

	MISSAUKEE COUNTY HAZARD MITIGATION STRATEGIES	HAZARD TYPE								WHERE - Affected Locations or Groups	WHO - Responsible Parties	HOW - Resources	WHEN - Timeframe (Years)	PRIORITY TYPE (High, Med, or Low)	STRATEGY TYPE			
		Severe Winter Weather	T-Storm, High Winds, Hail, Tornado, Lightning	Wildfire	Flooding and Erosion	Extreme Temperatures	Drought	Invasive Species	Public Health Emergency						1	2	3	4
1	Incorporate the County Hazard Mitigation Plan's strategies into elements of County and City master plans.	X	X	X	X	X	X	X	X	Missaukee County, City of Lake City, City of McBain	Missaukee County, City of Lake City, City of McBain	A, B	Ongoing		X	X	X	X
2	Continue to pursue interdepartmental cooperation and coordination of police, fire, rescue and EMS services to achieve community-wide coverage availability.	X	X	X	X	X	X		X	Countywide	County Sheriff and EM; local fire/EMS	A, B, C	Ongoing		X			
3	Investigate the feasibility of participating in an emergency mass notification system such as CodeRED or RAVE.	X	X	X	X	X	X		X	Countywide	County EM	A	Ongoing					X
4	Continue to promote participation in Storm Spotter Training via partnership with the NWS.		X							Countywide	County EM	A	Annually					X
5	Continue and expand public education/outreach efforts, such as drills, exercises, programs, brochures, NOAA weather radio distribution, and website/social media information to aid in preparedness and resilience for hazard events.	X	X	X	X	X	X	X	X	Countywide	County EM, DHD #10, MDNR	A, B, C	Ongoing/Annually		X	X		X
5a	Continue the preparedness practice of conducting the annual statewide tornado drill.		X							Countywide	County EM	A	Annually		X			X
5b	Increase public awareness of the locations of emergency shelters	X	X	X	X	X			X	Countywide	County EM, local fire Depts./First Responders, MDNR, ARC	A, C	Ongoing					X
5c	Provide information on fire safety at parks and campgrounds			X						Countywide	County and local governments, MDNR, Fire Depts.	A, B, C, M, N						X
5d	Continue online posting of MDNR Fire Danger Status/Maps			X						Countywide	County EM; MDNR	A	Ongoing					X
5e	Promote (via social media, etc.) awareness of vegetation/fuel management for fire prevention around homes and other structures.			X						High fire-risk areas of the county	County EM, County Building Dept., Local Fire Depts./First Responders, MDNR	A, B, C, M, N						X
5f	Provide public education regarding structural modifications (such as foundation anchoring and tie downs for older mobile homes and tree management practices) to reduce risk of damage from high winds.		X							Countywide; mobile home communities are primarily located within the City of McBain Forest Township, and Caldwell Township	Missaukee County Building Department	A, B				X		X
6	Continue operation of the local tornado siren in the City of McBain.		X							City of McBain	City of McBain	B	Ongoing		X			X
7	Investigate the cost and feasibility of installing a new tornado siren in the City of Lake City.		X							City of Lake City	City of Lake City	B			X	X		X
8	Evaluate additional designated sites to utilize to temporarily store cleanup debris from downed trees after storm events.	X	X		X					Countywide	City DPWs, MCRC, MDOT	A, B, EE, FF			X			
9	Continue to provide the Missaukee Commission on Aging's reduced cost snow plow program and telephone call services (to check in on clients during inclement weather, power outages, as well as on a regular basis.)	X	X	X	X	X			X	Countywide	Missaukee County Commission on Aging	D	Ongoing		X			
10	Contact communities in the County that contain areas that have been affected by flooding events, but do not participate in the NFIP, explaining the benefits of doing so. (The NFIP provides flood insurance to property owners, renters and businesses and having this coverage helps them recover faster when floodwaters recede. The NFIP also works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects. There is no cost for communities to participate.)				X					Countywide	Drain Commissioner, EM, MI EGLE	A, B, T, U, V			X			X
11	Review and adopt the new FEMA floodplain study for the area around Lake Missaukee. (Estimated completion date around 2024-2025.)				X		X			City of Lake City, Lake Township, Caldwell Township	County Drain Commissioner, County Road Commission, MI EGLE, FEMA, City of Lake City, Lake Township, Caldwell Township	U	1-2 years		X			
12	Assess local fire suppression access points and equipment and pursue improvements as needed.			X			X			Countywide	Local fire departments; MDNR Wildfire Mgmt., Local governments	C	Ongoing		X			X
13	Educate residents and local fire departments about the opportunity to participate in the Firewise USA® community program. Each applicant (jurisdiction) must create a board/committee complete a community wildfire risk assessment with three-year action plan to reduce ignition risk to homes and complete annual educational and risk reduction actions identified in the plan.			X			X			Communities with pine forest (all except cities of McBain and Lake City)	County EM, Local Fire Depts./First Responders, MDNR, Local Governments	C, M, N			X			X
14	Work with campgrounds (Private, County, and MDNR) to develop a notification system regarding fire danger or severe weather alerts and establish areas of refuge and evacuation routes from campgrounds.		X	X	X					City of Lake City, Bloomfield, Butterfield, Caldwell, Richland & Norwich Townships	County, MDNR, Private Campgrounds	A, C, N			X			X
15	Evaluate the potential benefit/need to develop a Drought Communication Plan and early warning system to facilitate consistent communication of local drought conditions/outlook amongst farmers and land managers.						X			Countywide	County EM, MCD/USDA-NRCS, MSUE	A, B, K, L, DD, EE			X			X
16	Evaluate the interest of local agricultural business owners to form a local Agricultural Support Committee to develop and implement natural hazard mitigation strategies.	X	X	X	X	X	X	X	X	All 15 Townships	MCD/USDA-NRCS	A, B, DD, EE			X		X	X

Preparation and Awareness

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Preparation and Awareness	17	Continue the application of mandatory water conservation measures during drought emergencies, such as: -- Developing an ordinance to restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc. -- Adopting ordinances to prioritize or control water use, particularly for emergency situations like fire fighting.							X							X		X		
	18	Continue to support and promote the Missaukee Conservation District's provision of free technical assistance (in partnership with the USDA-NRCS and MAEAP) such as resource assessment, practice design, resource monitoring, and determination of financial assistance for local farmers, ranchers and forest managers.	X	X	X	X	X	X	X	X	All 15 Townships	MCD/USDA-NRCS	DD, EE	Ongoing		X		X	X	
	19	Ensure that County residents, particularly vulnerable populations, have access to healthy, affordable food options.							X	X	X					X	X	X	X	
	19a	Consider involvement in MSUE's School Gardens Program ( <a href="https://www.camr.msu.edu/community_food_systems/school-gardens/">https://www.camr.msu.edu/community_food_systems/school-gardens/</a> ) and continue provision of the Missaukee County 4-H Junior Master Gardener Program partnership with schools for grades K-6 ( <a href="https://www.camr.msu.edu/missaukee/4-h/school-enrichment">https://www.camr.msu.edu/missaukee/4-h/school-enrichment</a> )							X	X	X	Cities of Lake City and McBain	School districts	CC			X	X	X	
	19b	Continue to provide and improve food assistance programs and emergency food programs to help communities prepare for unanticipated pandemics, but also increase year-round food accessibility.	X	X	X	X					X	Countywide	NMCAA; local food pantries; School Districts (school meal programs)	D, F, H, I, Ongoing		X				
	19c	Food rescue programs, involving public/private partnerships between farms, restaurants, hotels and other venues of large food production/canneries with local food pantries and schools to make good food more widely available.	X	X	X	X					X	Countywide	NMCAA; local food pantries; School Districts (school meal programs)	H, I, J		X			X	
	20	Continue programs and services offered by the DHD #10 and/or MDHHS such as: immunizations; community clinics; school health services; permitting processes for proper location and installation of water wells and septic systems; education about cleaning, monitoring and maintaining septic systems; septic or well repair financial assistance, and the inspection and licensing of food service establishments				X					X	Countywide	DHD#10; MDHHS	E	Ongoing		X	X	X	X
21	Continue to coordinate with the MDHHS & DHD#10 for guidance via the State Pandemic Plan and information about new or emerging disease threats.									X	Countywide	DHD #10, MDHHS; County EM	E	Ongoing		X			X	
Shelters	22	Consider developing a scenario planning exercise for a potential road closure event on M-55, between Jeffs Rd. and East County Line Rd. This is a major E-W route between Lake City and Houghton Lake with no ideal re-route options in Butterfield and Enterprise Townships.	X	X	X	X					Butterfield Township; Enterprise Township	County EM, Local Fire/Rescue Depts., MDOT, MCRC	A, B, C							
	23	Maintain an accurate inventory of emergency shelter sites (overnight vs. daily use types) within the service area; review annually and update as needed.	X	X	X	X	X				X	Countywide	County EM; American Red Cross	A	Annually		X			
	24	Provide local governments or public/private organizations information on funding sources for the installation of generators to enhance capabilities of emergency shelter locations.	X	X	X	X	X				X	Countywide	County EM; Local Fire Depts.; Senior Centers; Municipal Offices	A, W, X			X		X	
	25	Evaluate the feasibility and need for construction of concrete "safe rooms" to serve as shelter areas in mobile home parks, fairgrounds, or campgrounds, or other vulnerable areas.	X	X		X	X					Fairgrounds in Falmouth (Clam Union Twp.) for Missaukee Animal Youth Show; Seasonal rodeo "Cow Camp" in Richland Twp.; Earthworks Harvest Gathering - 3rd weekend in Sept in West Branch Twp.; Timber Wolf Lake Youth Camp in Caldwell Twp. See map for identified campgrounds and mobile home areas.	County Building Dept., EM; local govts; private and public site managers	W, X			X	X		
	26	Create signage in public parks/beaches that illustrate the nearest emergency shelter locations.	X	X	X	X	X				X	Crooked Lake Park in Lake Twp; Missaukee Lake Park in Lake City; Ben D. Jeffs River Park in Enterprise Twp.	Missaukee County Parks and Rec	M, W					X	
27	Maintain procedures to create quarantine areas in group living quarters, such as overnight shelters or assisted living facilities.									X	Lake City High School; Maple Ridge Living Center in Reeder Twp.; Whispering Pines in Lake Twp.	ARC, DHD #10, Assisted living facilities	E	Ongoing		X				
28	Continue enforcement of the County Building Code, Soil Erosion and Sedimentation Code, and District Health Dept. Code for new construction through the permitting process. (i.e., building setback requirements; fire protection system; portions of Pioneer and Caldwell Twps. require a minimum 60 lb. snow load/sq. ft. and the remainder of the county abides by the minimum 50 lb./sq. ft.)	X	X		X	X				X	Countywide	County Building Dept.; ACD; DHD#10	A, E	Ongoing		X				
29	Consider revising building code requirements in high fire-risk areas to include wildland fire risk mitigation practices (i.e., provide a 25 foot cleared space/defensible space between houses and other structures.)			X							All Townships; Refer to Environmental Features Map for specific areas of pine forest in relation to locations of developed land.	County Building Dept.	A, B, C, N			X		X		

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Buildings & Infrastructure	30	Continue to maintain the Reedsburg Dam with regular inspections by EGLE and update the EAP as needed				X					Enterprise Township; Butterfield & Holland Townships are downstream	MDNR		Ongoing		X			
	31	Continue to pursue opportunities for brownfield and blight clean-up activities, including demolition and clearance of vacant, condemned structures to remove actual and potential sources of land, water and air contamination.	X	X	X	X				X	Countywide	Missaukee County Brownfield Redevelopment Authority; Local Governments	A, B, C	Ongoing		X	X	X	X
	32	Promote the availability of low-cost residential weatherization and home improvement programs.	X	X	X	X	X			X	Countywide	NMCAA	F, G	Ongoing			X		X
	33	Consider the development of a reduced-cost program to install air conditioning in the homes of low-income senior citizens.			X		X			X	Countywide	Missaukee County Commission on Aging	D, F, H, I				X		
	34	Identify historic and potential flood-prone areas on FIRMs and pursue FEMA hazard mitigation assistance grants as appropriate to flood mitigation projects, such as infrastructure improvements (i.e., culvert/bridge replacement, storm sewer retrofitting, storm water management, dry flood proofing of structures; structure elevation; property acquisition for structure demolition or relocation.)				X					Lake Twp., Lake City, Caldwell Twp.	Drain Commissioner, EM, MI EGLE	A, B, U, F			X	X	X	X
	35	Continue to evaluate alternative methods for removing the Missaukee Lake Level control structure/dam in Lake City along M-66 and replacing it with new infrastructure that provides sufficient streamflow to the Mosquito Creek and effectively (and automatically) regulates the level of Missaukee Lake. Continue collaboration amongst Lake City officials, MDOT, Missaukee County Road Commission, and professional engineers to coordinate the road construction and lake control infrastructure projects to be completed at the same time, along with removing storm sewers that currently flow directly into the lake under M-66.					X		X		City of Lake City, Lake Twp., Reeder Twp.	City of Lake City, Lake Twp., Reeder Twp., MCRC, County Drain Commissioner, MDOT, associated private engineering firm(s)	A, B, W, KK	5 years			X	X	
Buildings & Infrastructure	36	Inventory and prioritize improvements for problematic culverts or bridges that need reconstruction or replacement to improve water and habitat quality, as well as reduce occurrence of localized flooding.				X					Countywide	MCRC, MDOT				X	X	X	
	36a	Stevens Road, north of M-55: A box culvert and steel pipe culvert				X					West Branch Twp.	MCRC					X	X	
	36b	Stoney Corner Road between VanderMuelen and Turnerville Roads, over the N. Branch of the Clam River				X					Riverside Twp.	MCRC					X	X	
	36c	Driveway culvert at McBain Public High School, over the N. Branch of the Clam River				X					City of McBain	MCRC	A, B, GG, HH, II, NN				X	X	
	36d	Box culvert under M-66 at McBain Body Shop, over the N. Branch of the Clam River and across from the High School driveway entrance				X					City of McBain	MDOT					X	X	
	36e	Bridge on N. Cottage Grove Ave., south of M-66, over the N. Branch of the Clam River				X					City of McBain	MCRC					X	X	
	36f	Seeley Road, north of Boon Road, over the Clam River (on the boundary with Wexford County)				X					Lake Twp.	MCRC					X	X	
	36g	N. Layman Rd., near Crooked Lake and north of the community of Jennings: culvert(s) often under water most of the time, making it difficult to evaluate their structural condition				X					Caldwell Twp.	MCRC							
Utilities & Technology	37	Continue work amongst the utility companies (GLE, Consumers E.), the Missaukee County Road Commission & MDOT to clear vegetation (particularly diseased or dead trees, i.e., from Emerald Ash Borer infestations) along various road and utility right-of-ways to minimize power outages and road blockages from storm damage.	X	X	X				X		Countywide	MCRC, MDOT, Great Lakes E., Consumers E.	O, P, EE, FF	Ongoing		X		X	
	38	Continue to maintain effective communications practices between utility companies and County Emergency Management regarding power restoration. (County EM to post and promote the electrical outage map on social media account.)	X	X	X	X	X				Countywide	Consumers Energy or Great Lakes Energy and the County Emergency Mgmt.	A, O, P	Ongoing					X
	39	Investigate opportunities to bury overhead utilities, such as during new construction or in areas regularly prone to power outages.	X	X	X		X				Countywide	Local Governments, County Building Dept., Consumers Energy or Great Lakes Energy	A, B, O, P, W			X	X		
	40	Continue regular maintenance of Ebels Wastewater Treatment Plant in Falmouth.				X				X	Community of Falmouth/ Aetna Twp.	Ebels / Falmouth Co-Op		Ongoing		X		X	

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41	Continue to maintain the separate sanitary and storm sewers in communities surrounding Lake Missaukee, Crooked Lake and Sapphire Lake, as well as in the City of McBain.				X				X	City of Lake City, City of McBain, Lake Twp., Caldwell Township	City of Lake City, City of McBain, Lake Twp., Caldwell Township	B	Ongoing			X	X	
42	Explore the development of Continuity of Operations (COOP) plans and alternative "remote work" schedules.								X	Countywide	County and Local Government Agencies, Public Schools	A, B	Ongoing		X			
43	Expand availability of high-speed internet service to allow for widely available remote work/learning.								X	Countywide	Local service providers, Connected Nation MI	A, B, Q	Ongoing		X	X		X
44	Continue to reference online information resources regarding the location and status of oil & gas wells and hazardous materials pipelines in the county.	X	X		X					Countywide	Emergency Manager, Fire and Rescue Depts.	R, S	Ongoing		X			X
45	Continue to utilize and promote the technical assistance, outreach and education pertaining to invasive species management (monitoring, treatment & removal) provided by non-profit and government agencies.								X	Countywide	MCD, NC-CISMA, CRA, MI EGLE, MDNR	Y	Ongoing		X		X	X
45a	Continue to provide invasive species management services with reduced-cost services for landowners.								X	Countywide	MCD, NC-CISMA, CRA	FF	Ongoing				X	X
45b	Continue to conduct annual routine invasive species surveying and monitoring to identify new emergent invasive species (such as Cypress Sponge or Leafy Sponge) before they get established and spread in the county.								X	Countywide	MCD, NC-CISMA, CRA	EE, FF	Ongoing		X		X	X
45c	Continue participation in EGLE's annual Great Lakes Aquatic Invasive Species "Landing Blitz" event at public boat launches, emphasizing the need to Clean, Drain, Dry boats whenever they come out of the water, and Dispose of any unwanted bait in the trash.								X	Lake Missaukee Boat Launches, Green Road near Sapphire and Crooked Lake	MCD, NC-CISMA	EE, KK	Ongoing				X	X
45d	Promote MSUE's "Clean Boats, Clean Waters" comprehensive aquatic invasive species boater outreach program; apply for grant funding to communicate aquatic invasive species prevention information through outreach materials and in-person educational events to boaters.								X	Lake Twp., Lake City, Caldwell Twp.	MCD, local governments	BB	Annually		X		X	X
45e	Continue to promote EGLE's "NotMI Species" webinars and resources on invasives control and management								X	Countywide	MCD, NC-CISMA	AA, EE, FF	Ongoing				X	X
45f	Determine if the invasive species <i>autumn olive</i> and <i>russian olive</i> are prone to wildfire.		X						X	Countywide	MCD, NC-CISMA, MSUE, MDNR	CC, EE, FF					X	
45g	Investigate alternative, effective and less expensive invasive species control measures, such as livestock grazing.								X	Countywide	MCD, NC-CISMA, MDNR	CC, EE, FF					X	
45h	Continue to manage lake water quality with aquatic invasive species treatment programs and public awareness initiatives.				X				X	City of Lake City, Lake Township, Caldwell Township	Missaukee Lake Improvement Board, Missaukee Lake Association	JJ, KK, LL	Ongoing		X		X	X
46	Evaluate the feasibility of providing staffing at the County boat launch on Lake Missaukee in order to enforce the use of the boat wash equipment.								X	City of Lake City	Missaukee County Parks and Rec; Missaukee Lake Association	A	Ongoing		X		X	X
47	Install temporary or permanent boat-washing facilities at other water access sites to reduce the spread of invasives.								X	Crooked Lake, Sapphire Lake, Lake Missaukee	Lake Township, Caldwell Twp., City of Lake City, Missaukee Lake Association	Z, BB			X		X	X
48	Install boot and/or equipment cleaning facilities at popular trailheads (non-motorized, equestrian, and ORV/Motorcycle) and on logging trails to reduce the spread of invasive species.								X	Countywide	MDNR	Y, Z, EE, FF			X		X	X
49	Consider adoption of local ordinances that regulate activities to prevent the introduction of or the contribution to the spread of invasive species, such as prohibiting the use of invasive species in landscaping and/or vegetative riparian buffers, and permit treatment of existing infestations.								X	Countywide	County/local governments; Missaukee Lake Association	A, B, Y, EE			X		X	X
50	Continue to identify and prioritize sites for open space protection/preservation, green infrastructure and/or stormwater management, especially in areas prone to flooding or erosion.				X	X			X	Countywide	MCD, Cadillac Area Land Conservancy, MCRC, MDOT, County and Local governments	A, B, EE, MM	Ongoing		X		X	
51	Continue implementation of MDNR Forestry Management Plans that outline mitigation efforts for invasive species.	X	X	X	X	X	X	X		All communities except Lake City, McBain and Riverside Twp.	MDNR	MDNR	Ongoing		X		X	
52	Continue to conduct wildfire management such as prescribed burns and surface fuels management projects (this also encourages regeneration of native plant species).			X					X	Countywide - public & private land managers	MDNR, MCD, NC CISMA	MDNR, EE, FF	Ongoing		X		X	
53	Continue efforts to regularly clean up river and lake debris, as well as clean out plugged culverts (due to beaver activity, sediment deposits, invasive species, etc.)				X					Countywide	Local Volunteers, MDNR, non-profit groups, schools	GG, HH, II, MM, NN	Ongoing				X	X

Environment & Natural Resources

ID	Resource	Description	Hazard Type	Website
A	Missaukee County staff	Missaukee County staff as appropriate	All hazards	<a href="https://www.missaukee.org/">https://www.missaukee.org/</a>
B	Local government staff	All local units of government	All hazards	<a href="https://www.missaukee.org/government/local_governments/index.php">https://www.missaukee.org/government/local_governments/index.php</a>
C	Local Emergency Services and Fire Departments	Lake City Area Fire Dept. (Lake City); Lake Missaukee Area Fire Dept. (Lake City), Lake Township Rescue Building (Lake City), McBain Fire Station (McBain), Meritt Area Fire Dept (Enterprise Twp.), Missaukee County Ambulance Services (Lake City)	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Wildfire; Flooding; Extreme Temperatures; Public Health Emergency	
D	Missaukee County Commission on Aging	The Missaukee County Commission on Aging helps seniors and their families by answering questions, finding specific products and services, and by providing guidance on how to access a variety of programs and agencies available. Services include: In-Home Services (homemaking, personal care, respite care, foot care, medication set-up and home cleaning chores); Support Services (transportation for medical appointments, Medicare & Medicaid assistance, and other Information and Assistance); and Seasonal Services (snow removal Dec 1-March 31; 911 Address signs.) The COA RN Supervisor also calls to check in with clients on a regular basis.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	<a href="https://www.missaukeecoa.org/">https://www.missaukeecoa.org/</a>
E	District Health Department #10	DHD #10 serves 10 counties in Michigan; those in the NW MI region include Kalkaska, Manistee, Missaukee, and Wexford counties. Their mission is to promote and enhance the health of our communities and environment through protection, prevention, and intervention. DHD #10 provides programs and services such as: immunizations; communicable disease reporting; issuing public health notifications; school health services; permitting processes for proper location and installation of water wells and septic systems; education about cleaning, monitoring and maintaining septic systems; septic or well repair financial assistance, and the inspection and licensing of food service establishments.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	<a href="https://www.dhd10.org/">https://www.dhd10.org/</a>
F	Northern Michigan Community Action Association (NMCAA)	NMCAA serves the counties of Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Missaukee, Roscommon and Wexford. They provide the Weatherization Assistance Program and Emergency Home Repair Program for low- to moderate- income households. They also provide food distribution via the following USDA programs: monthly food package to low-income senior citizens via the Commodity Supplemental Food Program (CSFP), and The Emergency Food Assistance Program (TEFAP) to low-income persons through a quarterly distribution.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	<a href="https://www.nmcaa.net">https://www.nmcaa.net</a>
G	"MI HOPE" Grants (Michigan Housing Opportunities Promoting Energy Efficiency)	Program for up to \$25K to repair or replace roofs, doors, windows, insulation, heating/cooling systems, water heaters, security lighting, Energy Star appliances and electrical systems for eligible low-income residents.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public	<a href="http://www.michigan.gov/mi-hope">www.michigan.gov/mi-hope</a>
H	Missaukee Area Community Foundation	The Missaukee Area Community Foundation was developed as a Geographic Component Fund of the Cadillac Area Community Foundation in 1999. This allows the MACF to enjoy the advantages of reduced operational expenses while having access to the same professional staff, fund managers, and investment managers as the Cadillac Area Community Foundation. The primary purpose of the MACF is to develop a community-wide vehicle for permanent endowments to enhance the quality of life in the County of Missaukee, Michigan.	All hazards	<a href="https://missaukeefoundation.org/">https://missaukeefoundation.org/</a>
I	Cadillac Area Community Foundation	The primary mission of the Cadillac Area Community Foundation is to develop a community-wide vehicle for permanent endowments to enhance the quality of life in the area and to establish and manage worthwhile endowed funds for the benefit of our community. The CACF houses the Missaukee Area Community Foundation, a geographic component fund.	All hazards	<a href="https://cadillacfoundation.org/">https://cadillacfoundation.org/</a>
J	Groundwork Center for Resilient Communities	With roots firmly embedded in the pro-health, pro-environment, and pro-economy principles of a local food system, the Groundwork Food and Farming team creates markets for local farmers, and helps connect locally grown food to school children, food pantry clients and families across the state.	Public Health Emergency	<a href="https://www.groundworkcenter.org/food-farming/">https://www.groundworkcenter.org/food-farming/</a>
K	Midwest Agriculture Climate Team	MAC-T members are Extension specialists and state climatologists from many of the states represented in the Midwest Climate Hub, and NOAA NWS climate and weather specialists. The goal of this team is to share expertise regionally, discuss impacts and opportunities as it relates to agriculture and outlooks, and maintain an open line of communication so when weather/climate events do occur, the Midwest agriculture community is set to respond. The team meets monthly during the growing season regularly, and as needed during the winter season.	Drought, Extreme Temperatures, Flooding, Severe Winter Weather, High Winds, Hail	<a href="https://www.climatehubs.usda.gov/hubs/midwest/topic/midwest-agriculture-climate-team-mac-t">https://www.climatehubs.usda.gov/hubs/midwest/topic/midwest-agriculture-climate-team-mac-t</a>
L	NWS Climate Prediction Center	The U.S. Drought Monitor is a map released every Thursday, showing parts of the U.S. that are in drought. The map uses five classifications: abnormally dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought: moderate (D1), severe (D2), extreme (D3) and exceptional (D4).	Drought	<a href="https://www.cpc.ncep.noaa.gov/products/Drought/">https://www.cpc.ncep.noaa.gov/products/Drought/</a>

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M	National Fire Protection Association Firewise USA Program	Firewise USA Program: Each applicant must create a board/committee, complete a community wildfire risk assessment with a 3-year action plan to reduce ignition risk to homes, and complete annual educational and risk reduction actions identified in the plan.	Wildfire, Drought	<a href="https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA">https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA</a>
N	NFPA Community Wildfire Defense Grants	Communities can use these grants from the USFS in a variety of ways to reduce the wildfire risk to people and property. One key use is capacity building for wildfire mitigation. For example, communities can use the grants to support the implementation and enforcement of wildfire-related codes and standards; to train people to assess wildfire risk and implement effective mitigation measures; and to perform outreach to community members through programs like Firewise USA®. Communities that build these fundamentals—sound land use and building practices, a skilled workforce, and an educated public—will be better prepared for sustained and effective risk reduction and better equipped to take advantage of future federal grants that prioritize communities with codes in place.	Wildfire, Drought	<a href="https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire">https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire</a>
O	Consumer's Energy Utility Services	Consumers Energy provides electrical and natural gas utility services. Energy through renewable energy sources is available. A power outage map is available to track outage locations.	All hazards.	<a href="https://www.consumersenergy.com/outagemap">https://www.consumersenergy.com/outagemap</a>
P	Great Lakes Energy Utility Services	GLE provides electric and high-speed fiber internet and voice services. GLE provides an online power outage map to track outage locations. Also, Trustream's Status Map indicates where fiber internet is available or is being explored in the region.	All hazards.	<a href="https://www.gtlakes.com/power-outages/">https://www.gtlakes.com/power-outages/</a> <a href="https://www.trustreamfiber.com/status-map/">https://www.trustreamfiber.com/status-map/</a>
Q	Connected Nation Michigan	Connected Nation develops and provides the tools, resources, and methods that help states and communities create and implement solutions to their broadband and digital technology gaps. They assess and plan for the expansion of broadband access, adoption, and use. They empower people with technology skills and resources to improve their quality of life, and we develop public-private partnerships to bring technology access to targeted geographies and population.	All hazards.	<a href="https://connectednation.org/michigan/">https://connectednation.org/michigan/</a>
R	EGLE's Michigan Oil, and Gas and Minerals Division Data Explorer	Interactive mapping tool to search for oil and gas well facilities and associated records throughout Michigan; list of oil and gas well types and status codes.	Flooding, Lightning, Tornado, Severe Winter Weather, High Winds	<a href="https://www.egle.state.mi.us/dataminer/">https://www.egle.state.mi.us/dataminer/</a> <a href="https://www.michigan.gov/egle/about/organization/oil-gas-and-minerals/oil-and-gas/oil-and-gas-well-type-and-status">https://www.michigan.gov/egle/about/organization/oil-gas-and-minerals/oil-and-gas/oil-and-gas-well-type-and-status</a>
S	National Pipeline Mapping System - Public Map Viewer	The National Pipeline Mapping System (NPMS) Public Map Viewer is a web-based mapping application designed to assist the general public with displaying and querying data related to: gas transmission and hazardous liquid pipelines, liquefied natural gas plants, and breakout tanks under Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) jurisdiction. This application does not contain distribution or gas gathering pipelines. Basic information about gas or hazardous liquid pipeline incidents is also available.	Extreme temperatures, flooding, and soil erosion.	<a href="https://www.npms.phmsa.dot.gov/">https://www.npms.phmsa.dot.gov/</a>
T	EGLE's Wetlands Map Viewer	The WMV application was created for the Department of Environment, Great Lakes, and Energy to provide the public with quick and easy access to wetland spatial data.	Flooding, Drought, Extreme Temperatures	<a href="https://www.mcgi.state.mi.us/wetlands/mcglMap.html">https://www.mcgi.state.mi.us/wetlands/mcglMap.html</a>
U	FEMA Floodplain Management Resources for Local Government Officials	How to participate with the NFIP and tools and resources to provide higher standards for floodplain management.	Flooding	<a href="https://www.fema.gov/floodplain-management/manage-risk/local">https://www.fema.gov/floodplain-management/manage-risk/local</a>
V	FEMA Flood Mitigation Assistance (FMA) Grant Program	FMA is a non-disaster, competitive grant program that provides funding to states, local communities, federally recognized tribes. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program. • \$800 million available in funding for FY22 • Application Period: September 30, 2022, to January 27, 2023 • Period of Performance: 3 Years • Cost-share: 25% non-federal • Severe Repetitive Loss (up to 100% federal) • Repetitive Loss (up to 90% federal) • Priorities are set each fiscal year	Flooding	<a href="https://www.fema.gov/grants/mitigation/floods">https://www.fema.gov/grants/mitigation/floods</a>
W	FEMA Building Resilient Infrastructure and Communities (BRIC) Grant Program	BRIC is a non-disaster grant program, which provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster. The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency. Funding has doubled for BRIC to \$2.295 billion for FY21. • Caps: States/Territories Allocation and Activities: \$2 million; Tribal set-aside: \$2 million; National Competition: \$2.133 billion • Application Period: September 30, 2022 to January 27, 2023 • Period of Performance: 3 year from start date on Recipient's federal award • Cost-share: 25% non-federal • Economically disadvantaged rural communities are eligible for 10% non-federal • Priorities are set each fiscal year	All hazards	<a href="https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities">https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities</a>

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X	FEMA Hazard Mitigation Grant Program (HGMP)	HMGP is a post-disaster grant program, where funding is only made available under a Presidential major disaster declaration, in the areas of the State requested by the Governor. Federally-recognized tribes may also submit a request for a Presidential major disaster declaration within their impacted areas.	All hazards	<a href="https://www.fema.gov/grants/mitigation/hazard-mitigation">https://www.fema.gov/grants/mitigation/hazard-mitigation</a>
Y	State of MI: Resources and Best Practices to prevent and manage invasive species	Prevention tips and action steps to control or remove invasive species.	Invasive Species	<a href="https://www.michigan.gov/invasives/ake-action">https://www.michigan.gov/invasives/ake-action</a>
Z	Michigan Invasive Species Grant Program	The Departments of Natural Resources, Environmental Quality and Agriculture and Rural Development work together to address strategic issues of prevention, detection, eradication, and control for both terrestrial and aquatic invasive species in Michigan. This program is designed to address strategic issues of prevention, detection, eradication and control for both terrestrial invasive species (TIS) and aquatic invasive species (AIS) in Michigan.	Invasive Species	<a href="http://www.michigan.gov/invasives/grants/misgp">www.michigan.gov/invasives/grants/misgp</a>
AA	EGLE's "NotMISpecies" webinar series	This webinar series explores how agencies, universities and locally led organizations are working together to protect Michigan's natural resources through the Michigan Invasive Species Program. If you are concerned about the impacts of invasive species or interested in the techniques used to control them, join us as we examine species-specific actions, innovations in research and technology, and programs designed to help communities prevent and manage harmful invasive species.	Invasive Species	<a href="https://www.michigan.gov/invasives/ake-action">https://www.michigan.gov/invasives/ake-action</a>
BB	Clean Boats, Clean Waters Program	Funding from the Michigan Department of Environment, Great Lakes, and Energy and the Great Lakes Restoration Initiative has enabled Clean Boats, Clean Waters to grow into a comprehensive aquatic invasive species boater outreach program. The program's mission is to prevent new aquatic invasive species introductions and limit their dispersal from water recreation activities through outreach and engagement. The program promotes understanding of boat cleaning practices and regulations through the distribution of educational materials, an online resource library, boat washing demonstrations, grants and partnerships.	Invasive Species	<a href="http://www.canr.msu.edu/clean_boats_clean_waters/index">www.canr.msu.edu/clean_boats_clean_waters/index</a>
CC	Michigan State University Extension (MSUE)	Resources available for: training elected and appointed officials, agriculture and food support programs, and natural resources protections.	All hazards	<a href="https://www.canr.msu.edu/outreach/">https://www.canr.msu.edu/outreach/</a>
DD	USDA Natural Resources Conservation Service (NRCS)	The NRCS helps America's farmers, ranchers, and landowners conserve our nation's resources through voluntary programs and science-based solutions.	Drought; Extreme Temperatures; Invasive Species; Public Health Emergency	<a href="https://www.nrcs.usda.gov/">https://www.nrcs.usda.gov/</a>
EE	Missaukee Conservation District	Our mission is to provide leadership in the promotion and protection of our county soil, water, and other natural resources through education and technical assistance. Our current programs include agricultural assistance, forestry assistance, soil erosion control, invasive species management, stream monitoring, educational services, and the 1.5 mile Missaukee Nature Trail. Our partners include: Michigan Agriculture Environmental Assurance Program (MAEAP), North Country Cooperative Invasive Species Management Area, USDA-NRCS, MI Clean Water Corps, and several local recreation advocacy groups.	Flooding & Erosion; Invasive Species; Wildfire; Drought; Extreme Temperatures; Public Health Emergency	<a href="https://www.missaukeecd.org/">https://www.missaukeecd.org/</a>
FF	North Country Cooperative Invasive Species Management Association (NC-CISMA)	North Country Cooperative Invasive Species Management Area (NCCISMA) acts as an umbrella organization, bringing together a diverse group of partners to collaborate on programs and projects designed to combat invasive species. The organization serves in the counties of Missaukee, Wexford, Lake, Mason, Mecosta, and Osceola. NCCISMA empowers people to address invasive species on their own property through: - Assistance in identifying invasive species - Guidance on treating invasive species and buying herbicides - Invasive species treatment demonstrations - Strike Team for hire to control high priority invasive species on private property - Outreach and educational events	Invasive Species; Flooding and Erosion	<a href="https://www.northcountryinvasives.org/">https://www.northcountryinvasives.org/</a>
GG	Conservation Resource Alliance	Current projects include: Wild Roots, a cost-share program offering native plants to property owners at a greatly reduced rate; and The River Care Program, which ensures that natural resource professionals maintain a consistent and prioritized action plan for each river in the organization's region. River Care professionals not only find and repair physical problems before they become worse, they also team with local agencies, residents, and interest group representatives for fact-based conversations. These cross-functional teams can speak openly and affect change in an agile, efficient and transparent way. CRA works in the 10-county northwest MI region, along with the southerly adjoining counties of Mason, Lake, Osceola, Oceana and Newaygo.	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency	<a href="https://www.rivercare.org/">https://www.rivercare.org/</a>
HH	Muskegon River Watershed Assembly	The Muskegon River Watershed Assembly is dedicated to the preservation, protection, restoration, and sustainable use of the Muskegon River, the land it drains, and the life it supports, through educational, scientific and conservation initiatives. Projects have included watershed clean-up events; lake and river evaluation, monitoring and restoration; rain gardens; shorescaping workshops; and habitat improvement.	Flooding & Erosion; Invasive Species; Public Health Emergency; Drought, Extreme Heat	<a href="https://mrwa.org/">https://mrwa.org/</a>

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II	Upper Manistee River Association	The purpose of this Association is to preserve and protect for future generations the Upper Manistee River system and its drainage as a world class natural resource. MRA consists largely, but not exclusively, of riparian property owners who share river related interests on that part of the Manistee River system, reaching from its head waters in southern Antrim and Otsego Counties downstream, 147 river miles, through Crawford, Kalkaska and Missaukee counties to highway US-131 in Wexford County.	Flooding & Erosion; Extreme Heat; Invasive Species, Public Health Emergency, Drought	<a href="http://www.umrasite.org/">http://www.umrasite.org/</a>
JJ	MSUE's Michigan Inland Lakes Partnership	The purpose of the Michigan Inland Lakes Partnership (Partnership) is to engage state and local agencies, Native American Nations, outreach institutions (universities and other educational institutions), non-governmental organizations (NGOs), businesses, industries and citizens in a collaborative effort to ensure the quality, sustainability and ecological diversity of lakes, while considering society's needs. The Partnership will promote communication and cooperation between partners, communities and citizens interested in the management of Michigan's inland lakes, educating leaders, and strengthening stewardship efforts.	Inland flooding, shoreline erosion; Invasive Species	<a href="https://www.canr.msu.edu/michiganlakes/convention/">https://www.canr.msu.edu/michiganlakes/convention/</a>
KK	Missaukee Lake Association	The Missaukee Lake Association (MLA) was formed in the fall of 1997. We are a nonprofit voluntary dues organization incorporated under the laws of the State of Michigan. Membership comes from property owners and other interested parties surrounding the lake. The purpose of the MLA is to promote and protect the environmental integrity of the lake through education, safety promotion, quality initiatives and public awareness. The focus of MLA is on the global issues impacting the lake: water quality, wetland protection, weed control, environmental protection and safety. MLA has been doing water quality testing on the lake since the spring of 2001. And since 2009, the Missaukee County Road Commission has monitored the lake levels in the spring and fall of each year.	Flooding & Erosion; Extreme Heat; Invasive Species, Public Health Emergency, Drought	<a href="http://lakemissaukee.org/">http://lakemissaukee.org/</a>
LL	Missaukee Lake Improvement Board	The Lake Missaukee Improvement Board (LMIB) was formed at the end of 2004 at the urging of the Missaukee Lakes Association (MLA), when MLA was informed that the Eurasian Milfoil that was being treated in the county boat launch had spread to the main body of the lake. MLA had been paying for the treatment in the boat launch area for several years but the scope of the problem was now beyond the authority and resources of MLA.	Flooding, Invasive Species	<a href="http://lakemissaukee.org/improvement_board.html">http://lakemissaukee.org/improvement_board.html</a>
MM	Cadillac Area Land Conservancy	The Cadillac Area Land Conservancy protects significant natural, scenic, and farm lands for current and future generations and fosters an appreciation for the environment in Missaukee, Osceola, Wexford, and northern Lake and Mason counties. Efforts include: - Working with property owners to protect natural, scenic and farm lands through conservation easements so they remain undeveloped forever. - Conducting annual monitoring and stewardship of easement properties. - Building coalitions with state and federal agencies to identify priority "wildlife corridors" for establishing future easements. - Conducting community outreach for education and advancing land stewardship now and for future generations.	Flooding & Erosion; Invasive Species; Public Health Emergency; Wildfire; Drought; Extreme Heat	<a href="https://calc-landtrust.org/">https://calc-landtrust.org/</a>
NN	Great Lakes Stream Crossing Inventory	Previously, individual inventories were conducted by partnership agencies, watershed organizations, and road agencies but were not readily accessible to stakeholders and did not contain comparable information. The newly developed protocol and datasheet are intended to promote consistent data collection, selection criteria for improvement projects, and selection of appropriate Best Management Practices for each project to benefit all stakeholders. Information gathered on the datasheet can and has been used to prioritize structure replacement and successfully seek funding.	Flooding & Erosion	<a href="https://great-lakes-stream-crossing-inventory-michigan.hub.arcgis.com/">https://great-lakes-stream-crossing-inventory-michigan.hub.arcgis.com/</a>