

Kaskaska County Hazard Mitigation Plan Update

February 22, 2022



**Networks
Northwest**

Talent / Business / Community

Welcome

- Thank you for joining us!
- We will be discussing the following:
 - Kalkaska County and local jurisdictions' Community Profile
 - Results of the Community Survey
 - Next Steps

Introductions

- Networks Northwest Staff
 - Jennifer Neal, AICP
 - Stephanie Loria
- Community Partners

Purpose

Hazard Mitigation Planning

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

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Latest Issues

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AMERICAN

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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

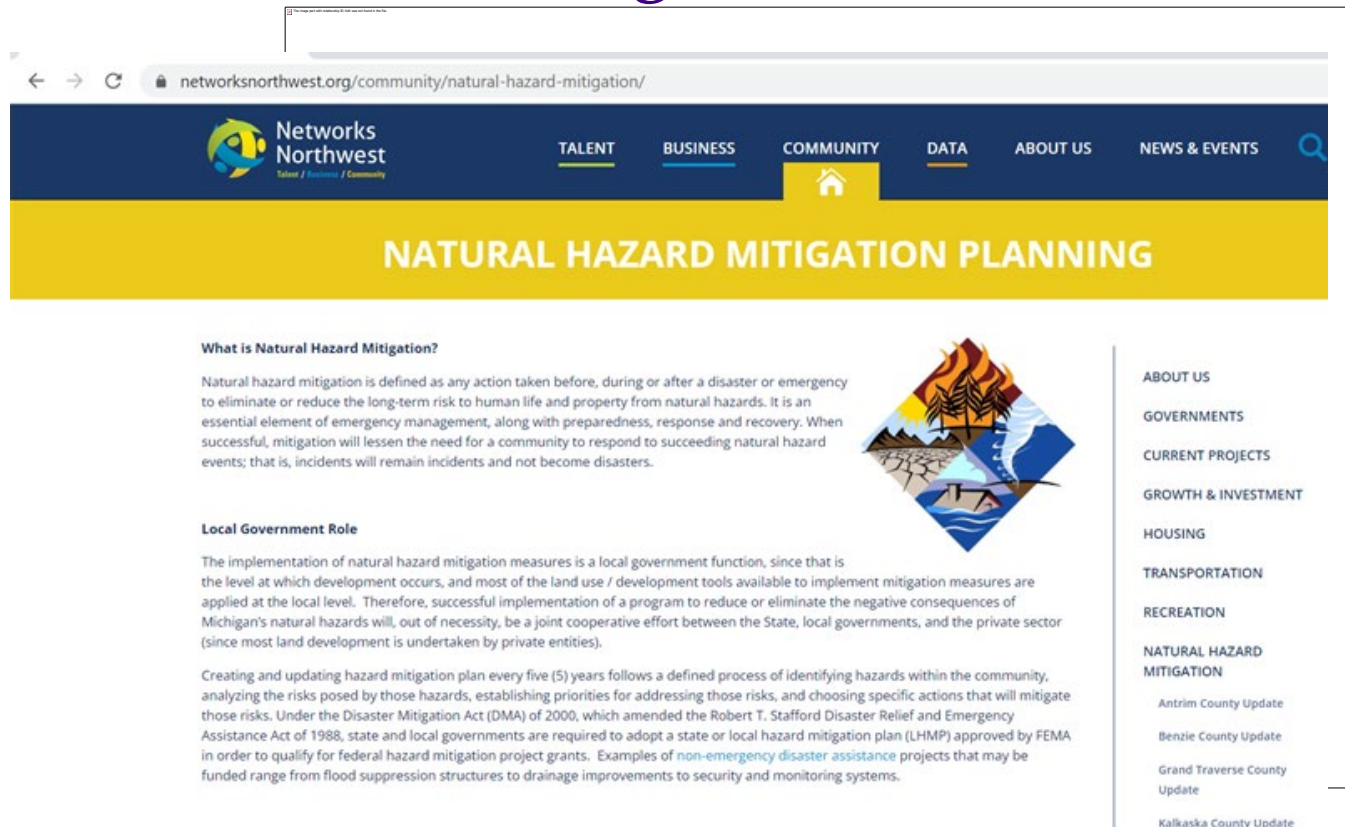
By Thomas Frank, E&E News on January 11, 2021



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*

Project Timeline

- Now through December 2023
- Project Website: nwm.org/HazardPlan



The screenshot shows a web browser window with the URL networksnorthwest.org/community/natural-hazard-mitigation/. The website header includes the Networks Northwest logo and navigation links for TALENT, BUSINESS, COMMUNITY, DATA, ABOUT US, and NEWS & EVENTS. The main heading is "NATURAL HAZARD MITIGATION PLANNING".


What is Natural Hazard Mitigation?

Natural hazard mitigation is defined as any action taken before, during or after a disaster or emergency to eliminate or reduce the long-term risk to human life and property from natural hazards. It is an essential element of emergency management, along with preparedness, response and recovery. When successful, mitigation will lessen the need for a community to respond to succeeding natural hazard events; that is, incidents will remain incidents and not become disasters.

Local Government Role

The implementation of natural hazard mitigation measures is a local government function, since that is the level at which development occurs, and most of the land use / development tools available to implement mitigation measures are applied at the local level. Therefore, successful implementation of a program to reduce or eliminate the negative consequences of Michigan's natural hazards will, out of necessity, be a joint cooperative effort between the State, local governments, and the private sector (since most land development is undertaken by private entities).

Creating and updating hazard mitigation plan every five (5) years follows a defined process of identifying hazards within the community, analyzing the risks posed by those hazards, establishing priorities for addressing those risks, and choosing specific actions that will mitigate those risks. Under the Disaster Mitigation Act (DMA) of 2000, which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, state and local governments are required to adopt a state or local hazard mitigation plan (LHMP) approved by FEMA in order to qualify for federal hazard mitigation project grants. Examples of non-emergency disaster assistance projects that may be funded range from flood suppression structures to drainage improvements to security and monitoring systems.



- ABOUT US
- GOVERNMENTS
 - ANTRIM COUNTY UPDATE
 - BENZIE COUNTY UPDATE
 - GRAND TRAVERSE COUNTY UPDATE
 - KALKASKA COUNTY UPDATE
- CURRENT PROJECTS
- GROWTH & INVESTMENT
- HOUSING
- TRANSPORTATION
- RECREATION
- NATURAL HAZARD MITIGATION

Kalkaska County LEPC/LPT Membership

Name	Representation
Jerri Foley	American Red Cross
M Foley	American Red Cross
Meghan Powers	American Red Cross
Greg Bradley	Clearwater Fire Dept.
Doug Pratt	Crawford County EM
Brian Flickinger	EGLE
Bret Haner	Health Dept. District #10
Nick Summerland	HSE Manager at Lambda Energy Resources LLC
Dave Comai	Kalkaska County
Jodi Magee	Kalkaska County Commission on Aging
Bob Baldwin	Kalkaska County Commissioner Dist. 2
Kohn Fisher	Kalkaska County Commissioner Dist. 3
James Sweet	Kalkaska County Commissioner Dist. 4
Katina Banko	Kalkaska County Commissioner Dist. 7
John Rogers	Kalkaska County Road Commission
Sheriff Pat Whiteford	Kalkaska County Sheriff's Office
Sgt. Scott Griffith	Kalkaska County Sheriff's Office
Undersheriff Dave Wagner	Kalkaska County Sheriff's Office
Mike Berendsohn	Kalkaska EMS Director
LT Aaron Popa	Kalkaska Public Safety Dept
Rick Heitmeyer	Kalkaska Public Schools Superintendent
Harry Shipp	Kalkaska Public Transit Authority
Scott Yost	Kalkaska Village Manager
Donna Wednieski	MDHHS
Kris Lagios	MDHHS
Michael Hearn	MDNR Conservation Officer
Bobby Helsel	MDOT - Kalkaska Facility
Scott McManus	Michigan State Police
SGT. S. Bates	Michigan State Police Houghton Lake Post
LT Mike deCastro	Michigan State Police/ Em. Mgmt & Homeland Security District 7 Coordinator
Mark Randolph	Soil Conservation District
Steven Cameron	State of MI Forest Fire Supervisor


Kalkaska County Hazard Mitigation Advisory Committee Participation Table

Participating Agency or Jurisdiction	Participant Name and/or Title	Completed Survey (as of 2/20/2022)	Meeting Attended				
			LPT/LEPC 5/25/2021 (In person & Zoom)	HM Grant Kick-off 7/1/2021 (In person & Zoom)	LPT/LEPC 8/24/2021 Meeting (In person & Zoom)	LPT/LEPC 11/23/2022 Meeting (In person)	02/22/22 LPT/LEPC Meeting (In person & Zoom)
Networks Northwest	Frank Post, Hazard Mitigation Planner		X	X	X		
	Zach Vega, Community Planner			X			
	Rob Carson, Regional Director of Community Development			X			
	Jenni Neal, Community Planner					X	
	Stephanie Loria, Community Planner					X	X
Michigan State Police - Homeland Security & EM	Mike Sobocinski			X			
Kalkaska County	Mike Thompson, EM County Administrator	X	X	X	X	X	X
Kalkaska County Board of Commissioners	Bob Baldwin, District #2				X		
Kalkaska County Commission on Aging	Jodi Magee	X			X		
Kalkaska County Sheriff's Office	Sgt Scott Griffith	X			X		
Michigan State Police - Houghton Lake Post	F/LT Travis House	X			X		
Village of Kalkaska Manager/Public Safety Dept.	LT Aaron Popa	X			X		
Blue Lake Twp. Fire Dept.	Greg Brierley	X				X	
Clearwater Fire/Rescue #5	Greg Bradley	X			X		
Missaukee County	Linda Hartshorne-Shafer, EM			X			
Wexford County	Travis Baker, EM			X			
Antrim County	Leslie Myers, EM	X		X			
Bear Lake Township		X					
Blue Lake Township		X					
Boardman Township		X					
Clearwater Township		X					
Cold Springs Township		X					
Excelsior Township		X					
Garfield Township		X					
Kalkaska Township		X					
Oliver Township							
Orange Township							
Rapid River Township		X					
Springfield Township							
Village of Kalkaska		X					
Kalkaska County		X					
American Red Cross		X					
MDNR	Forest Fire Supervisor	X					
Kalkaska County Public Transportation	Director	X					
District Health Dept. #10		X					
Kalkaska Conservation District		X					
Kalkaska Municipal EMS		X					
Kalkaska County	Drain Commissioner	X					
Kalkaska County Board of Commissioners	various	X					

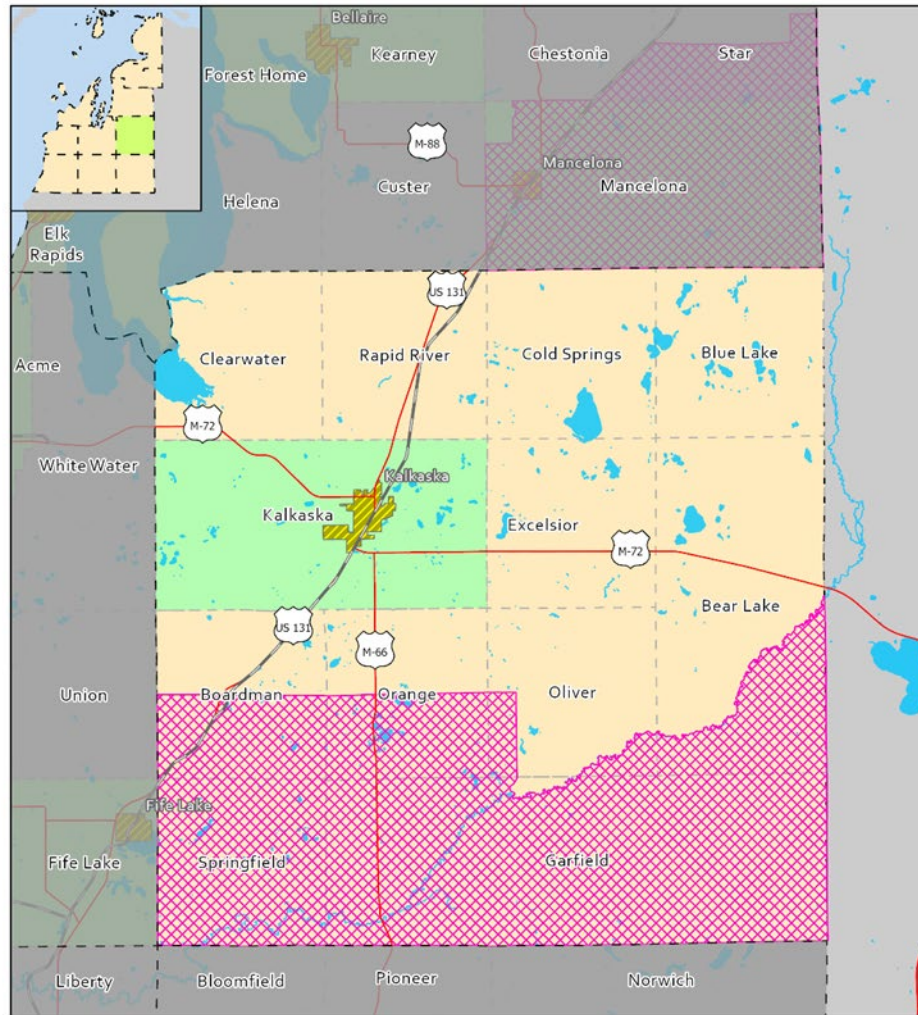
Community Profile*

- Demographics
- Housing
- Income
- Economy
- Agriculture

*2019 ACS 5-year data unless otherwise specified



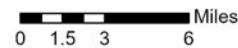
The screenshot shows the website for Lakeshore Public Radio. The header features the NPR logo and the text "LAKESHORE PUBLIC RADIO". Below the header is a navigation bar with a play button icon and the text "Live Radio - Lakeshore Public Morning Edition". The main content area displays a news article titled "Great Lakes water levels surge, some record highs predicted" by Associated Press, dated May 7, 2019. The article includes social media sharing options for Twitter, Facebook, and Email. A photograph of a lighthouse being hit by a large wave is featured below the text. The credit line at the bottom of the image reads "CREDIT ROBERT FRANKLIN / SOUTH BEND TRIBUNE VIA AP".



Kalkaska County & Local Units of Government

Legend

- Highways
- Railroad
- Hydrology
- Great Lakes
- Qualified Opportunity Zone
- G&I Areas Villages
- G&I Areas Cities
- Surrounding G&I Twps.
- All Villages
- Kalkaska County
- Other NW MI Counties
- All Townships
- Counties Outside Region



Map produced by Networks Northwest
Community Development 4/29/2021

Reference Documents

- Kalkaska County Master Plan 2016-21
- Other pertinent local & regional reports

Kalkaska County Master Plan 2016-2021



Springfield Township Recreation Area, Springfield Township

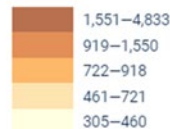


Demographics

- Population by local jurisdiction

Municipality	2019 Estimated Population	%
Kalkaska County	17,585	
Kalkaska Township	4,833	27.5%
Clearwater Township	2,493	14.2%
Boardman Township	1,550	8.8%
Cold Springs Township	1,475	8.4%
Springfield Township	1,442	8.2%
Orange Township	1,395	7.9%
Rapid River Township	1,370	7.8%
Excelsior Township	918	5.2%
Garfield Township	721	4.1%
Bear Lake Township	623	3.5%
Blue Lake Township	460	2.6%
Oliver Township	305	1.7%

SEX AND AGE—Total population—Estim... in 2019



Italicized numbers indicate the number of geography areas in each data class.

VIEW TABLE

Color Palette



Data Classes

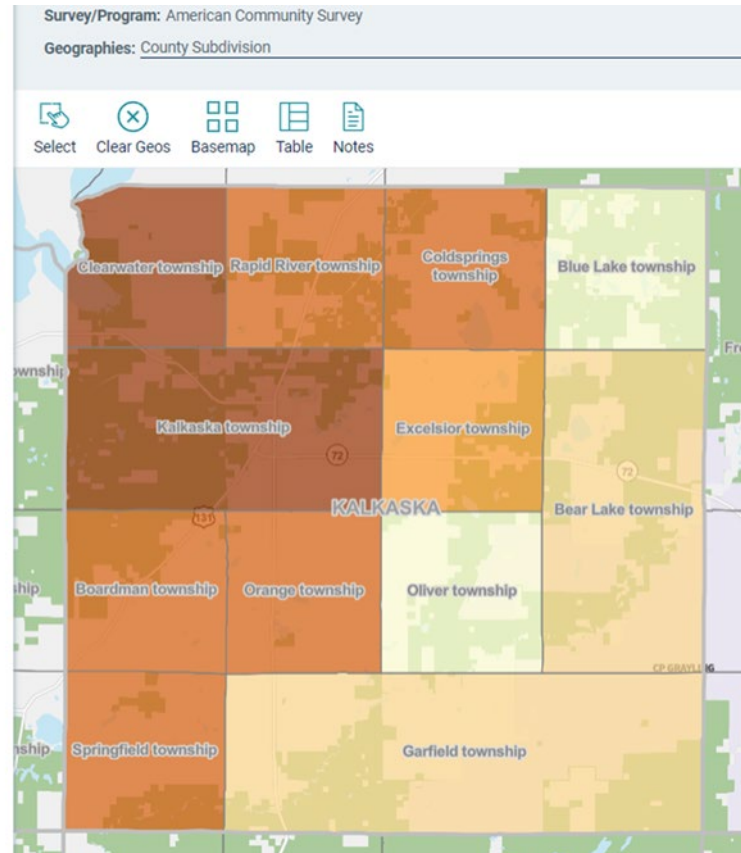
5

Classification Types

Natural Breaks

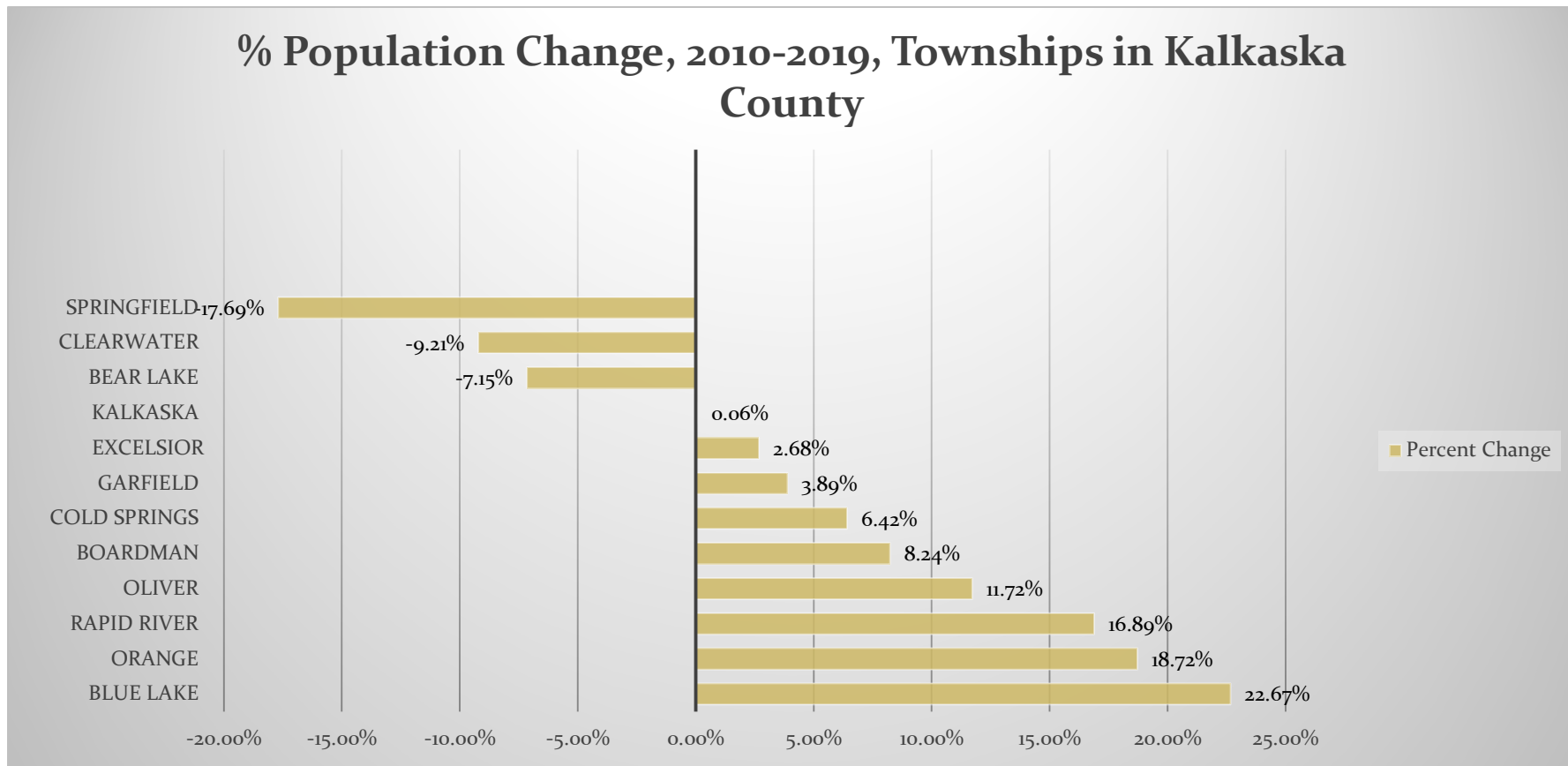
Geos: 12

2
5
1
2
2



Demographics

- Population change by local jurisdiction



Demographics

- Population change by local jurisdiction

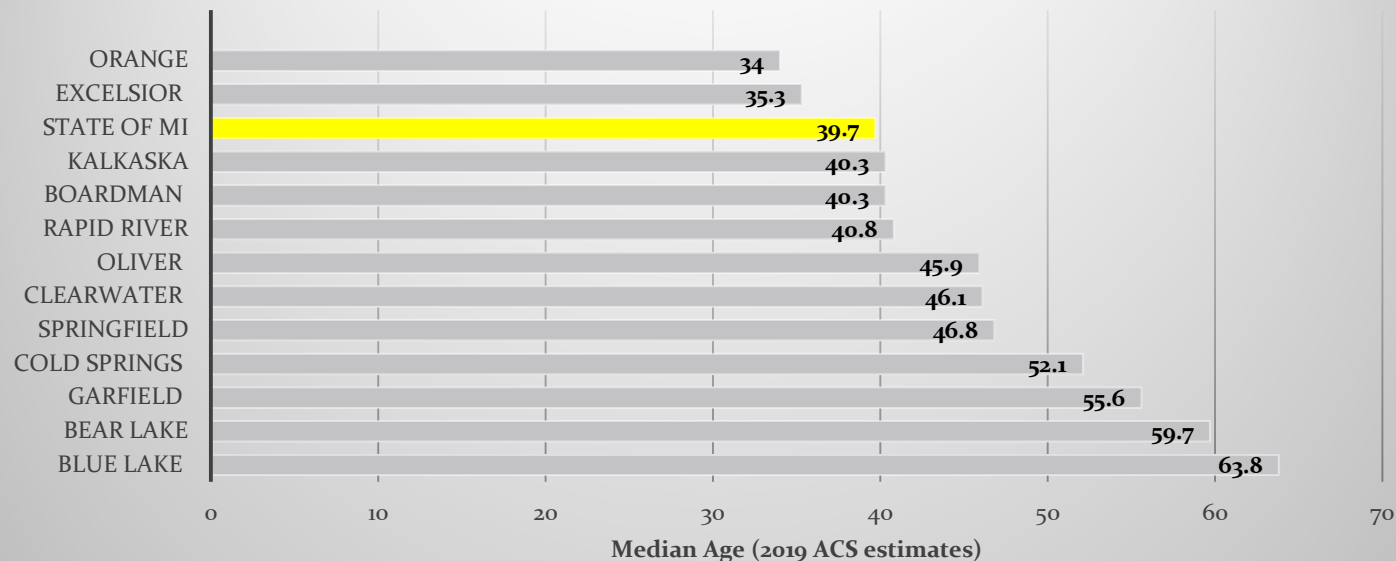
Kalkaska County and Municipalities Population Estimates, 2010-2019				
Municipality	2010 Estimated Population	2019 Estimated Population	Numeric Change	Percent Change
Kalkaska County	17,400	17,585	185	1.1%
Blue Lake Township	375	460	85	22.7%
Orange Township	1,175	1,395	220	18.7%
Rapid River Township	1,172	1,370	198	16.9%
Oliver Township	273	305	32	11.7%
Boardman Township	1,432	1,550	118	8.2%
Cold Springs Township	1,386	1,475	89	6.4%
Garfield Township	694	721	27	3.9%
Excelsior Township	894	918	24	2.7%
Kalkaska Township	4,830	4,833	3	0.1%
Bear Lake Township	671	623	-48	-7.2%
Clearwater Township	2,746	2,493	-253	-9.2%
Springfield Township	1,752	1,442	-310	-17.7%

Source: U.S. Census Bureau, ACS 5-Yr Estimates

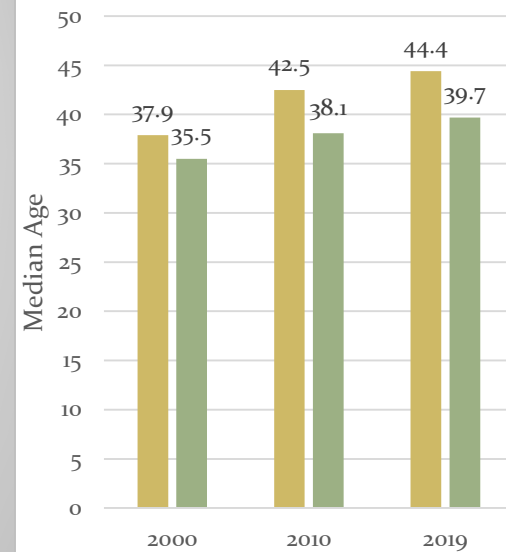
Demographics

- Median age

Median Age of Kalkaska County's Townships and the State of MI



Median Age Trends



Source: U.S. Census Bureau, 2010 and 2019 5 Year ACS and 2000 Decennial Census
■ Kalkaska County ■ Michigan

Demographics

- Age groups by local jurisdiction

Kalkaska County: Estimated 2019 Age Distribution by Municipality

Community	Median Age	< 9 years	%	10 to 19 years	%	20 to 34 years	%	35 to 54 years	%	55 to 64 years	%	65 to 74 years	%	75+ years	%	Total Pop.
Orange Township	34	216	15.5%	179	12.8%	338	24.2%	306	21.9%	190	13.6%	116	8.3%	50	3.6%	1,395
Excelsior Township	35.3	150	16.3%	122	13.3%	186	20.3%	211	23.0%	114	12.4%	81	8.8%	54	5.9%	918
Michigan	39.7	1,162,159	11.7%	1,284,833	12.9%	1,972,568	19.8%	2,482,628	24.9%	1,396,734	14.0%	483,853	4.9%	690,926	6.9%	9,965,265
Boardman Township	40.3	212	13.7%	145	9.4%	293	18.9%	399	25.7%	243	15.7%	167	10.8%	91	5.9%	1,550
Kalkaska Township	40.3	405	8.4%	929	19.2%	716	14.8%	1,346	27.9%	559	11.6%	472	9.8%	406	8.4%	4,833
Rapid River Township	40.8	165	12.0%	150	10.9%	248	18.1%	367	26.8%	216	15.8%	184	13.4%	40	2.9%	1,370
Kalkaska County	44.4	1,868	10.6%	2,147	12.2%	2,864	16.3%	4,397	25.0%	2,833	16.1%	2,166	12.3%	1,310	7.4%	17,585
Oliver Township	45.9	28	9.2%	28	9.2%	67	22.0%	73	23.9%	35	11.5%	45	14.8%	29	9.5%	305
Clearwater Township	46.1	313	12.6%	224	9.0%	438	17.6%	563	22.6%	457	18.3%	324	13.0%	174	7.0%	2,493
Springfield Township	46.8	137	9.5%	128	8.9%	219	15.2%	432	30.0%	278	19.3%	188	13.0%	60	4.2%	1,442
Cold Springs Township	52.1	136	9.2%	152	10.3%	170	11.5%	396	26.8%	270	18.3%	202	13.7%	149	10.1%	1,475
Garfield Township	55.6	67	9.3%	38	5.3%	82	11.4%	158	21.9%	165	22.9%	129	17.9%	82	11.4%	721
Bear Lake Township	59.7	30	4.8%	41	6.6%	93	14.9%	83	13.3%	160	25.7%	143	23.0%	73	11.7%	623
Blue Lake Township	63.8	9	2.0%	11	2.4%	14	3.0%	63	13.7%	146	31.7%	115	25.0%	102	22.2%	460

Demographics

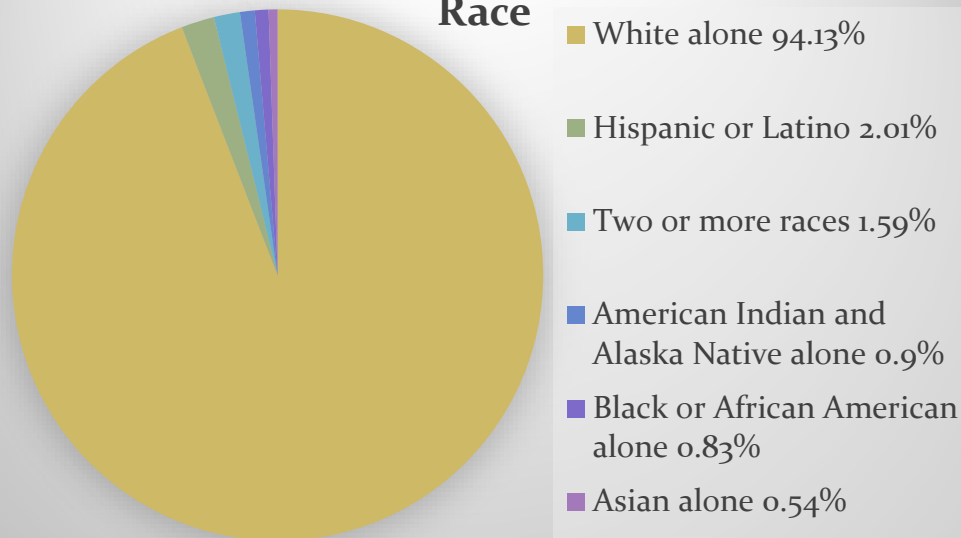
- Disability Status In Kalkaska County

KALKASKA COUNTY	Population	Percentage
2019 Estimate of Total Civilian Noninstitutionalized Population	17,528	
Estimated number of people with one or more type of disability	3,200	18.30%
With a vision difficulty	409	2.30%
With a self-care difficulty	623	3.70%
With a hearing difficulty	988	5.60%
With a cognitive difficulty	1,221	7.30%
With an independent living difficulty	1,181	8.50%
With an ambulatory difficulty	1,643	9.90%

Demographics

- Population by Race and Limited English-Speaking Households

Kalkaska County 2019 Population by Race



Limited English-Speaking Households in Kalkaska County

Asian and Pacific Island Languages:

3/226 HH in Blue Lake Twp.

3/345 HH in Garfield Twp.

Spanish:

2/344 HH in Excelsior Twp.

Housing

- Units by local jurisdiction

Municipality	2010 Housing Units (ACS)	2019 Housing Units (ACS)	Percent Change	Unit Change
Kalkaska County	12,061	12,370	2.5%	309
Clearwater Township	1,544	1,464	-5.5%	-80
Excelsior Township	703	639	-10.0%	-64
Cold Springs Township	1,515	1,471	-3.0%	-44
Bear Lake Township	1,157	1,116	-3.7%	-41
Blue Lake Township	799	775	-3.1%	-24
Boardman Township	803	797	-0.8%	-6
Springfield Township	913	925	1.3%	12
Oliver Township	265	295	10.2%	30
Orange Township	657	687	4.4%	30
Rapid River Township	676	759	10.9%	83
Garfield Township	806	928	13.1%	122
Kalkaska Township	2,223	2,514	11.6%	291

Housing

- County Occupancy Status

Kalkaska County Housing Unit Occupancy

Total housing units	12,370	%
Occupied housing units	7,145	57.8%
Owner-occupied	5,901	82.6%
Renter-occupied	1,244	17.4%
Vacant housing units	5,225	42.2%

Housing

- Units by Year Structure Built

Year Housing Structure Built, Kalkaska County

Year Built	Housing Units	Percentage of Units
Built 2000 or later	1,905	15.4%
Built 1990 to 1999	2,147	17.4%
Built 1980 to 1989	1,865	15.1%
Built 1960 to 1979	4,073	32.9%
Built 1940 to 1959	1,389	11.2%
Built 1939 or earlier	991	8.0%
Total Housing Units	12,370	

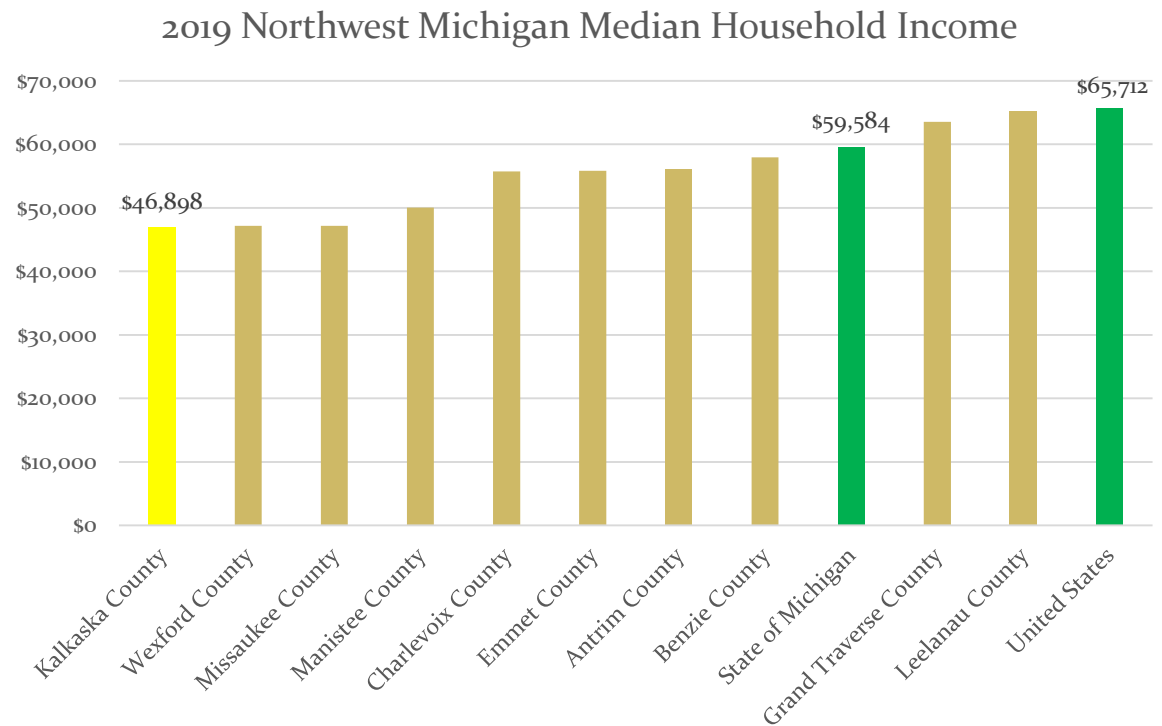
Source: U.S. Census, ACS 2019 5-yr data

52.1% of the housing is 40 or more years old

Income

- Median Household Income by County

2019 Median Household Income	
Location	Median Income
Kalkaska County	\$46,898
Wexford County	\$47,193
Missaukee County	\$47,194
Manistee County	\$50,055
Charlevoix County	\$55,760
Emmet County	\$55,829
Antrim County	\$56,165
Benzie County	\$57,974
State of Michigan	\$59,584
Grand Traverse County	\$63,575
Leelanau County	\$65,249
United States	\$65,712



Income

- Poverty Rates – Individuals and Households

Kalkaska County	Total	Below poverty level	Percent below poverty level
Population for whom poverty status is determined	17,423	2,905	16.7%
Individuals under 18 years	3,567	731	20.5%
Individuals 18 to 64 years	10,380	1,852	17.8%
Individuals 65 years and over	3,476	322	9.3%
Total households in Kalkaska County	7,145	1,105	15.47%
Family Households		603	8.44%
In married-couple family:		309	
In other family:		294	
Male householder, no spouse present:		56	
Female householder, no spouse present:		238	
In Non-Family Households		502	7.03%

Source: US Census Bureau 2019 ACS 5-Yr Estimates

Income

- ALICE: Asset Limited, Income Constrained, Employed = households with income above the Federal Poverty Level but below the basic cost of living.

ALICE and Poverty Households in Kalkaska County

Location	Total HH in Poverty and ALICE	% of HH in Poverty and ALICE	Poverty HH	ALICE HH	Total HH
Oliver Township	50	39.4%	26	24	127
Blue Lake Township	74	32.7%	23	51	226
Bear Lake Township	135	44.6%	68	67	303
Excelsior Township	135	39.2%	30	105	344
Boardman Township	169	30.4%	47	122	556
Garfield Township	174	50.4%	48	126	345
Orange Township	202	41.9%	79	123	482
Springfield Township	217	37.2%	104	113	584
Rapid River Township	266	47.7%	98	168	558
Cold Springs Township	274	42.9%	127	147	639
Clearwater Township	392	39.8%	171	221	985
Kalkaska Township	910	45.6%	284	626	1,996
KALKASKA COUNTY	2,998	41.0%	1,105	1,893	7,145

“ ALICE households are more likely to live in housing units and communities that are more vulnerable to flooding, fire, and other hazards, primarily because those areas are more affordable. ”

Agriculture

Kalkaska County Profile, 2017 USDA Census of Agriculture

Total	2017	% Change since 2012	Rank out of counties in MI producing item(s)	Rank out of counties in U.S. producing item(s)
Number of farms	225	<0.5%		
Land in farms (acres)	27,137	5%		
Average size of farm (acres)	121	5%		
Percent of state agricultural sales	<0.5%			
Market value of products sold	\$8,325,000	-5%	65/83	2,725/3,077
Crops	\$7,683,000		55/83	2,166/3,073
Livestock, poultry and other animal products	\$642,000		76/82	2,885/3,073
Farm production expenses	7,715,000	-5		
Net cash farm income	1,437,000	18%		
Per Farm Average				
Market value of products sold	\$37,000	-6%		
Total farm production expenses	\$34,291	-5%		
Government payments (avg per farm receiving)	\$3,771	38%		
Farm-related income	\$7,649	3%		
Net cash farm income	\$6,387	17%		



“WE ARE IN A WAR ZONE AGAINST THIS DISEASE.”

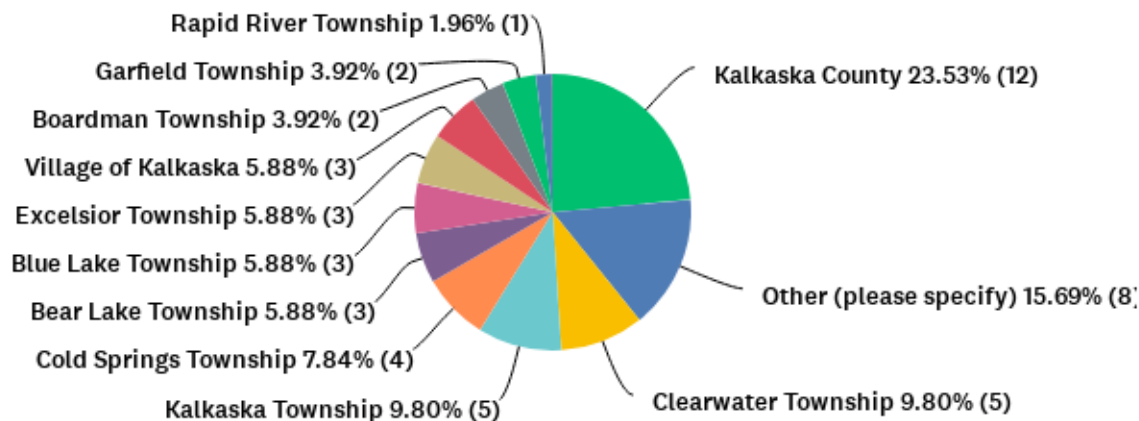
CLIMATE CHANGE IS FUELING FIRE BLIGHT, AND NORTHERN MICHIGAN'S APPLE ORCHARDS ARE AT RISK.

BY TODD VANSICKLE | OCT. 5, 2019

What is this contagion? What does it mean for the future of our fruit and orchards? And what — if anything — can we do about it?

Kalkaska County Hazard Mitigation Community Survey Responses from 11/8/21 to 02/20/22

Q1 Please indicate the local jurisdiction you represent in Kalkaska County.

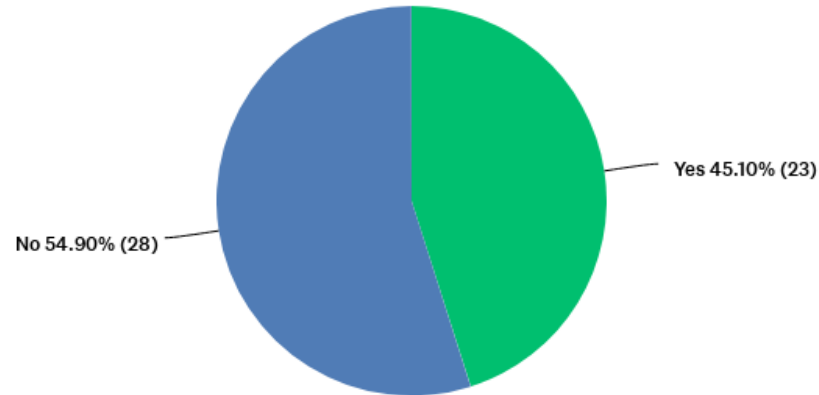


“OTHER”: MI State Police; County Road Commission; DHD #10; Antrim County; Kalkaska Conservation District; MDNR - Private and Public Lands in the County; Non-Profit Director - Multiple Jurisdictions; Both Excelsior & Coldsprings Twps.

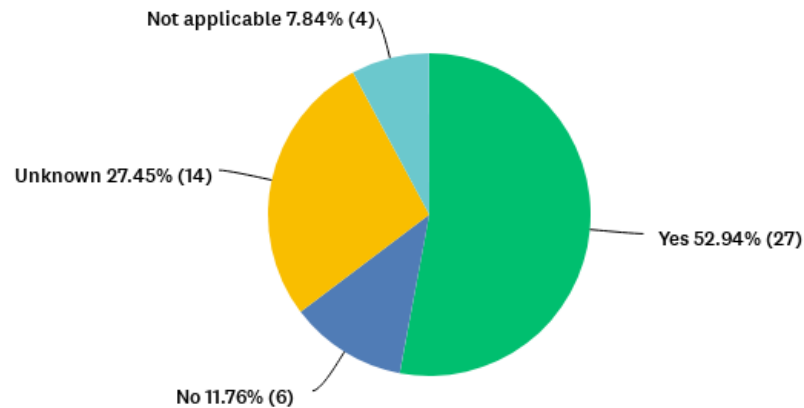
- 51 responded out of 88 invitations = 58%

- No response from Oliver, Orange and Springfield Twps.

Q3 Are you familiar with the county's Natural Hazard Mitigation Plan?

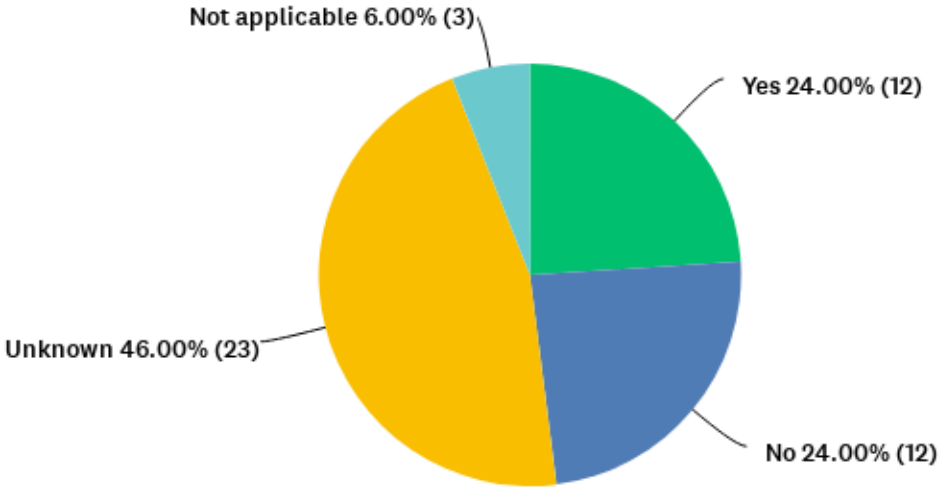


Q4 Does the community you represent have an adopted Master Plan?



Kalkaska County, Village of Kalkaska, Garfield Twp., Rapid River Twp., Kalkaska Twp., Blue Lake Twp., Clearwater Twp., Bear Lake Twp., Boardman Twp., Excelsior Twp.

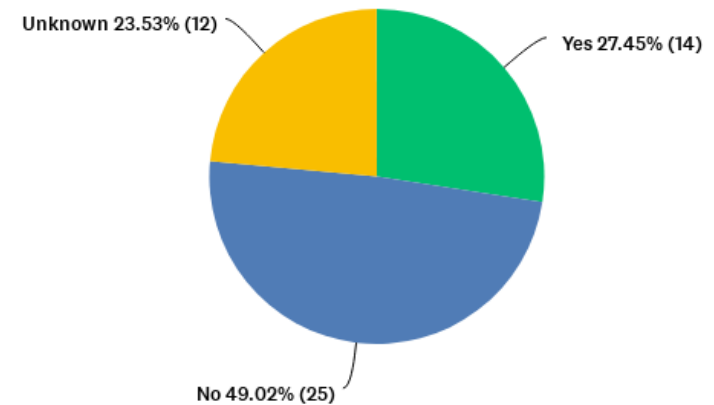
Q5 Does the community you represent have an adopted Capital Improvements Plan?



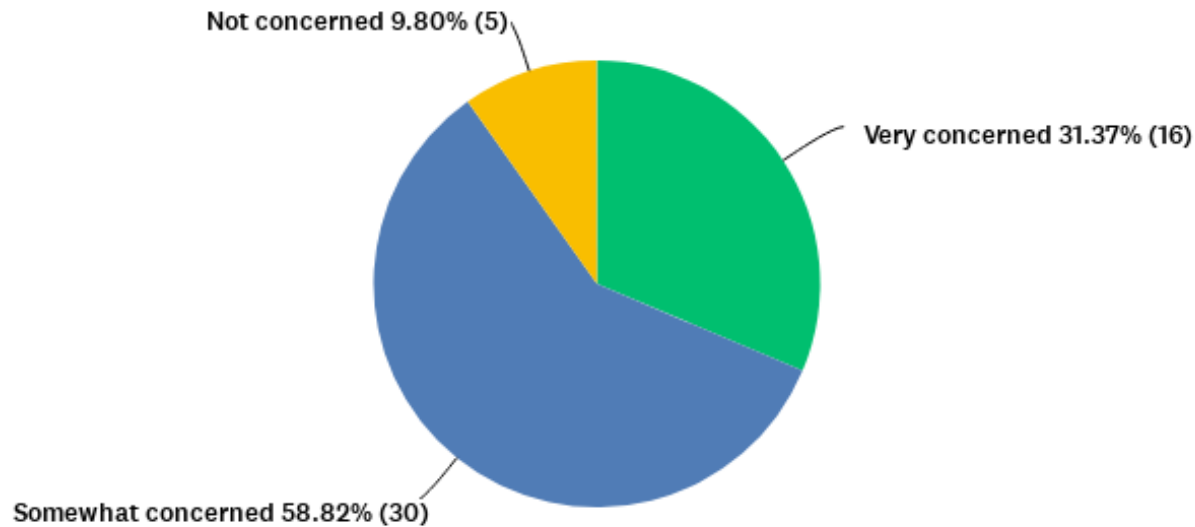
Village of Kalkaska, Kalkaska Twp., Excelsior Twp., Blue Lake Twp., Garfield Twp., Cold Springs Twp., County Road Commission

Q6: Has the community you represent experienced a significant natural hazard event within the last 10 years?

- Kalkaska County
 - Pandemic
 - Significant and extended power outage due to a winter storm
 - Wildfire (including some across the state)
 - Flooding
 - Winter storms
- Village of Kalkaska
 - 2016 windstorm
- Kalkaska Township
 - Tornadoes
 - Forest fire
- Clearwater Township
 - 2015 extreme winds that felled many trees and power lines
 - Straight line winds
 - 5-7" rain that fell in 3 hours
 - Possible insect infestation (emerald ash borer, oak wilt, etc. that have killed various types of trees)
- Cold Springs Township
 - Tornado
- Excelsior Township
 - Snowstorm with electrical outage for 5 days
- Antrim County
 - Straight line winds
 - Tornado



Q8: How concerned are you about future natural hazard events impacting your community?



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.?

- #1. Wildfire (29)
- #2. Illness Outbreak/Pandemic (17)
- #3. Flooding/Heavy Rainfall (13)
- #4. Winter Storms(12)
- #5. Tornado (10)
- #6. High Winds/Straight line Winds (9)
- #7. Drought (5)
- #8. Dams (3)

*Power outages resulting from high winds/winter weather was mentioned several times - concern for area seniors in the winter; concern that if heat goes out with a snowstorm the old County Rad Commission garage could collapse and impact access to road clearing equipment.

*Also mentioned: contaminated well water; general storm damage; cell tower destruction

**Hazards that are NOT part of this scope of work: human-induced technological hazards, such as accidents, terrorism, civil unrest, etc. For example, accidents with oil and gas wells due to human error is not part of this scope.

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

#1. Dams (10) Rugg Pond Dam – potential failure or overflow in Rapid River Twp; numerous privately-owned small dams that could fail. The Rugg Pond Dam is being monitored and evaluated annually; there County is working on a plan for it. There are 2 [major] dams in the county and several small dams that could fail.

#2. General infrastructure/utility concerns (7)

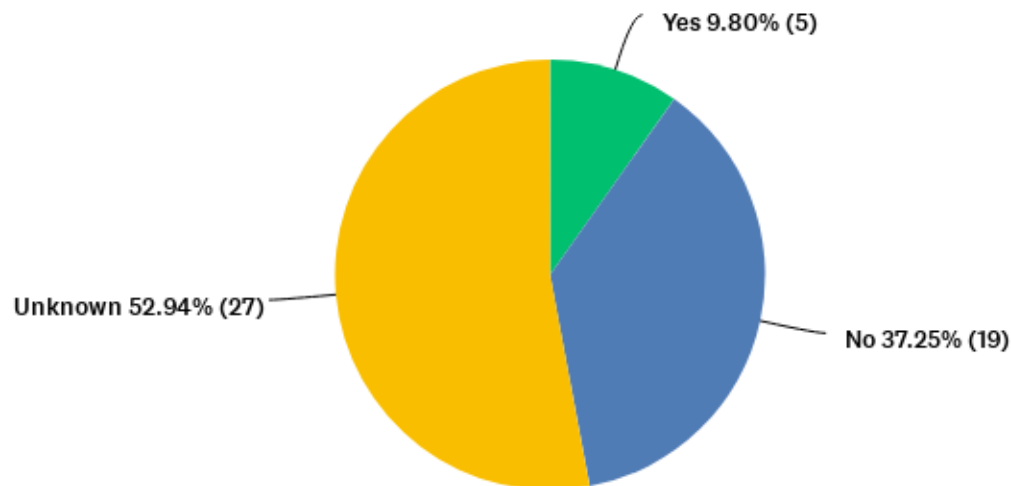
#3. Roads/Culverts (5) and Bridges (5) – Culvert washouts; CR 571 flooding in Cold Springs Twp; Clearwater Twp. has multiple roads that have consistent water damage with heavy rain (Zimmerman Rd., Gillet Rd.); Aging bridges on Rapid City Road over the Rapid River and Crystal Beach Rd. over the Torch River.

#4. Lack of broadband (4) /cell service and power outages (4) – in the event of an emergency communication utilities are crucial to maintain

Q11: Has your community requested assistance for mitigation projects in the past?

YES:

- Kalkaska County: Grant for silt determination at Rugg Pond Dam
- Village of Kalkaska: FDCVT standby generator
- Kalkaska County EMS: Power generation in Fife Lake
- Kalkaska Twp.: Bridge
- Kalkaska County Road Commission: State and Federal safety funds are frequently used for road projects



Potential Mitigation Strategies to Explore:

- County:
 - ID and correct undersize culverts at stream crossings
 - Apply for grant funds to repair the dam
 - Wildfires: initial attach plan; establish a structural triage plan; ID known fire hazards in the urban interface
 - The effects of flooding from water tower, sewer deterioration
 - Road Commission will stretch funding for road repairs as far as they can
 - Michigan State Police Law Enforcement will collaborate with the Kalkaska County EM
- Village of Kalkaska
 - Hardening infrastructure, especially electrical
- Kalkaska Township
 - Have a safe gathering place during an emergency
- Clearwater Township
 - Water/groundwater testing
 - Severe weather lake evacuation [plan]
 - Drainage to accommodate extreme downpour/flooding

Q15. Is there any additional information you would like us to consider as we update the county's Natural Hazard Mitigation Plan?

- Road Commission: “Forest fires and tornadoes are our biggest exposure.”
- Kalkaska County: Tornado impact if county buildings are destroyed.
- Kalkaska Township: Internet availability for hazard notification.
- Excelsior Twp. has been discussing using A.R.P.A. monies to set up their hall as a shelter.
- Clearwater Township: A combined effort to harden our grid and communication resources.

Next Steps

- Begin natural hazard analysis
 - Summarize historic severe weather data, wildfire risk, dam locations, road stream crossing study, invasive species, agricultural impacts, wetland areas, NFIP status
- Fire Chief's Meeting March 16, 7:30 PM
 - Present hazard data
 - Mapping exercise identify areas vulnerable to natural hazards



Thank you!

- Any questions??