

# Antrim County Hazard Mitigation Plan Update – Coastal Communities Meeting

March 16, 2022



**Networks  
Northwest**

Talent / Business / Community

# Welcome

- Thank you for joining us!
- We will be discussing the following:
  - Purpose of the Natural Hazard Mitigation Plan
  - 2016 Plan Hazard Priority Areas
  - Results of the Community Survey
  - Severe Weather Event Frequency
  - Other Potential Risks: Dams, Wildfire, NFIP/FIRM participation, Coastal Flooding/Recession
  - Discussion of Hazard Areas in YOUR Community!

# Introductions

- Networks Northwest - Community Planners
  - Jennifer Neal, AICP
  - Stephanie Loria
- Community Partners
  - Leslie Meyers, Antrim County Emergency Management Coordinator
  - Antrim County LPT/LEPC

# Purpose

## Hazard Mitigation Planning

**“The effort to reduce loss of life and property by lessening the impact of disasters”**

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## Billion-Dollar Disasters Shattered U.S. Record in 2020

The 22 events that each caused at least \$1 billion in damage show the increasing costs of climate change

By Thomas Frank, E&E News on January 11, 2021



An aerial view of flood waters from Hurricane Delta surrounding structures destroyed by Hurricane Laura on October 10, 2020 in Creole, Louisiana. Credit: Mario Tama Getty Images

# Purpose

- Mitigation planning breaks the cycle of disaster damage, reconstruction and repeated damage. It includes long-term solutions that reduce the impact of disasters in the future.
- Government entities must have a current 5-year Hazard Mitigation Plan, adopted by their local government and approved by FEMA, to be eligible to apply for FEMA grants for future hazard mitigation programs, such as:
  - Building Resilient Infrastructure & Communities (BRIC) Funding Program
  - Flood Mitigation Assistance Program

# Examples of Hazard Mitigation Projects

- Acquisition of hazard prone homes and businesses which enable owners to relocate to safer areas (acquisition)
- Protecting homes and businesses with permanent barriers to prevent floodwater from entering (levees, floodwalls, floodproofing)
- Elevating structures above known flood levels to prevent and reduce losses (elevation)
- Reconstructing a damaged dwelling on an elevated foundation to prevent and reduce future flood losses
- Structural retrofits to make a building more resistant to floods, wind, wildfire and other natural hazards
- Retrofits to utilities and other infrastructure to enhance resistance to natural hazards (utility retrofits)
- Construction of [safe rooms](#) for both communities and individual residences in areas prone to hurricane and tornado activity
- Slope stabilization projects to prevent and reduce losses to structures
- Drainage improvement projects to reduce flooding (flood risk reduction projects)
- Post-disaster code enforcement

# Potential *Natural* Hazard Events

Drought

Excessive Precipitation (*may cause dam failure, high lake and river water levels, lakeshore and streambank erosion, flooding, contaminated water, etc.*)

Extreme temperatures (*heat/cold*)

Hail

High winds/Straight-line winds  
/Derecho

Invasive species (*can cause damage to forests, crops, native species, etc.*)

Public health emergency (i.e., *pandemic; contaminated water supply*)

Severe thunderstorms (*can produce hail, lightning, high winds, flooding, seiche, etc.*)

Tornado

Wildfire

Winter Storm (*can produce ice, sleet, heavy snowfall, high winds...*)


Wildlife or zoonotic diseases (i.e., Bovine TB, Avian Influenza, Swine Flu)

# 2016 Antrim County Natural Hazards Mitigation Plan


## Natural Hazards Mitigation Priority Areas

**Priority Area 1:** The Village of Bellaire (County Seat) area has a high damage potential from high winds and tornados; and flooding of residential areas.

Mitigation Strategies: *High Winds, Flooding*

 **Priority Area 2:** Highway U.S. 31 through the Village of Elk Rapids and Torch Lake shoreline (Milton, Torch Lake, Central Lake, Forest Home, and Helena Townships). A high damage impact potential from severe thunderstorms and high winds affecting a high seasonal population rate and festivals in the summer. There are erosion concerns along Lake Michigan and Torch Lake coastal areas.

Mitigation Strategies: *Erosion, Severe Thunderstorm and High Winds*

 **Priority Area 3:** Torch Lake shoreline (Central Lake, Helena, Milton, Torch Lake townships and Village of Central Lake) and Village of Mancelona - A high damage impact potential from extreme winter weather including snow and ice hazards.

Mitigation Strategies: *Extreme Winter Weather*

**Priority Area 4:** The Central Lake area (Village of Central Lake, Central Lake Township) has a high damage impact potential from severe thunderstorms and high winds, specifically affecting seasonal population increases at summer camps such as Camp Hayo-Went-Ha.

Mitigation Strategies: *Severe Thunderstorms*

**Priority Area 5:** The Cedar River area (Kearney and Custer Townships, Shanty Creek resort), has a high damage impact potential from severe thunderstorms and high winds; snow and ice hazards.

Mitigation Strategies: *Severe Thunderstorms, Extreme Winter Weather*



# Antrim County Hazard Mitigation Community Survey



Antrim County  
Emergency  
Management

@antrimemergencymanagem  
ent

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Thursday, October 28, 2021 at 11:14 AM

Yesterday at 11:14 AM

Antrim County and Networks Northwest are currently working to update the Antrim County Hazard Mitigation Plan. Hazard mitigation planning reduces loss of life and property by minimizing the impact of natural disasters. The first phase of the update includes data collection and community input from all local jurisdictions in Antrim County. We are seeking input on past projects, hazard events in your community, and potential strategies that you would like to see considered in the plan. Please take a few moments to answer the following questions. Thank you in advance for your feedback!  
<https://www.surveymonkey.com/r/PB8DMSK>



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#### Visitor Posts

we are thankful to Antrim County Emergency Management, Ccecpscoo, An... See more

31

2 Comments 3 Shares



Amanda Jones Kik

February 24, 2020 at 6:27 AM

Thought folks here might be interested in this event about what to d... See more



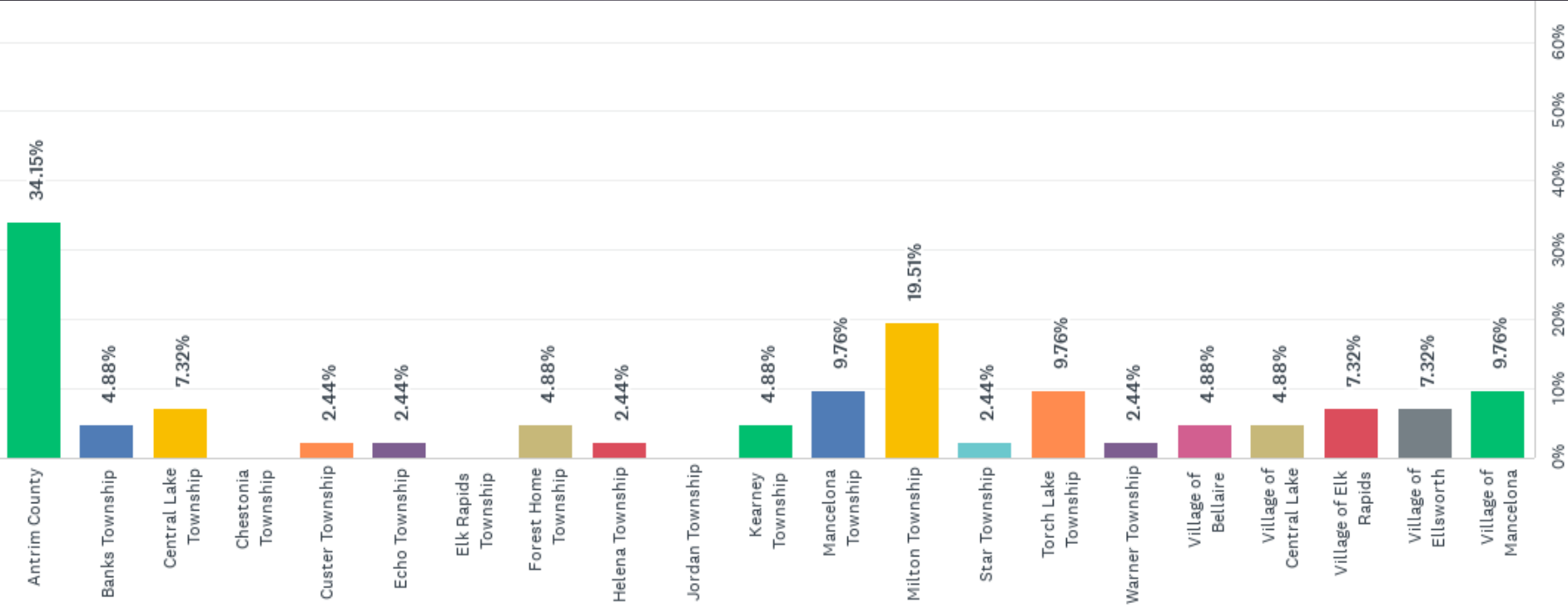
Deb McCulloch

February 8, 2020 at 5:23 PM

Roger is working on my car so we will have the plow truck

1

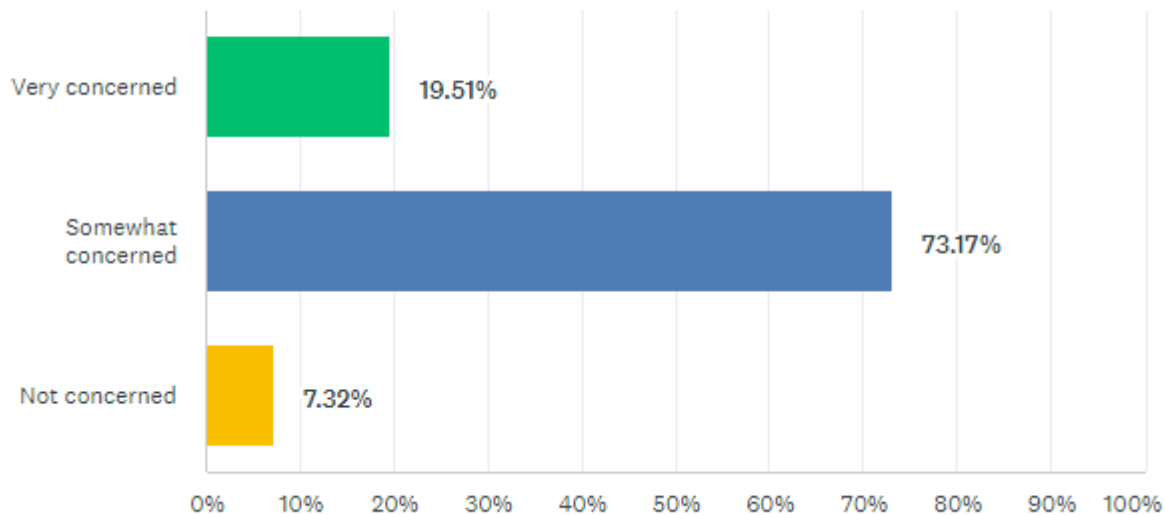
# Community Survey Responses from 10/25/21 to 1/28/22 41 Responses



# Community Survey Results

How concerned are you about future natural hazard events impacting your community?

Answered: 41 Skipped: 0



# Community Survey Results

Q9 What type of natural hazard events are likely to have the largest impact on your community, for example fire, flood, drought, illness outbreak, etc.?

**Illness Outbreak (15)**

**Flooding/Heavy Rains/Erosion (15)**

**Wildfire (14)**

**High Winds (5)**

**Drought (5)**

**Blizzards/Winter Storms (4)**

**Power Outages (3)**

**Storm Damage/Weather Related/Severe Weather (3)**

**Tornado (3)**

# Community Survey Results

Q10 Does your community have concerns about infrastructure (dams, bridges, utilities, etc.) and the potential for a hazardous event in the future? Please describe.

## Entire County:

- All infrastructure out-of-date
- Culverts, bridges, dams, and roads
- Utilities withstanding storms
- Power outages are a regular occurrence
- Pandemic preparedness

## Village of Elk Rapids:

- Dam and bridge in not the best of shape
- Utilities are always a concern
- There are plans in place to inspect and maintain the aging infrastructure, but we need to monitor this to make sure that it is completed.

## Milton Twp.:

- Utilities
- Torch River Bridge
- Potential for weather related events

# Historic Severe Weather Events

- Sources: NOAA Storm Database and FEMA's records of Presidential- and Governor-Declared Emergencies or Disasters

## Listed by Frequency (most often to least often)

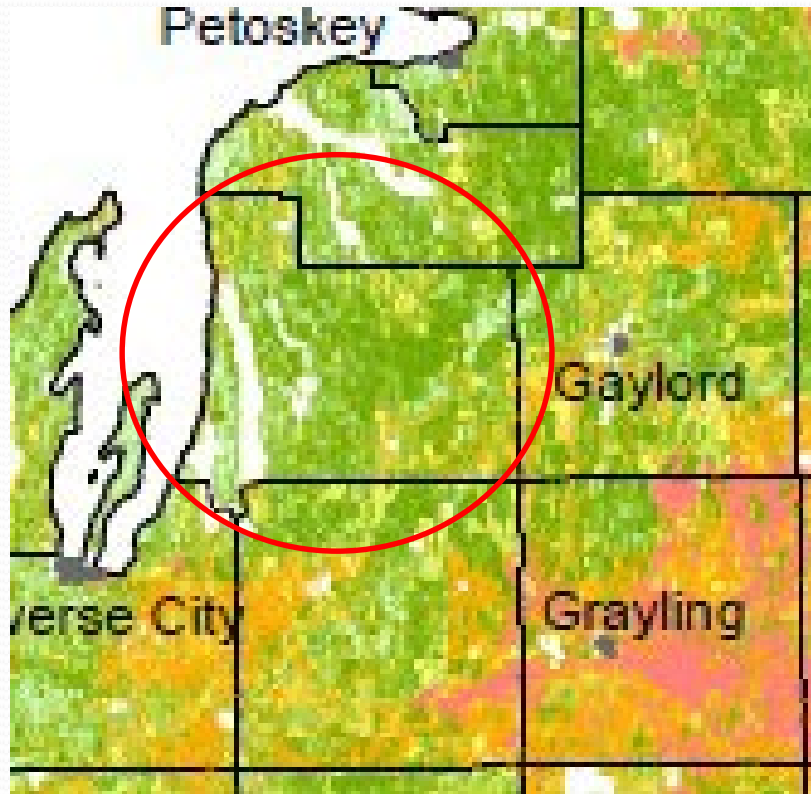
1. Extreme Winter Weather Events (events with ice covering, property damage, and/or up to/over 12 in. of snow)
2. Severe Thunderstorms/High Winds
3. Hail
4. Tornadoes
5. Flood/ Flash Flood
6. Extreme Heat
7. Drought

# Wildfire Risk

- Higher risk areas:
  - Banks & Torch Lake Twps. (NW)
  - Jordan Twp (N)
  - Mancelona and Star Twps (SE)



Data includes Land Cover Type, Canopy Cover, Township Scaled Fire Risk, and Dry Soil types from GSRGO Soils data.



Source: Wildfire Risk Map - MDNR Forest Resources Division

# Antrim County Dams

Name	Height (ft.)	Storage (acre-feet)	Location	City/Township	Owner	Regulatory Agency	Dam Type	Year Completed	Dam Purpose	Hazard Potential
<b>Bellaire Dam</b>		1812,180	Intermediate River	Bellaire	Antrim County Board of Public Works	State	Earth, Gravity	1906	Recreation	High
<b>Cedar River Dam</b>		25475	Cedar River	Bellaire	Village of Bellaire	State	Earth, Gravity	1890	Recreation	High
<b>Elk Rapids Dam</b>		2175,000	Elk Creek	-	Antrim County	State	Gravity	1916	Hydroelectric	Low



# Antrim County Dams – Listed on the National Inventory of Dams

3 Dam(s) Found

## Cedar River Dam

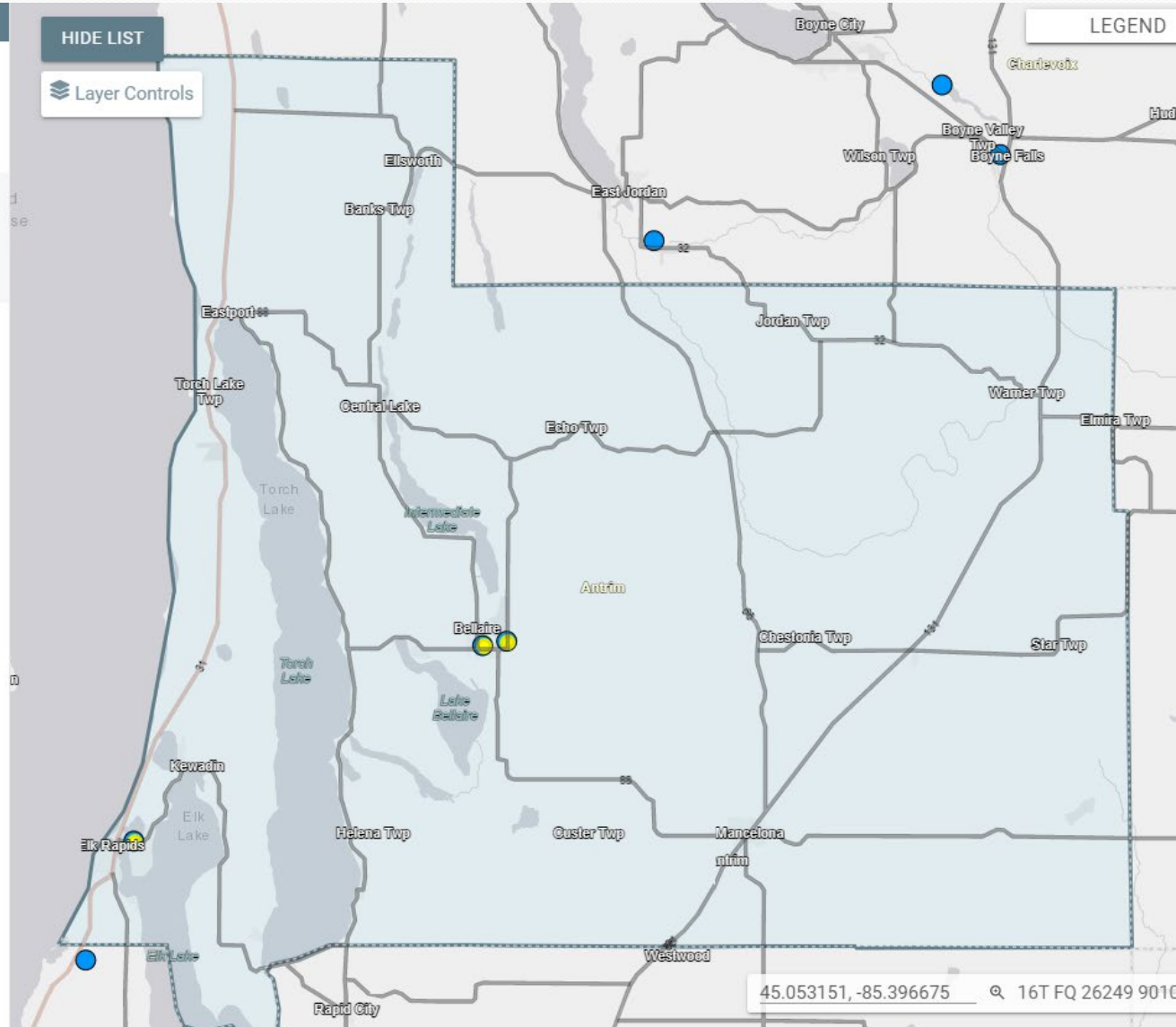
Hazard Potential Classification: High  
Emergency Action Plan: Yes  
Owner Name: Village of Bellaire  
Primary Purpose: Recreation

## Bellaire Dam

Hazard Potential Classification: High  
Emergency Action Plan: Yes  
Owner Name: Antrim County Board of Public Works  
Primary Purpose: Recreation

## Elk Rapids

Hazard Potential Classification: Low  
Emergency Action Plan: Not Required  
Owner Name: Antrim County  
Primary Purpose: Hydroelectric



# Local National Flood Insurance Program (NFIP) Status

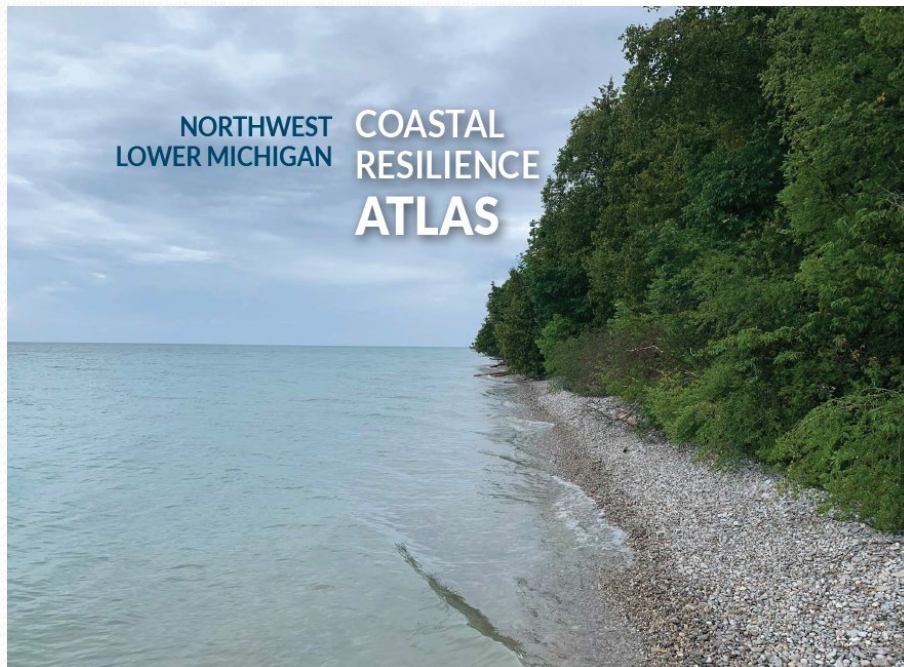
Municipality	NFIP	FIRM	Effective
<b>Banks Township</b>	Y	Y	9/1/1988
Central Lake Township		N	
Chestonia Township		N	
Custer Township		N	
Echo Township		N	
<b>Elk Rapids Township</b>	Y	N	
Forest Home Township		N	
Helena Township		N	
Jordan Township		N	
Kearney Township		N	
Mancelona Township		N	
<b>Milton Township</b>	Y	Y	2/2/1983
Star Township		N	
<b>Torch Lake Township</b>	Y	Y	1/17/1997
Warner Township		N	
Village of Bellaire		N	
Village of Central Lake		N	
<b>Village of Elk Rapids</b>	Y	Y	9/30/1988
Village of Ellsworth		N	
Village of Mancelona		N	



**Flood Insurance Rate Maps show how likely it is for an area to flood.** Any place with a 1% chance or higher chance of experiencing a flood each year is considered to have a high risk. Those areas have at least a one-in-four chance of flooding during a 30-year mortgage.

# Coastal Flooding / Coastal Recession

- [http://www.resilientmichigan.org/nw\\_atlas.asp](http://www.resilientmichigan.org/nw_atlas.asp)



## ACKNOWLEDGMENTS

Financial assistance for this project was provided, in part, by the Michigan Coastal Zone Management Program, Department of Environment, Great Lakes, and Energy, and is supported through a grant under the National Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management, National Oceanic and Atmospheric Administration. The statements, findings, conclusions and recommendations in this report are those of the researchers and do not necessarily reflect the views of the Michigan Department of Environment, Great Lakes, and Energy and the National Oceanic and Atmospheric Administration.



*This Atlas was prepared by the Land Information Access Association (LIAA) in cooperation with the Great Lakes Research Center at Michigan Technological University and the Taubman College of Architecture and Urban Planning at the University of Michigan, July 2019.*

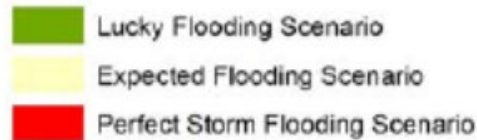


# Coastal Dynamics

- Decadal variability of lake water levels – Record highs in 2020 and 1986
- Wave Energy and Height
  - Erosion
  - Changing conditions
- Climate change on the Great Lakes
  - Increased precipitation events and storminess
  - Water temperature increasing

# Coastal Flooding

[http://www.resilientmichigan.org/nw\\_atlas.asp](http://www.resilientmichigan.org/nw_atlas.asp)



- **“Lucky” Future:** Great Lakes water levels will continue to stay relatively low. Although there will be wave and wind action, major storm events and wave impacts will not encroach on properties landward of current beaches. A Lucky Future projection, indicating the land areas that would be affected by high-energy waves along the shorefront and/or adjacent riverine flooding under these conditions, is shown in green on the maps.
- **“Expected” Future:** Great Lakes water levels will continue to fluctuate according to long-term decadal patterns, including recent extreme storm events incorporated into the ongoing Great Lakes Coast Flood Study being conducted by the Federal Emergency Management Agency (FEMA). Given those ongoing fluctuations, this Climate Future accounts for periods when Great Lakes still-water elevations are closer to the long-term average. **In addition, this Climate Future anticipates the so-called “100-year storm event” (or 1% storm) becoming more like a 20- or 50-year storm event (i.e., an expected storm within the normal community planning time horizon) because of increased storminess.** The Expected Future projection is shown in yellow on the maps.
- **“Perfect Storm” Future:** Great Lakes water levels will continue to fluctuate according to decadal patterns, consistent with assumptions made for the Expected Future. However, for this Perfect Storm Climate Future, **the estimated still-water elevation is set higher than the long-term average and closer to the long-term high (583 feet). In addition, this Climate Future anticipates the occurrence of a so-called “500-year storm event” (or 0.2% storm) occurring within the planning time horizon while lake levels are high.** The Perfect Storm Future projection is shown in red on the maps.
- Taken together on the maps, the three climate futures are progressively cumulative; that is, the Expected Future is cumulative of all the green (Lucky) and yellow areas put together, and the Perfect Storm Future encompasses all green, yellow and red areas.

# Coastal Flooding

[http://www.resilientmichigan.org/nw\\_atlas.asp](http://www.resilientmichigan.org/nw_atlas.asp)

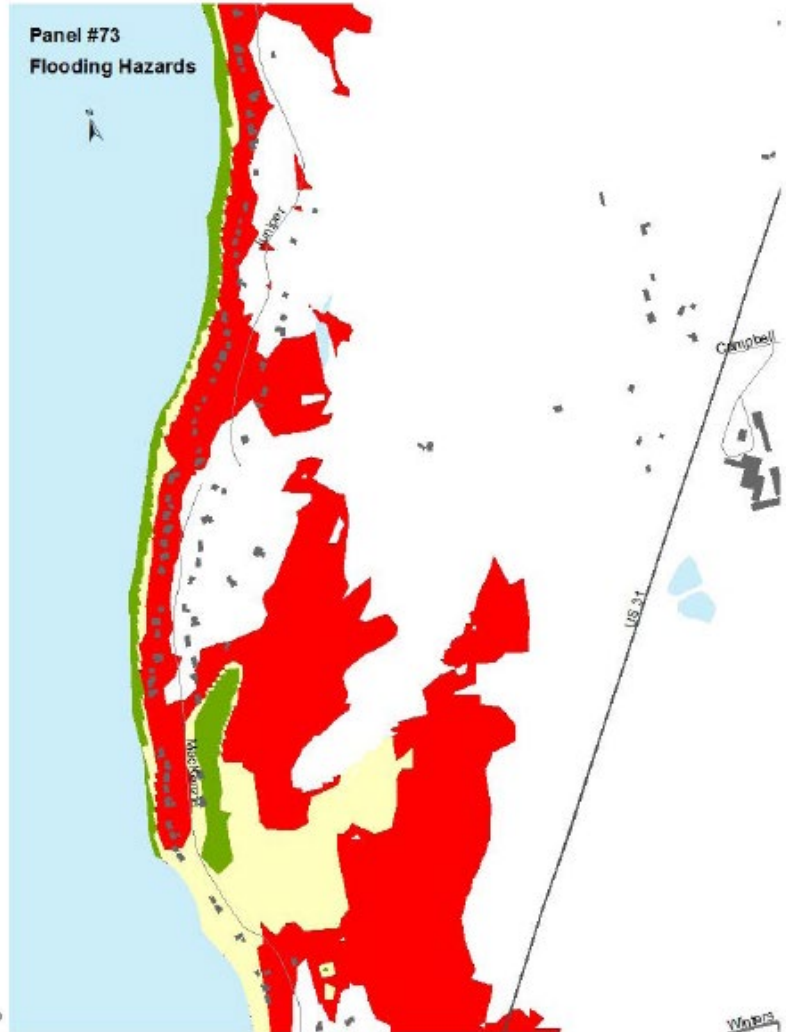
Northwest Lower Michigan Coastal Resilience Atlas

Chapter 3 | Coastal Flooding | Antrim County 111

## Antrim County



# Coastal Flooding



- Lucky Flooding Scenario
- Expected Flooding Scenario
- Perfect Storm Flooding Scenario

# Coastal Recession

[http://www.resilientmichigan.org/nw\\_atlas.asp](http://www.resilientmichigan.org/nw_atlas.asp)

## BLUFF RECESSION DETAIL

At least one "zoomed in" detail example of historic bluffline recession and future projections is provided at the beginning of each county section of this chapter. Shoreline and bluffline recession data can be viewed in greater detail online at <http://geospatialresearch.mtu.edu/czmp>.

Bluff Detail, Panel 66, Torch Lake Twp.



Shoreline 1938  
Bluffline 1938  
Bluffline 2016  
Predicted 30  
yr bluff







# What are YOUR concerns?

- Discussion of natural hazard vulnerabilities in your community.