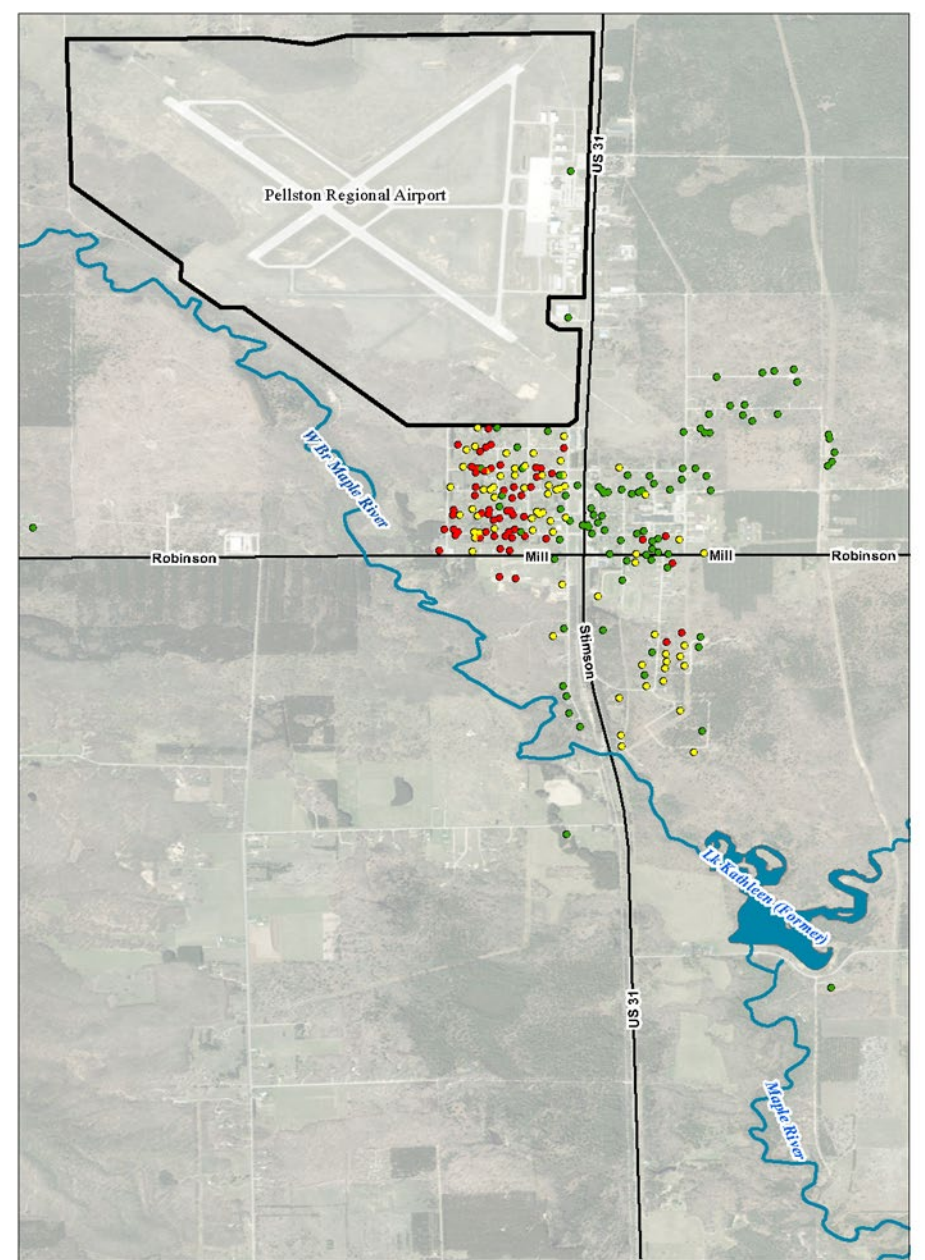
Percent HH without a Smart Phone: 18.20%

Vulnerable Populations



Hazardous Materials Fixed Site Incidents

- PFAS Contamination around Pellston Airport
 - HDNM representatives have secured a supply of bottled water and a delivery point for residents with elevated levels of PFAS in their drinking water.
 - An agreement was reached with a local plumbing contractor to install point of use filter systems and provide replacement cartridges to individuals with detectable levels of PFAS chemicals as a precautionary action.



216 Drinking Water Sample Locations
Part 201 Drinking Water PFAS Criteria in Parts per Trillion:
PFOA: 8 PFOS: 16 PFHxS: 51 PFNA: 6 PFBS: 420
PFHxA: 400,000 HFPOA-DA: 370

August 2022 PFAS Results

- Non-Detect (92)
- Detection (67)
- Exceedance (57)

Legend:
[Black outline] Airport Boundary
[Grey line] Road
[Blue line] River

Village of Pellston MCKINLEY & MAPLE RIVER TOWNSHIP, EMMET COUNTY T37N R6W SECTION 14 & T38N R6W SECTION 5	
DRINKING WATER PFAS RESULTS	
GEOLOGIST Christian Bon	CREATION DATE August 2022
Mackinac and Ingham and Division	CREATED BY S. Boon
EGLE	

DATUM: 1983 NAD
PROJECTION: STATE PLANE CENTRAL 2112,
INTERNATIONAL FEET

AERIAL IMAGERY SOURCE: MICHIGAN
CENTER FOR SHARED SOLUTIONS BEST
AVAILABLE

SCALE 1:1600

0.5 0.25 0 0.5 Km

0.45 0.225 0 0.45 Mi

Hazardous Materials Fixed Site Incidents

- PFAS Contamination around Pellston Airport
 - HDNM representatives have secured a supply of bottled water and a delivery point for residents with elevated levels of PFAS in their drinking water. An agreement was reached with a local plumbing contractor to install point of use filter systems and provide replacement cartridges to individuals with detectable levels of PFAS chemicals as a precautionary action.
 - On August 22, 2022, Emmet County started its 4th phase of the groundwater investigation.
 - On September 27, 2022, the Village of Pellston received a EGLE grant agreement for \$819,000 in EPA funds to determine the feasibility and potential service area for alternate water options due to PFAS contamination.
 - Emmet County is preparing a Response Activity Plan for soil investigation in areas of past AFFF release and for managing impacted soil as part of airport improvement construction projects and is evaluating possible soil remediation technologies.
 - www.michigan.gov/pfasresponse/investigations/sites-aoi/emmet-county/pellston-regional-airport

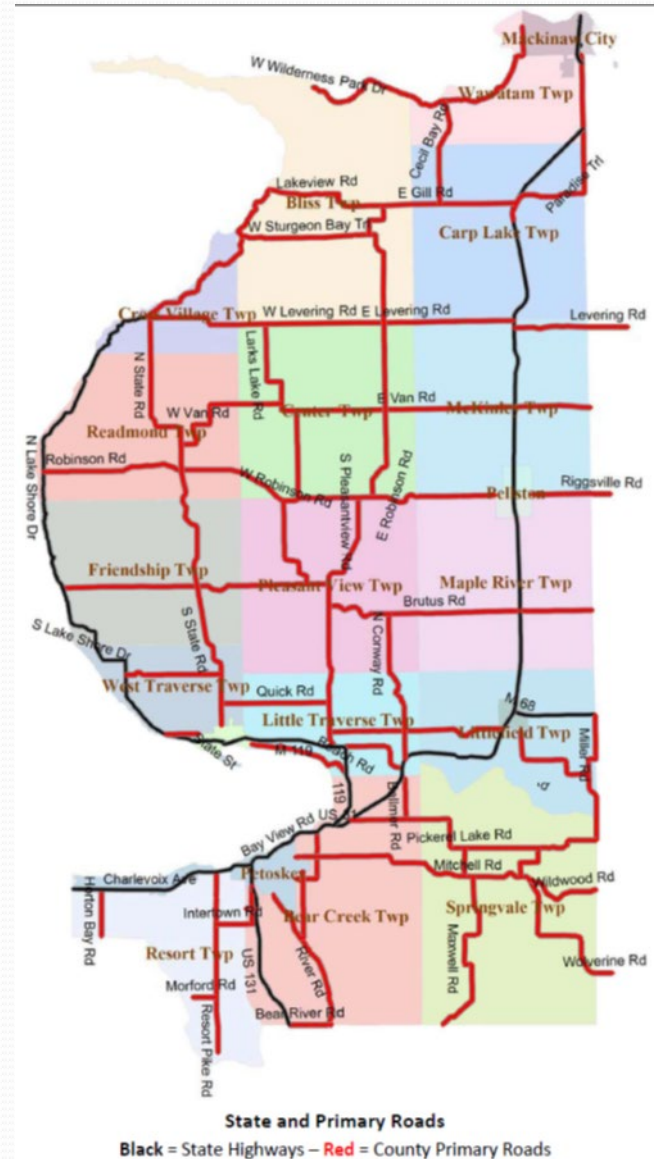
Hazardous Materials Fixed Site Incidents

- Bay Harbor Groundwater Treatment System for leachate from former cement plant - NPDES permit compliance oversight provided by MI EGLE
- Petoskey Manufacturing Company - Superfund Site
 - Remediated site supports residential and commercial areas and a recreational waterfront.
 - In 2017, EPA led a vapor intrusion investigation at the condominium redevelopment on the former PMC property and surrounding area. In 2018, EPA put in vapor mitigation systems for all units with indoor air results above health-based standards. EPA is currently working toward remediating the subsurface vapor sources on the former PMC property.
- Emmet County has 31 active SARA Title II sites that contain reportable quantities of hazardous materials
 - Managed through Emmet County LEPC



Hazardous Materials Transportation Incidents

- US-31, US-131, M-119, County Primary Roads (i.e., M-68, M-64) I-75 (including Mackinaw Bridge)
- 1 active rail line (utilized solely by Petoskey Plastics)
- Straits of Mackinac – maritime commerce
- 3 Marinas: Harbor Springs, Petoskey, Bay Harbor
- 3 Airports: Pellston, Mackinaw City, Harbor Springs
- There are 3 agencies reporting 5 incidents involving hazardous materials transportation (CCE911)



Major Transportation Accidents

- A major crash or incident of air, land, or water-based vehicles, predominantly involving commercial passenger carriers.
 - US-31, US-131, M-119, County Primary Roads, I-75 (including Mackinaw Bridge)
 - 1 active rail line along River Road, operated by Great Lakes Central RR (utilized by Petoskey Plastics)
 - Straits of Mackinac – maritime commerce
 - 3 Marinas: Harbor Springs, Petoskey, Bay Harbor
 - 3 Airports: Pellston, Mackinaw City, Harbor Springs
- 2 incidents of aircraft crashes in 2022 (CCE911)
- 9 agencies reporting 21 instances of vehicle fires in 2022 (CCE911)

Nuclear Power Plant Emergencies

- Big Rock Point Nuclear Power Plant, Hayes Township, Charlevoix County
 - Closed in 1997 but still has spent fuel rods stored onsite; is regularly monitored
 - Potential exposure to nuclear materials highly unlikely; would take a severe earthquake or major terrorist incident to affect the security of the spent nuclear fuel storage

Structural Fires

- A fire or explosion that ignites one or several buildings, spreading to cause injury or loss of life, property damage, or the loss of important services.
- 49 Structure Fires in 2022 (per National Fire Incident Reporting System, reported through CCE991)
- 13 agencies reporting 240 instances of structure fires in 2022 (CCE911)

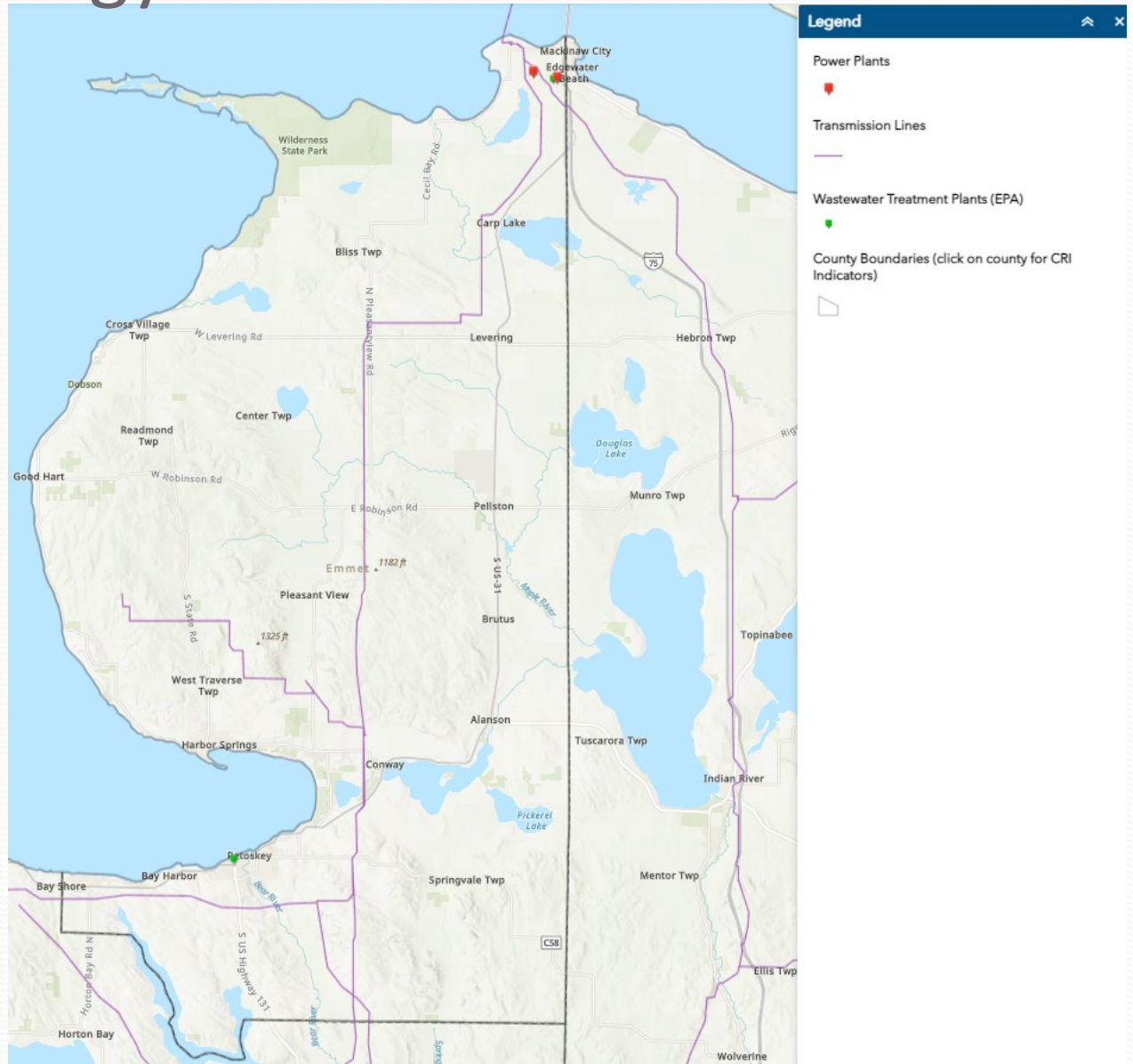
Incident Type	Call Frequency	Percent Of Total Calls	Total Incidents	Mutual Aid None	Mutual Aid Given	Mutual Aid Received	Other Aid Given	Invalid Aid Flag	Exposures
Structure Fires	30	1.90 %	49	22	19	7	1	0	0
Vehicle Fires	20	1.27 %	21	20	1	0	0	0	0
Other Fires	22	1.40 %	25	18	3	3	1	0	0
Total Fire	72	4.57 %	95	60	23	10	2	0	0
Pressure Ruptures, Explosion, Overheat	0	0.00 %	0	0	0	0	0	0	0
Total Incidents With Exposure Fires	0								
Total Exposure Fires	0								
Total Fire Dollar Loss	\$1,530,350								
Total Dollar Loss	\$1,530,350								
Casualty Summary	Civilian	Fire							
Fire Related Injuries	0	0							
Non-Fire Injuries	0	0							
Fire Related Deaths	0	0							
Non-Fire Deaths	0	0							

Built Infrastructure Failure

- The failure of critical public infrastructure that results in a temporary loss of essential services
 - Roads, culverts, bridges, dams, trails
 - Water and Sewer Services
 - LTBB
 - City of Petoskey (chlorination utilize)
 - City of Harbor Springs
 - Village of Alanson
 - Village of Mackinaw City
 - Communications
 - Verizon
 - AT&T
 - Spectrum
 - Great Lakes Energy – Truestream
 - Radio
 - Electric (HS, Petoskey, Great Lakes Energy)
 - Natural Gas (Consumers Energy, DTE Energy)
- 10 agencies reporting 149 instances of electric outages in 2022 (CCE911)

Energy Infrastructure

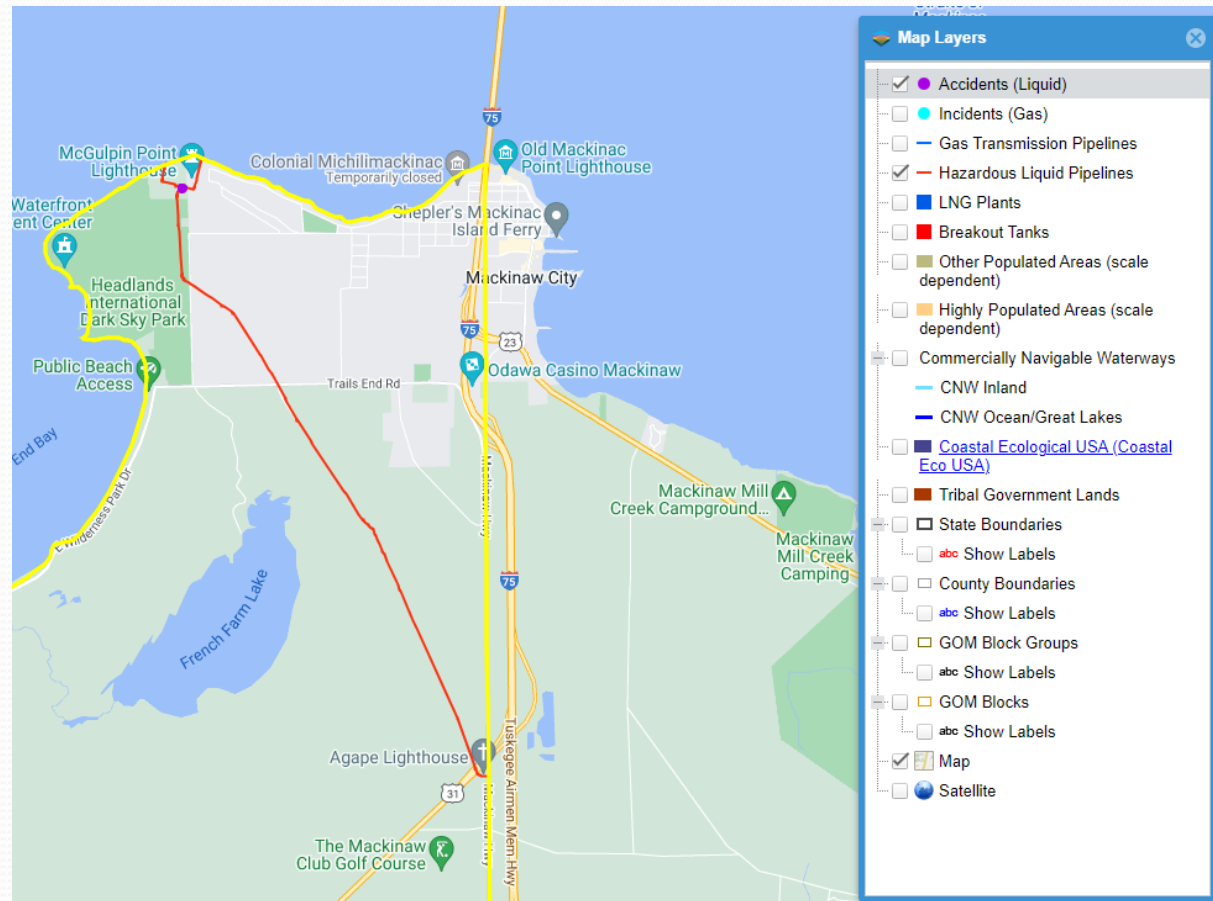
- Electric Utility Providers
 - Great Lakes Energy
 - City of Petoskey
 - City of Harbor Springs
- Natural Gas Utility Providers
 - DTE Energy
 - Consumers Energy



Source: FEMA CRI Resilience Analysis and Planning Tool

Energy Infrastructure

- Enbridge Line 5 Pipeline in Wawatam Township
- Transports up to 540,000 barrels per day (bpd) of light crude oil, light synthetic crude, and natural gas liquids (NGLs), which are refined into propane
- As it travels under the Straits of Mackinac, Line 5 diverges into two, 20-inch-diameter, parallel pipelines
- One accident reported in 2007: south of McGulpin Point Lighthouse. 0.71 barrels of crude oil was released onshore due to a “material/weld/equip failure”. 0.48 barrels of crude oil was recovered. No fatalities or injuries.



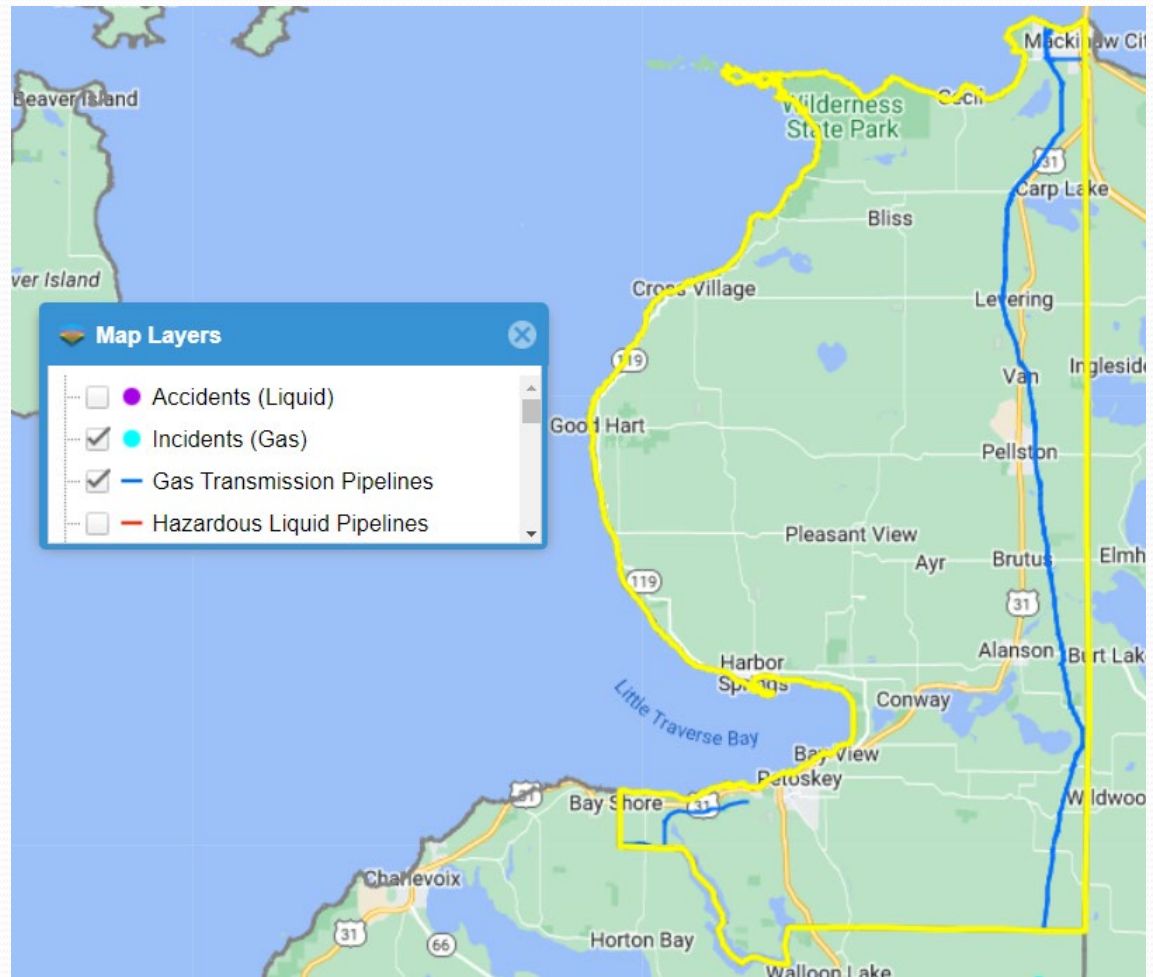
Sources: National Pipeline Mapping System Online Viewer; www.enbridge.com

Previous Pipeline Incident

- April 1, 2018 – Great Lakes/Straits of Mackinac
- A release of dielectric fluid into the Great Lakes occurred when the barge Erie Trader unintentionally dragged its 6-ton anchor for days as it sailed through the region. **The anchor struck and damaged three underwater electrical transmission cables and two oil pipelines. About 800 gallons of the fluid leaked from the electric cables, where it was used as an interior coolant and insulator.** The Enbridge Line 5 oil pipelines running through the Straits of Mackinac sustained only superficial damage but created great concern due to their location. An incident brief by the National Transportation Safety Board can be found at <https://www.nts.gov/investigations/AccidentReports/Reports/MAB1912.pdf>.
- Line 5 had been the subject of prior controversy when its capacity had been expanded in 2013, as well as in 2014 when it was found to not be meeting all of its pipeline anchoring requirements. This resulted, in part, to the creation of the Michigan Petroleum Task Force, whose report was published in 2015, and had kept the topic of the pipeline fresh in the public's mind leading up to the anchor strike. Michigan and Enbridge subsequently agreed to build a tunnel beneath the Straits of Mackinac to house Line 5. The agreement has been the source of various lawsuits. Parts of the line were shut down in 2020 when an issue was discovered with a screw anchor assembly. No product release was observed.

Energy Infrastructure

- Two Gas Transmission Pipelines in Emmet County
- DTE Natural Gas
- No Incidents in Emmet County
- There are no active oil or gas wells in Emmet County (according to EGLE's MI Oil, Gas and Minerals Division).



Source: National Pipeline Mapping System Online Viewer

Dams

Maple River Dam (Lake Kathleen Dam) removed in 2018; structures over Maple River have been recently replaced to “free” the river by the Conservation Resource Alliance and partners.

7 Dam(s) Found

Windward Dam
Hazard Potential Classification: Significant
Emergency Action Plan: Not Required
Owner Name: Windward Development Company
Primary Purpose: Recreation

Starks Mill Dam
Hazard Potential Classification: Low
Emergency Action Plan: Not Required
Owner Name: George Stark
Primary Purpose: Other

~~**Maple River Dam**
Hazard Potential Classification: Low
Emergency Action Plan: Yes
Owner Name: Blue Maple Real Estate Company
Primary Purpose: Recreation~~

Lake Street Dam and Flume
Hazard Potential Classification: Low
Emergency Action Plan: Not Required
Owner Name: City of Petoskey
Primary Purpose: Recreation

O'Neal Lake Dam
Hazard Potential Classification: Low
Emergency Action Plan: Not Required
Owner Name: MDNR Parks & Recreation
Primary Purpose: Recreation

French Farm Lake Dam
Hazard Potential Classification: Low
Emergency Action Plan: Not Required
Owner Name: MDNR Wildlife
Primary Purpose: Recreation

Goose Pond Dam
Hazard Potential Classification: Low
Emergency Action Plan: Not Required
Owner Name: MDNR Parks & Recreation
Primary Purpose: Recreation

HIDE LIST
Layer Controls

ECRC 2023 Primary Road Rating Report

2023 Planned Projects

Road Name / Limits	PASER Rating	Length (miles)	Proposed Work	Estimated Cost Funding Source
East Hathaway Road North Conway Road to Mink Road	4/3	1.52	Trenching, shoulder widening, 26 ft. wide HMA paving, gravel shoulders, restoration and pavement markings.	\$ 787,405 Federal Aid (buyout \$511,180) State D Grant (\$86,225) Little Traverse Twp. (\$190,000)
Division Road Atkins Road to US-31	4/3	1.62	Milling, asphalt paving and pavement markings.	\$ 468,750 Small Urban Funds (\$375,000) Road Commission (\$93,000)
Robinson Road State Road to Palmer Road	2	3.56	Reconstruction including, HMA Crushing and shaping, gravel base, asphalt paving, shoulders, guardrail and restoration.	\$ 1,000,000 BIA
Various Roads	7/6	??	Crack Sealing	\$ 50,000 Maintenance (MTF)

2024 Planned Projects

Road Name / Limits	PASER Rating	Length (miles)	Proposed Work	Estimated Cost Funding Source
Mitchell Road Petoskey City Limits to Division Road	4	0.76	Asphalt Mill/Fill	\$ 250,000 Small Urban Funds (\$135,037) Road Commission (\$33,759) HIP-Covid (\$81,024)
Brutus Road North Conway Road to North Ayr Road	3	1.02	Reconstruction including, HMA Crushing and shaping, gravel base, asphalt paving, shoulders, guardrail and restoration.	\$ 707,600 Federal Aid (buyout \$541,600) State D Grant (\$72,000) Local Match (\$94,000)
Robinson Road Palmer Road to Pleasantview Road (north)	2	3.38	Trenching, shoulder widening, 26 ft. wide HMA paving, gravel shoulders, restoration and pavement markings.	\$ 1,500,000 BIA
Lake Shore Drive Stone Church Road to Sturgeon Bay Trail	2	4.83	Reconstruction including, HMA Crushing and shaping, gravel base, asphalt paving, shoulders, guardrail and restoration.	\$ 1,800,200 Federal HIP Grant (\$1,440,000) Local Match (\$ 360,000)
Primary Roads	6/5	15	Single Chip Seal and Fog Seal	\$ 500,000 Maintenance (MTF)
Various Roads	7/6	??	Crack Sealing	\$ 50,000 Maintenance (MTF)



Good / Fair / Poor Condition

Primary Paved Roads

Green = Good - Yellow = Fair - Red = Poor

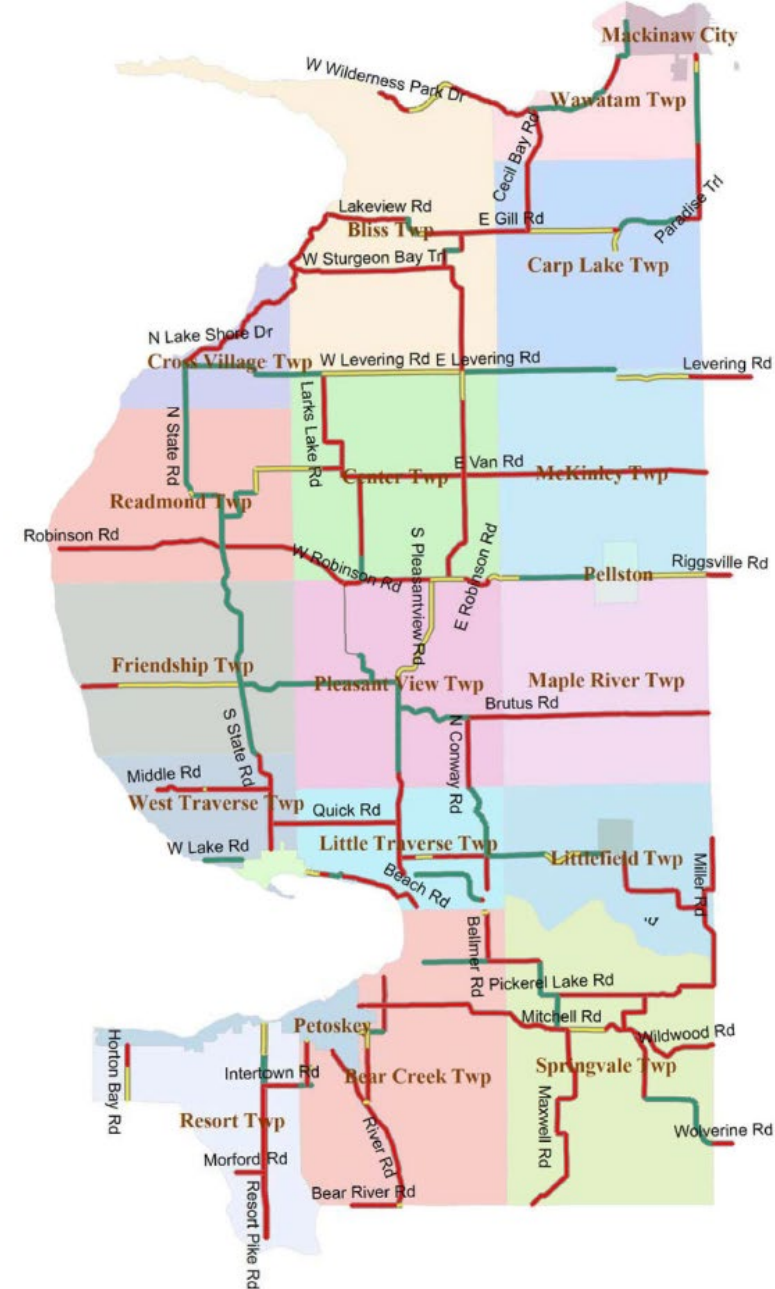
ECRC 2023 Primary Road Rating Report

2025 Planned Projects

Road Name / Limits	PASER Rating	Length (miles)	Proposed Work	Estimated Cost Funding Source
Robinson Road Pleasantview Road (north) to 0.10 miles west of North Ayr Road	5	1.04	Reconstruction including, Crushing and shaping, gravel base, asphalt paving, shoulders, and restoration.	\$ 722,100 Federal Aid (buyout \$552,800) State D Grant (\$73,000) Road Commission (\$96,300)
Brutus Road North Ayr Road to Culp Road	2	1.99	Trenching, shoulder widening, 26 ft. wide HMA paving, gravel shoulders, restoration and pavement markings.	\$ 1,000,000 BIA
Various Roads	3/2	6.00	HMA Wedging	\$ 400,000 Maintenance (MTF)
Various Roads	7/6	??	Crack Sealing	\$ 50,000 Maintenance (MTF)

2026 Planned Projects

Road Name / Limits	PASER Rating	Length (miles)	Proposed Work	Estimated Cost Funding Source
Anderson Road Intertown Road to Petoskey City Limits	4	1.25	Asphalt Mill/Fill	\$ 481,250 Small Urban Funds (\$385,000) Road Commission (\$96,250)
Robinson Road 0.25 miles west of Durkalic Road to 0.10 miles west of North Ayr Road	5	1.32	Reconstruction including, Crushing and shaping, gravel base, asphalt paving, shoulders, and restoration.	\$ 725,600 Federal Aid (buyout \$552,800) State D Grant (\$74,000) Road Commission (\$98,800)
Brutus Road Culp Road to US-31	3	1.50	Reconstruction including, Crushing and shaping, gravel base, asphalt paving, shoulders, and restoration.	\$ 1,000,000 BIA
Various Roads	7/6	??	Crack Sealing	\$ 50,000 Maintenance (MTF)



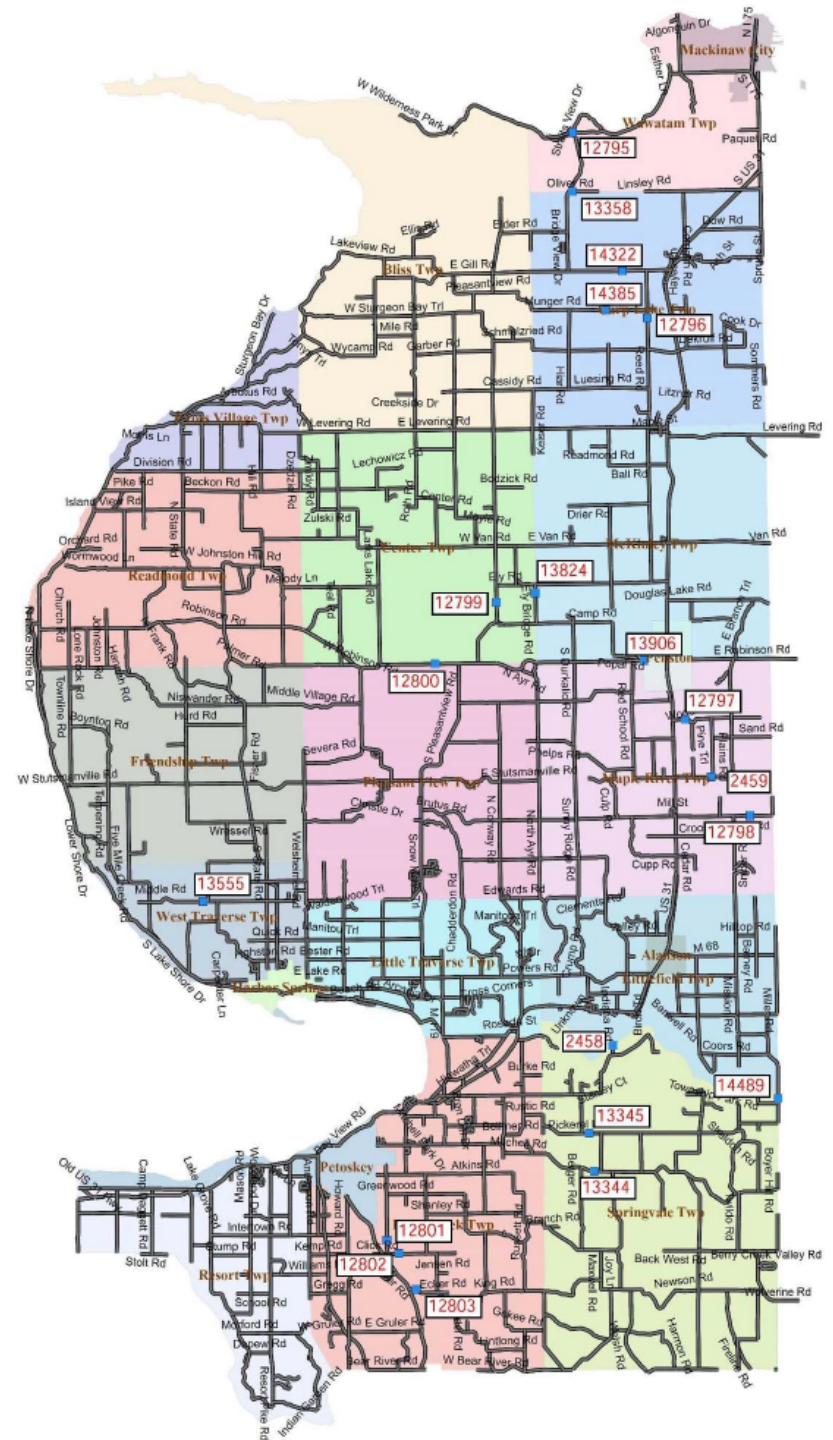
Good / Fair / Poor Condition

Primary Paved Roads

Green = Good - Yellow = Fair - Red = Poor

ECRC 2023 Primary Road Rating Report

- Since all bridges under Road Commission jurisdiction are currently in good of fair condition, resources may be spent on improving other structures in the County.
- Some existing culverts may be upgraded to a bridge that would be part of the inventoried system.
- Funding for these structure improvements is mostly outside funds with some Road Commission participation.



ECRC 2023 Primary Road Rating Report

2023-24 Planned Bridge Projects

2023 Planned Projects

Road Name / Feature Intersected	Proposed Work	Estimated Cost Funding Source
Lower Shore Drive over Five Mile Creek 0.87 miles south of Thorne Swift Court	Remove existing steel culvert and construct a timber bridge.	\$ 695,000 LTBBOD (\$610,000) Road Commission (\$85,000)
Douglass Lake Rd over E Branch Maple River 1.86 miles west of US-31	Remove existing steel culverts and construct a timber bridge.	\$ 500,000 CRA
Various Bridges	Crack Sealing on Bridges	\$ 5,000 MTF

2024 Planned Projects

Road Name / Feature Intersected	Proposed Work	Estimated Cost Funding Source
Lake Shore Drive over Wycamp Creek 0.10 miles north of Chippewa Drive.	Remove existing steel culvert and construct a timber bridge.	\$ 1,031,100 LTBBOD (\$920,000) Road Commission (\$111,100)

Road/Stream Crossings

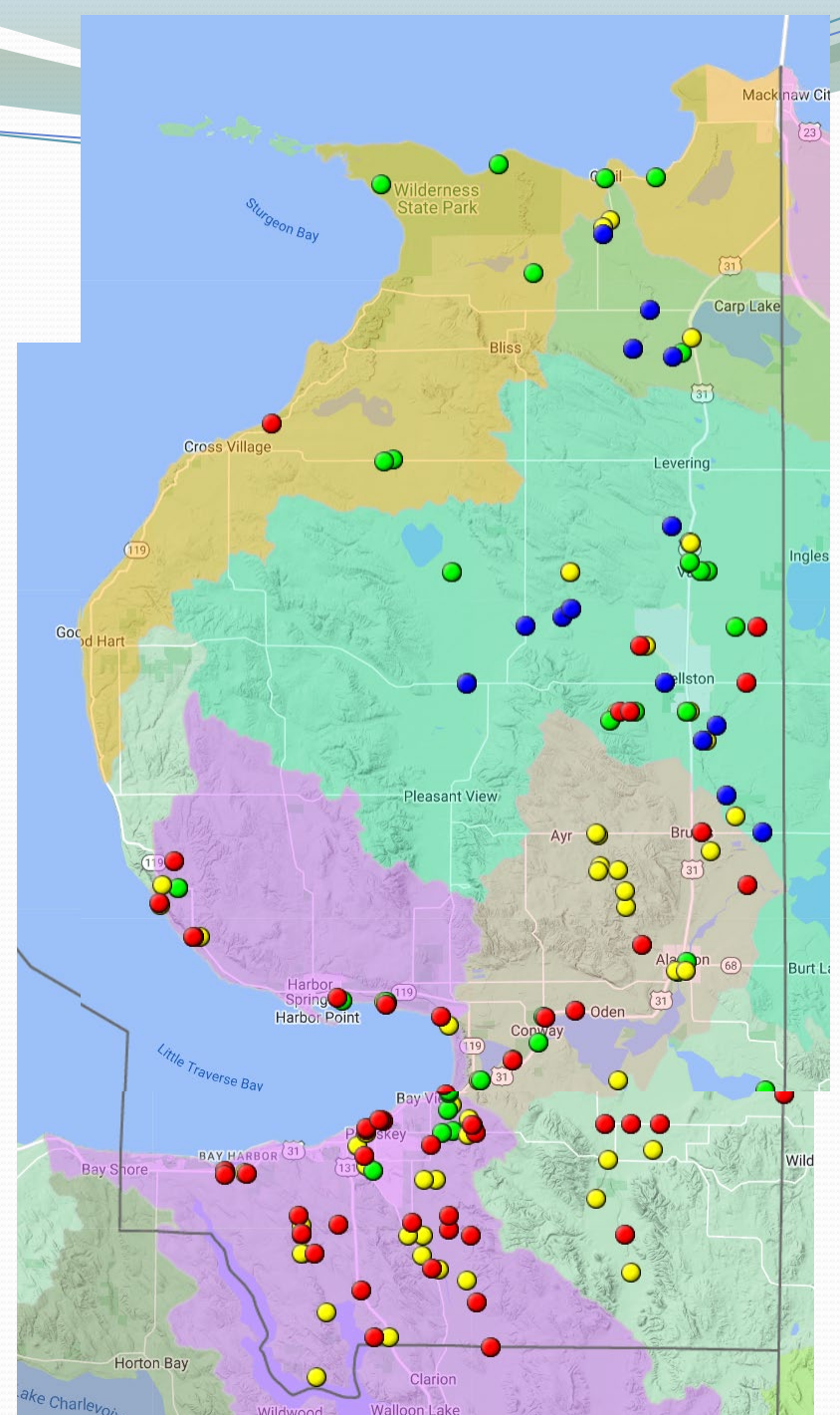
Five Watersheds - Frontal Lake Michigan, Carp River, Maple River, Crooked River, Little Traverse Bay.

Yellow = Moderate

Red = Severe

Green = Minor

Blue = Restored



<http://www.northernmichiganstreams.org/emmetcorsx.asp> Map updated as of 5/5/2021. River Restoration in Northern Michigan. Data supplied by Conservation Resource Alliance.

Inland Flooding

Date	Location	Property Damage	Episode Narrative	Event Narrative
6/21/2011	GOOD HART	\$18,000	<p>A culvert was washed out along Levering Road (C-66) a few miles east of Cross Village. Substantial soil erosion occurred in the yards of some homes. The co-operative observer, one mile east of Cross Village, measured 4.79 inches of rain in 12 hours, most of which fell in a four hour period either side of midnight.</p>	<p>Bands of training thunderstorms affected parts of Northwest and North Central Lower Michigan. Locally very heavy rain occurred in a few spots, including between Manistee and Cadillac. The only flooding occurred in the Cross Village area of Emmet County.</p>
7/18/2020	MENONAQUA BEACH (Start); ALANSON (End)	\$98,000	<p>Thunderstorms moved repeatedly over the same area on the afternoon of the 18th. Rainfall amounts of 2 to 4 inches were estimated to fall from just northeast of Petoskey, on toward Indian River. Measured rainfall amounts by the next morning were as high as 5.25 inches near Afton, though this occurred over multiple rounds of thunderstorms, not just this late afternoon batch. Flash flooding was reported in the community of Oden in Emmet County, where knee-high water flooded homes along Pingree Avenue (US-31), on the east side of town.</p>	<p>Thunderstorm activity earlier in the day laid down an outflow boundary across far northern lower Michigan. Severe thunderstorms reignited along that boundary by mid afternoon. Damaging winds and excessive rainfall were the primary hazards.</p>
9/3/2022	HARBOR POINT	\$5,000	<p>M-119 (Bluff Dr) closed at Harrison St due to significant erosion of shoulder of highway. Time estimated.</p>	<p>A line of strong thunderstorms formed along an advancing cold front early in the morning on 9/3, eventually tracking into northern lower Michigan and producing heavy rainfall. Additional storms initiated just behind the line and continued to produce heavy rainfall in the vicinity of Little Traverse Bay, leading to significant erosion of the shoulder of M-119. A 24 hour rainfall total of 2.80 inches was measured 1 mile NNE of Harbor Springs at 9:30 AM EST with the majority of that falling in a 3 hour period that morning.</p>

Public Health Emergency/ Critical Infrastructure Failure

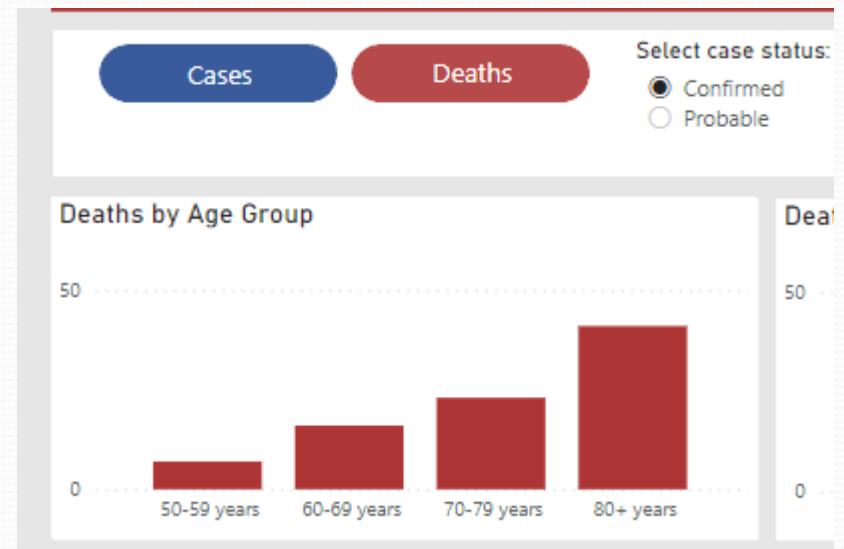
- **Spring 1994 – Northern Michigan – Loss of Water and Sewer Service**
Over 3,200 water and sewer lines broke or became frozen in northern Michigan **due to unusually deep subterranean frost depths**. The emergency conditions were present in some locations for up to five months. As a result, many communities had to provide shelter for those residents without water and/or sewer service for an extended period. Boil water advisories were also issued in many communities due to the potential for water contamination from poor system pressure. Fire safety hazards were exacerbated by the low system pressure when homeowners began using improper equipment to thaw frozen water or pipes (sometimes starting fires in the process).
- Because of the public health and safety risks associated with this unusual event, as well as the millions of dollars in infrastructure damage, Michigan was granted a Presidential Disaster Declaration in May of 1994. That declaration allowed for the immediate repair, restoration and/or replacement of the damaged water and sewer infrastructure. By the middle of summer, most of the repair work had been completed.

Public Health Emergency

Date of Incident	Type of Incident	Affected Area	Type of Declaration/Federal ID #	Notes
March 2020	COVID-19; COVID-19 Pandemic	Statewide & National	State of Emergency, National Emergency (3455), and Governor and Presidential Declared Major Disaster (4494)	Ongoing

COVID-19 Cases in Emmet County as of 3/28/2023	Cases	Deaths
Confirmed	5,156	91
Probable	2,493	18
Total	7,649	109

<https://www.michigan.gov/coronavirus/stats>

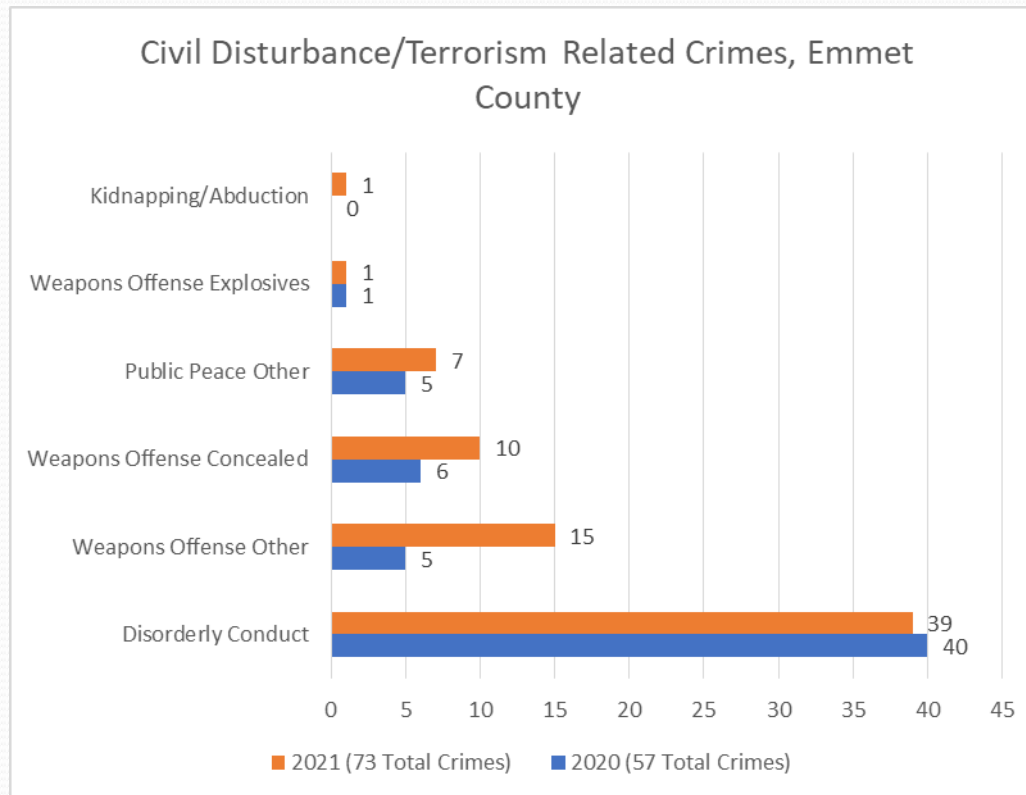


Pandemic Experiences Discussion

- From a hazard mitigation perspective, what **lessons did the community learn** from the pandemic?
- What **shortcomings** did the community experience in its ability to mitigate the effects of the pandemic?
- What **successes** did the community have?

Terrorism/Civil Disturbance

- 52 reported terrorist-related incidents in Michigan, from 1970-2020, per the Global Terrorism Database; None in Emmet County
- 73 total crimes reported for Emmet County in 2021 per the Michigan State Police Criminal Justice Information Center 2021 Agency Crime Statistics Report



Terrorism/Civil Disturbance

- Terrorism Incidents
 - Potential attacks on Enbridge Line 5 – physical or cyber-attack
 - Potential eco-terrorism associated with land and water development
 - Potential school and public space violence including elections
 - 8 reported incidents of “active shooter” or “armed assailant” in 2022 (CCE911)
 - 1 reported bomb threat in 2022 (CCE 911)
- Civil Disturbances - Potential Locations/Events
 - Enbridge Line 5 / Annual Mackinac Bridge Walk
 - Petoskey
 - Mackinaw City
 - Election violence

Cyberattack and Major Network Disruptions

- Human-caused actions designed to disable or gain unauthorized access to computers and their networks for the purposes of electronic data manipulation (exposure, theft, erasure, recording) or changed functionality (including repurposing or inoperability). Major network disruptions are sometimes accidental or secondary to other hazards.
- Attacks on the County IT system
- Attacks on the LTBB Tribal Government
- Potential cyberattack on computerized infrastructure controls (Line 5 pipeline, electrical grid, etc.)

Nuclear Attack

- Mackinaw Bridge and Pellston Airport are on the list as low potential targets, according to the Dept. of Homeland Security.

Mapping Activity

Structural Fires

Haz Material Fixed Site Incidents

Built Infrastructure Hazard Areas

**Targets for Terrorism or Civil
Disturbance**