

**Awareness and Preparation**

	MANISTEE 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	Inland Flooding and Erosion	Coastal Hazards: Flooding, Erosion, Rip Current, Seiche	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 local master plans.	X	X	X	X	X	X	X	X	X	X	Countywide	Manistee County Planning Commission; All local jurisdictions		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	X	X	X	Countywide	County Sheriff and EM; local fire/EMS; USFS and MDNR Fire Management; LRBOI		Ongoing		X			X
2a	Consider a county-wide millage to fund local ambulance service	X	X	X	X	X	X	X	X	X	X	Countywide					X			X
2b	Pursue funding and programs available for training, recruitment and retainment of first responder professionals.	X	X	X	X	X	X	X	X	X	X	Countywide					X			X
3	Continue to utilize and increase participation in the Code RED mass notification system.	X	X	X	X	X	X				X	Countywide	County EM							X
4	Inform the public about emergency events and shelter sites via utilization and promotion of the Code RED and IPAWS mass notification systems, NWS weather radios (as a good backup plan) and website/social media.	X	X	X	X	X	X	X			X	Countywide	County EM		Ongoing					X
5	Distribute of MDNR/USFS Fire Danger Status via Code Red messaging and social media.			X													X			X
6	Continue to develop Emergency Action Plans as needed for large public events.	X	X	X	X	X	X				X	Countywide	County EM		As needed		X			
7	Assess local fire suppression access points and equipment regularly; pursue improvements as needed			X									Local fire departments; MDNR; NFS				X			
8	Stay informed about future plans for the Tippy Dam and Hodenpyl Dam; participate in public input sessions provided by Consumers Energy.				X						X		County and local governments				X		X	X
9	Provide information on fire safety at parks and campgrounds			X								Countywide	County EM, local fire departments, USFS, MDNR,							X
10	Work with campground managers to ensure they are aware of evacuation plans/routes and areas of refuge.	X	X	X	X	X	X				X	Countywide	private/local government campgrounds				X			X
11	Promote awareness of vegetation/fuel management for fire prevention around homes and other structures.			X								Countywide, local municipalities	Local governments, Fire departments; USFS, MDNR							X
12	Consider revising local zoning codes in fire-prone areas to require a "defensible space" of cleared vegetation around structures.			X								Fire-prone areas of the County					X	X		
13	Continue Norman Township's participation in the Firewise USA program.			X				X				Norman Township	Norman Twp. Fire Dept; Norman Twp. residents; MDNR; USFS				X			X

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14	Identify other communities with the county that have an interest in becoming a recognized Firewise USA® community. 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.			X						Countywide	Local municipalities; local fire department chiefs; MDNR; USFS				X			X
15	Pursue community engagement efforts with other rural communities in fire-prone areas of the County, particularly if they have communities with limited ingress/egress.			X						Communities in Dickson, Norman, Stronach, Brown, and Marilla Twps.	Local municipalities; local fire department chiefs; MDNR; USFS				X			X
16	Encourage communities in the County that contain floodplain areas to participate in FEMA's Flood Insurance Program, if they do not already do 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						County Drain Commissioner				X			X
17	Consider developing a drought communication plan and early warning system to facilitate timely communication of local drought conditions/outlook to officials, decision makers, emergency responders, and the general public.						X	X		Countywide	MSUE, USDA-NRCS, County EM, local governments				X			X
18	Continue the preparedness practice of conducting the annual statewide tornado drill.		X							Countywide	County EM		Annually		X			X
19	Continue to promote participation in the Storm Spotter Training via partnership with the NWS.	X	X	X	X	X	X			Countywide	County EM		Annually					X
20	Share the County Road Commission snow removal plan with communities	X								Countywide	Manistee County Road Commission				X			X
21	Evaluate additional designated sites to temporarily store cleanup debris from downed trees after storm events.	X	X		X					Countywide	Community DPWs, EM, RC				X			
22	Utilize resources offered by the Great Lakes Water Safety Consortium to increase beach safety awareness and incident prevention at public beaches					X				Countywide	Manistee County; Local jurisdictions							X

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23	Ensure that County residents, particularly vulnerable populations, have access to healthy, affordable food options.							X	X	X	Countywide	County EM, NMCAA, local food pantries, school districts, local communities				X	X	X	X
23a	Continue to provide the Manistee County Council on Aging's Senior Services Reimbursement Program (includes snow plowing, shopping) and Senior Nutrition Program	X								X	Countywide	Manistee County Council on Aging	Ongoing		X				
23b	Create community gardens in shared open spaces and/or school locations to promote learning about growing local food, native pollinating plants, and provide access to fresh produce.							X	X	X	Countywide	Local governments, local schools, churches, senior living facilities, parks				X	X	X	
23c	Continue to provide and improve food assistance programs and emergency food programs to help communities prepare for unanticipated pandemics, but also increase regular food accessibility.	X	X	X	X					X	Countywide	MCOA; local food pantries; School Districts (school meal programs)	Ongoing		X				
23d	Food rescue programs, involving public/private partnerships between restaurants, hotels and other venues of large food production, can partner with local food pantries to make good food more widely available.	X	X	X	X					X	Countywide	MCOA; local food pantries; School Districts (school meal programs)			X				X
24	Continue collaboration amongst DHD #10 with federal, state, and local partners to coordinate the response to COVID-19 and other issues pertaining to public health				X					X	Countywide	County EM; DHD #10	Ongoing		X	X	X	X	
25	Continue rely on the MDHHS for guidance via the State Pandemic Plan and information about new or emerging disease threats.									X	Countywide	County EM; DHD #10, Medical providers	Ongoing		X				X
26	Maintain proper levels of PPE for healthcare workers and first responders, and long-term care facilities.									X	Countywide; Local fire stations and EMS services; hospitals /medical care facilities	County EM; local fire/EMS; Assisted living facilities; Munson Hospital	Ongoing		X				
27	Identify flood-prone areas and areas that have reported repetitive loss damages due to flooding on FIRMs and pursue FEMA hazard mitigation assistance grants related to flood mitigation, such as innovative stormwater management solutions, property acquisition, structure demolition or relocation, dry flood proofing, structure elevation, or project scoping (engineering, environmental, feasibility, and/or benefit-cost analysis)				X	X						Drain Commissioner, EM, MI EGLE			X	X	X	X	

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<b>Awareness and Preparation</b>	28	Promote the benefits of natural shoreline and streambank restoration; identify priority shoreline and streambank restoration sites.				X	X					Countywide	Manistee County, MCD, Little Manistee Watershed Conservation Council, GTRLC, CRA			X		X	X
	29	Consider developing a drought communication plan and early warning system to facilitate timely communication of local drought conditions/outlook to officials, decision makers, emergency responders, and the general public.							X			Countywide	County EM, MCD/USDA-NRCS, MSUE			X			X
	30	Consider developing agreements for secondary water sources for use in a drought.							X			Countywide	County EM, MCD/USDA-NRCS			X			
	31	Consider establishing an irrigation time/scheduling program or process so that all agricultural land gets the required amount of water. Through incremental timing, each area is irrigated at different times so that all water is not consumed at the same time. Spacing usage may also help with recharge of groundwater.							X			Countywide	County EM, MCD/USDA-NRCS			X			
	32	Consider implementing 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 -Adopting ordinances to prioritize or control water use, particularly for emergencies like fire fighting.							X			Countywide	County EM, MCD/USDA-NRCS, local governments			X			
	33	Support the USDA - NRCS's provision of free technical assistance such as the Conservation Stewardship Program, resource assessment and monitoring, and determination of financial assistance for local farmers, ranchers and forest managers in the wake of a natural disaster.	X	X	X	X		X	X	X	X	Countywide	MCD/USDA-NRCS		Ongoing				X

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<b>Shelters</b>	34	Maintain an accurate inventory of emergency shelter sites (overnight vs. daily use types); review annually and update as needed.	X	X	X	X		X			X	Countywide	County EM; American Red Cross		Annually		X			
	35	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					X		X
	36	Evaluate the feasibility and need to construct storm shelters, such as concrete "safe rooms", at campgrounds, recreation areas, and mobile/modular home communities.	X	X	X	X		X				See hazard map for locations of campgrounds and mobile homes	County Building Dept., EM; local govts; private and public campground managers					X		
	37	Continue to establish areas of refuge and evacuation routes from campgrounds, recreation areas, and other sites of large outdoor events.	X	X	X	X		X			X	See hazard map for locations of campgrounds and mobile homes	County EM; private and public campground managers; local fire depts.		Ongoing		X	X		X
	38	Create signage in public parks/beaches that illustrate the nearest emergency shelter.	X	X	X	X		X				Countywide	County and local governments; MDNR; USFS							X
	39	Maintain and improve procedures for adequate quarantine areas in group living quarters, such as shelters, medical care and assisted living facilities.									X		Manistee County Medical Care Facility; Munson Hospital; LRBOI Casino		Ongoing		X			

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<b>Buildings &amp; Infrastructure</b>	40	Review zoning and/or building codes to improve structural resilience for all natural hazards. For example: review snow load requirements, lightning protection devices, high-wind and hail protections, and wildland fire risk mitigation practices	X	X	X	X	X	X	X	X	Countywide	County and Local Governments		Ongoing		X		X	
	40a	Consider updating zoning ordinances to address high risk erosion sites.				X					Arcadia, Onekama, Manistee and Filer Townships; City of Manistee	Arcadia, Onekama, Manistee and Filer Townships; City of Manistee				X			
	40b	Consider revising building setback requirements for the area of Farm Fox Road in Filer Township. Some houses are now just five feet from Lake MI due to soil erosion. Consider requiring homes to be built greater than the min. 60 feet from the high water mark.					X				Filer Township	Filer Township				X			X
	41	Continue enforcement of building codes and EGLE permitting requirements by verifying floodplains, EGLE-designated Critical Dune areas and High Risk Erosion Areas relative to new construction or site modification.				X						County Building Dept., County Soil Erosion Officer, EGLE, local municipalities		Ongoing		X		X	X
	42	Continue to enforce the Point-of-Sale Evaluation requirement for Manistee County for the sale of a parcel containing an on-site water supply and/or on-site sewage disposal system				X	X			X	Countywide	District Health Dept. #10		Ongoing		X	X	X	X
	43	Promote the availability of low-cost residential weatherization and home improvement programs.	X	X	X	X		X		X	Countywide	Manistee County Council on Aging; Manistee County Building Dept.; EM					X		X
	44	Evaluate the need/potential to provide reduced-cost program to install air conditioning in the homes of low-income senior citizens.			X			X		X	Countywide	Manistee County Council on Aging					X		
	45	Improve ventilation techniques in areas, facilities, or vehicles that are prone to crowding or that may involve exposure to contagion or noxious atmospheres.								X	Countywide	Local and county governments, schools, private venues.				X	X		
	46	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	Countywide	Manistee County Brownfield Authority; County Building Dept., Local Governments		Ongoing		X	X	X	X

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<b>Buildings &amp; Infrastructure</b>	47	Complete infrastructure improvements in hazard areas			X	X					Countywide		As needed				X	X	
	47a	Pursue funding for conceptual 5th Avenue Flood Mitigation project in the City of Manistee: construct a wave barrier add a secondary gravity storm sewer and pump station that outlets into the Harbor Village channel				X				X	City of Manistee	City of Manistee	0-3 years			X	X		
	47b	Pursue funding for shoreline protection (~1,023') around the City of Manistee's clean water recovery facility				X				X	City of Manistee	City of Manistee	0-3 years			X	X		
	47c	Continue to investigate funding opportunities to relocate or replace aging and/or underutilized railroad bridges in or near the City of Manistee	X	X		X					City of Manistee, Manistee Township, Stronach Township	CSX Railroad, City of Manistee, Manistee Township, Stronach Township				X	X		
	47d	Inventory and prioritize improvements for flood prone locations in the County's transportation network. (I.e., upgrading aging stormwater abatement structures, or replacing undersized/aging culverts and bridges.)				X	X				Countywide	MCRC, MDOT, Drain Commissioner, Villages, Townships, Railroad Companies, land management agencies				X	X		

Utilities & Technology

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48	Continue work amongst the utility companies (Cherryland Electric, Consumers E., ) to clear vegetation (particularly diseased or dead trees) along various road and utility right-of-ways to minimize power outages and road blockages from storm damage.	X	X						X		Countywide	RC, MDOT, local fire, utility companies		Ongoing		X		X	
49	Continue to maintain effective communications practices between electric utility companies 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 Cherryland Electric; Manistee County		Ongoing					X
50	Investigate opportunities to bury overhead utilities, such as during new construction or in areas regularly prone to power outages.	X	X	X			X				In commercial/urban areas, where required by local zoning ordinances	Consumers Energy or Cherryland Electric; Manistee County			X	X			
51	Document occurrences of electrical interruptions during storms and collaborate with electric companies to improve the resiliency of the infrastructure in these areas.	X	X	X	X		X				Countywide	Citizen volunteers, Consumers Energy or Cherryland Electric			X				X
52	Promote the use of small-scale renewable energy sources for homes, businesses and governmental facilities (i.e., rooftop solar, geothermal).	X	X				X				Countywide	LRBOI, County/Local Governments					X	X	
53	Per their 2020 Master Plan, Manistee Township should continue to allow solar farms in areas of low density residential development and agricultural production.	X	X				X				Manistee Township	Manistee Township			X	X	X		
54	Continue to maintain community water and/or sewer systems at acceptable operating standards.				X					X				Ongoing		X		X	
55	Separate storm and sanitary sewer systems where applicable.	X	X		X					X		City of Manistee, Villages of Onekama and Bear Lake, Filer Township, Manistee Township, Village of Onekama			X	X	X		
56	Identify the locations of where backup generators may be needed for wastewater pump chambers to alleviate manual pumping/hauling in the event of a power outage, and apply for funding.	X	X		X					X							X		
57	Update and maintain Continuity of Operations (COOP) plans and alternative "remote work" schedules.	X								X	County Government and Local Government Agencies; Public Schools	County Government and Local Government Agencies; Public Schools		Ongoing		X			
58	Continue collaboration amongst local governments and utility providers to increase the availability of high-speed internet service.	X	X	X	X	X	X	X	X	X	Rural areas of the county, outside the City of Manistee	Local governments; service providers; Connected Nation MI		Ongoing		X	X		X



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Environment & Natural Resources	59	Evaluate and manage established drainage districts: 1. Analyze purpose and need, existing use, land uses within districts, current habitat and ecological importance 2. Notify residents and municipalities of district boundaries 3. Formulate recommendations for each individual district				X				X		Countywide	County Drain Commissioner			X		X	X
	60	Continue to monitor, treat and remove aquatic and terrestrial invasive species.								X		Countywide	GTRLC, NW MI Invasive Species Network, NRCS, MSUE, MNDR, USFS and lake associations (i.e., Portage Lake, Bear Lake)	Ongoing		X		X	X
	61	Continue and improve collaboration regarding technical assistance, outreach and education about aquatic and terrestrial invasive species management.								X		Countywide		Ongoing				X	X
	61a	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		Countywide	Manistee Conservation District, NW MI ISN, GTRLC, lake associations	Ongoing				X	X
	61b	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		Countywide		Annually		X		X	X
	61c	Continue to promote EGLE's "NotMISpecies" webinars and resources on invasives control and management								X		Countywide	Manistee Conservation District, NW MI ISN, GTRLC, lake associations	Ongoing				X	X
	61d	Investigate alternative, effective and less expensive invasive species control measures, such as livestock grazing.								X		Countywide						X	X
	62	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	Manistee County; Local jurisdictions			X		X	X

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<b>Environment &amp; Natural Resources</b>	63	Consider installing permanent boat wash stations and boot wash stations at lake access points and trail access points, respectively							X		Countywide	Manistee County; Local jurisdictions							X	X
	64	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		X		Countywide	Manistee County; Local jurisdictions; GTRLC				X		X		X
	65	Incorporate green infrastructure-related goals and objectives in the County and local municipality Land Use Plans.				X	X		X	X	Countywide	Manistee County Planning Commission; All local jurisdictions				X		X		X
	66	Promote EGLE webinars to educate and inform lakeshore residents about what they can do to help protect their property value and the health of the lake on which they live by protecting, stabilizing and beautifying their shorelines with nature-based solutions.				X	X				Countywide	Manistee Conservation District		Ongoing		X	X	X		
	67	Continue efforts to regularly clean up river and lake debris.				X	X				Countywide	River & Lake Associations, GTRLC, USFS, MDNR		Ongoing				X		X
	68	Continue to regularly clean out plugged culverts (due to sediment deposits, beaver activity, invasive species, etc.)	X	X		X	X		X		Countywide	RC, MDOT, local villages		As needed		X		X		

Manistee County Hazard Mitigation Strategies RESOURCE LIST

Key	Resource	Description	Website	Hazard Type
A	Manistee County Government	County staff including Emergency Management	<a href="https://www.manisteecountymi.gov/275/911-Dispatch">https://www.manisteecountymi.gov/275/911-Dispatch</a>	All hazards
B	Local government staff	All local units of government - employees, elected and appointed officials		All hazards
C	Little River Band of Ottawa Indians	Tribal staff and members including Emergency Manager	<a href="https://lrboi-nsn.gov/">https://lrboi-nsn.gov/</a>	All hazards
D	Local Emergency Services and Fire Departments	Local units of government, LRBOI, USFS, MDNR		All hazards
E	Manistee County Council on Aging	Provides programs and services to assist seniors with health and well-being: Senior Project FRESH; Senior Center Food Pantry, Senior Nutrition Program, Senior Dining Out Program, Senior Services Reimbursement Program (for transportation, lawn care, snow removal and light housekeeping). Senior Center (The Wagoner Community Center) is also utilized as a community emergency warming/cooling center.	<a href="https://www.manisteecountycoa.com/">https://www.manisteecountycoa.com/</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency
F	District Health Department #10	Provide programs and services such as: immunizations; infectious disease education and prevention; 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.	<a href="https://www.dhd10.org/">https://www.dhd10.org/</a>	Public Health Emergency
G	Five CAP, Inc. (Community Action Agency) - Nutrition Programs	COMMODITY SUPPLEMENTAL FOOD PROGRAM (CSFP) - a USDA funded program providing nutritionally balanced food supplements to senior citizens 60 & over. Must meet income guidelines. THE EMERGENCY FOOD ASSISTANCE PROGRAM (TEFAP) - A USDA funded program providing federally purchased surplus food to low-income families. No age requirement but must meet the income guidelines. EMERGENCY FOOD PANTRY - Funded by the Emergency Food & Shelter Program (EFSP), to provide up to 30 days of food to families and individuals on an emergency needs basis. GARDENING AND FOOD PREPARATION - Funded by the Community Services Block Grant, this program provides plants to families each year with training to encourage gardening and food preservation. The program offers canning, drying and freezing food workshops, as well as loans rototillers to participants.	<a href="https://www.fivecap.org/nutrition-programs.html">https://www.fivecap.org/nutrition-programs.html</a>	Public Health Emergency
H	Five CAP, Inc. (Community Action Agency) - Weatherization Program	The weatherization of homes benefits income eligible households by conserving energy. Improvements include, but are not limited to: air sealing, caulking, insulation of side walls, attics, and foundations, water heater jackets, and a variety of additional energy and/or health and safety measures. Weatherization is generally a "one time" service for a given home. Funding by the U.S. Department of Energy (DOE).	<a href="https://www.fivecap.org/weatherization-and-housing.html">https://www.fivecap.org/weatherization-and-housing.html</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency
I	Northern Michigan Community Action Agency Home Improvement	Weatherization Assistance Program for low- to moderate- income households.	<a href="https://www.nmcaa.net/home_improvement.asp">https://www.nmcaa.net/home_improvement.asp</a>	
J	Low Income Home Energy Assistance Program (LIHEAP)	This is a D.H.H.S. grant-funded program available to assist Tribal members in the nine-county service area who are experiencing heating and energy crises and meet the program eligibility guidelines.	<a href="https://lrboi-nsn.gov/membership-services/members-assistance/">https://lrboi-nsn.gov/membership-services/members-assistance/</a>	Severe winter weather; Extreme Temperatures; Public Health Emergency
K	"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.	<a href="http://www.michigan.gov/mi-hope">www.michigan.gov/mi-hope</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency
L	Michigan State University Extension (MSUE)	Resources available for: training elected and appointed officials, agriculture and food support programs, and natural resources protections. Winter 2023: In Partnership with District Health Department #10, Michigan State University Extension, and Munson Healthcare Prescription for Health: Earn up to \$100 in grocery store vouchers for fruits and vegetables by attending the online self-paced class My Way to Wellness OR the in-person class Cooking for One.	<a href="https://www.canr.msu.edu/outreach/">https://www.canr.msu.edu/outreach/</a> <a href="https://events.anr.msu.edu/event.cfm?eventId=F38A332D83A3C9BEAEAA81645BE1CBFB8F44B75D344DF00656D06DFCF6CFA4C">https://events.anr.msu.edu/event.cfm?eventId=F38A332D83A3C9BEAEAA81645BE1CBFB8F44B75D344DF00656D06DFCF6CFA4C</a>	Inland flooding, shoreline erosion; Invasive Species; Public Health Emergency
M	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.	<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>	Drought, Extreme Temperatures, Flooding, Severe Winter Weather, High Winds, Hail

Manistee County Hazard Mitigation Strategies RESOURCE LIST

Key	Resource	Description	Website	Hazard Type
N	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).	<a href="https://www.cpc.ncep.noaa.gov/products/Drought/">https://www.cpc.ncep.noaa.gov/products/Drought/</a>	Drought
O	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.	<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>	Wildfire, Drought
P	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.	<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>	Wildfire, Drought
Q	Consumer's Energy Hydro Planning	Information on planning processes and documents related to the future of hydropower dams in Michigan.	<a href="http://www.consumersenergy.com/hydrofuture">www.consumersenergy.com/hydrofuture</a>	Flooding, Invasive Species
R	Consumer's Energy Utility Service	Consumers Energy electrical and natural gas utility service. Energy through renewable energy sources is available. A power outage map is available to track outage locations.	<a href="https://www.consumersenergy.com/outage-map">https://www.consumersenergy.com/outage-map</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures, Wildfire
S	Cherryland Electric Cooperative Outage Center	Report an outage, check outage status, power outage preparation & safety tips	<a href="https://cherrylandelectric.coop/outage/">https://cherrylandelectric.coop/outage/</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures, Wildfire
T	Great Lakes Energy Cooperative Outage Center	Report an outage, check outage status, power outage preparation & safety tips	<a href="https://www.gtlakes.com/power-outages/">https://www.gtlakes.com/power-outages/</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures, Wildfire
U	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.	<a href="https://connectednation.org/michigan/">https://connectednation.org/michigan/</a>	All hazards
V	Rural Digital Opportunity Fund - Spectrum Internet	The Rural Digital Opportunity Fund (RDOF) is a Federal Communications Commission initiative focused on bridging the digital divide to efficiently fund the deployment of broadband networks in rural America.1 This includes many unserved and underserved rural communities that do not have Internet service with speeds of at least 25/3 Mbps.	<a href="https://www.spectrum.com/cp/build">https://www.spectrum.com/cp/build</a>	All hazards
W	Energy Zones Mapping Tool	The Energy Zones Mapping Tool is a free online mapping tool to identify potential energy resource areas and energy corridors in the US. The website provides background on the energy resources: Biomass, Coal, Geothermal, Natural Gas, Nuclear, Solar, Storage, Water, and Wind; flexible modeling of power plant and corridor siting factors such as slope and land protections; and tools to generate and analyze potential corridor routes.	<a href="https://ezmt.anl.gov/">https://ezmt.anl.gov/</a>	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures
X	CBS Solar	Various solar information/funding resources	<a href="https://www.cbssolar.com/resources">https://www.cbssolar.com/resources</a>	Extreme Temps, Severe Winter Weather, Thunderstorms/High Wind
Y	MSUE Planning and Zoning Guide for Solar Energy Systems	For local officials and landowners	<a href="https://www.canr.msu.edu/resources/planning-zoning-for-solar-energy-systems-a-guide-for-michigan-local-governments">https://www.canr.msu.edu/resources/planning-zoning-for-solar-energy-systems-a-guide-for-michigan-local-governments</a>	Extreme Temps, Severe Winter Weather, Thunderstorms/High Wind
Z	Manistee Township 2020 Master Plan	Page 38, Action 5.5.2: "Manistee Township should continue to allow solar farms in areas of low density residential development and agricultural production. Solar energy should compliment agricultural production by working with landowners to sustain a mode of agriculture that may coexist with solar panels and ancillary equipment."	<a href="https://www.manisteecountymi.gov/438/Master-Plans">https://www.manisteecountymi.gov/438/Master-Plans</a>	Extreme Temps, Severe Winter Weather, Thunderstorms/High Wind

Manistee County Hazard Mitigation Strategies RESOURCE LIST

Key	Resource	Description	Website	Hazard Type
A1	<b>EGLE's Michigan Oil, and Gas and Minerals Division Data Explorer</b>	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.	<a href="#">Flooding, Lightning, Tornado, Severe Winter Weather, High Winds</a>	<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>
B1	<b>Great Lakes Shoreviewer Tool</b>	View aerial imagery of Lake MI shoreline and associated risk levels for coastline, infrastructure/roads, and buildings.	<a href="http://www.greatlakesshoreviewer.org/">http://www.greatlakesshoreviewer.org/</a>	Shoreline flooding and erosion
C1	<b>LIAA's Northwest Lower MI Coastal Resilience Atlas</b>	LIAA supports community resiliency and natural resource preservation, and provides community assistance. Their Coastal Resilience Atlas provides maps of coastal flooding and coastal erosion based on three future climate scenarios for communities adjoining Lake MI; and areas of the shoreline population, by census tract, that are most vulnerable to extreme heat events.	<a href="http://www.resilientmichigan.org/nw_atlas.asp">http://www.resilientmichigan.org/nw_atlas.asp</a>	Shoreline flooding and erosion, Extreme Heat
D1	<b>State-designated High-Risk Erosion Areas: programs and maps</b>	High risk erosion areas are those shorelands of the Great Lakes where recession of the landward edge of active erosion has been occurring at a long-term average rate of one foot or more per year, over a minimum period of 15 years.	<a href="https://www.michigan.gov/egle/about/organization/water-resources/shoreland-management/high-risk-erosion-areas">https://www.michigan.gov/egle/about/organization/water-resources/shoreland-management/high-risk-erosion-areas</a>	Shoreline erosion
E1	<b>Resilient Lakeshore Heritage Grant Program</b>	This grant program is administered by the Michigan State Historic Preservation Office. Funding for the program is provided by the Paul Bruhn Historic Revitalization Grant from the National Park Service to support the preservation of historic buildings in rural communities located along the Great Lakes statewide.	<a href="https://www.miplace.org/historic-preservation/programs-and-services/lakeshore-heritage-grant/#:~:text=The%20Resilient%20Lakeshore%20Heritage%20Grant,of%20Michigan's%20rural%20lakeshore%20communities.">https://www.miplace.org/historic-preservation/programs-and-services/lakeshore-heritage-grant/#:~:text=The%20Resilient%20Lakeshore%20Heritage%20Grant,of%20Michigan's%20rural%20lakeshore%20communities.</a>	Shoreline flooding and erosion
F1	<b>Michigan EGLE's Coastal Zone Management Program</b>	A plethora of resources to improve coastal and climate resiliency through both planning and best management projects.	<a href="https://www.michigan.gov/egle/about/organization/water-resources/coastal-management">https://www.michigan.gov/egle/about/organization/water-resources/coastal-management</a>	Shoreline flooding and erosion
G1	<b>Great Lakes Water Safety Consortium</b>	A nonprofit community of BEST practice, connecting and serving safety experts & water enthusiasts, educating the public on safer ways to enjoy the water, and encouraging leaders to take bold action to make their shoreline safer for residents and visitors.	<a href="https://www.greatlakeswatersafety.org/">https://www.greatlakeswatersafety.org/</a>	Dangerous Coastal Currents
H1	<b>Great Lakes Beach Hazards and Forecast</b>	Know before you go! Great Lakes Beach Forecasts & Statements are issued seasonally for the U.S. side of Lake Erie, Lake Huron, Lake Michigan, Lake Ontario, and Lake Superior from roughly Memorial Day weekend through Labor Day weekend (weather dependent). Beach forecasts contain a daily swim risk, which is based on that days threat of high waves and dangerous currents. Beach hazard statements provide additional details on high swim risk days	<a href="https://www.weather.gov/greatlakes/beachhazards">https://www.weather.gov/greatlakes/beachhazards</a>	Dangerous Coastal Currents
I1	<b>EGLE's Wetlands Map Viewer</b>	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.	<a href="https://www.mcgi.state.mi.us/wetlands/mcgiMap.html">https://www.mcgi.state.mi.us/wetlands/mcgiMap.html</a>	Flooding, drought, extreme temperatures
J1	<b>FEMA Floodplain Management Resources for Local Government Officials</b>	How to participate with the NFIP and tools and resources to provide higher standards for floodplain management.	<a href="https://www.fema.gov/floodplain-management/manage-risk/local">https://www.fema.gov/floodplain-management/manage-risk/local</a>	Inland and coastal flooding
K1	<b>FEMA Flood Mitigation Assistance (FMA) Grant Program</b>	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.	<a href="https://www.fema.gov/grants/mitigation/floods">https://www.fema.gov/grants/mitigation/floods</a>	Flooding
L1	<b>FEMA Building Resilient Infrastructure and Communities (BRIC) Grant Program</b>	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.	<a href="https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities">https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities</a>	All hazards
M1	<b>FEMA Hazard Mitigation Grant Program (HMGP)</b>	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.	<a href="https://www.fema.gov/grants/mitigation/hazard-mitigation">https://www.fema.gov/grants/mitigation/hazard-mitigation</a>	All hazards

Manistee County Hazard Mitigation Strategies RESOURCE LIST

Key	Resource	Description	Website	Hazard Type
N1	<b>FEMA Fact Sheet: Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds</b>	FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding for eligible mitigation measures that build climate resilience. These funds can be used to plan for and mitigate risks posed by natural hazards, including extreme temperatures. This fact sheet identifies opportunities for hazard mitigation assistance, provides an overview of considerations and identifies other available FEMA resources.	<a href="https://www.fema.gov/sites/default/files/documents/fema_extreme-heat-fact-sheet_102022.pdf">https://www.fema.gov/sites/default/files/documents/fema_extreme-heat-fact-sheet_102022.pdf</a>	Extreme Temps, Severe Winter Weather, Thunderstorms/High Wind
O1	<b>HMGP Post-Fire Assistance (PFA) grant program</b>	This grant funds projects that make a community more resilient after a designated wildfire disaster. States and federally-recognized tribes affected by fires resulting in a Fire Management Assistance Grant (FMAG) declaration on or after October 5, 2018, are eligible to apply.	<a href="https://www.fema.gov/grants/mitigation/post-fire">https://www.fema.gov/grants/mitigation/post-fire</a>	Wildfire, Drought
P1	<b>State of MI: Resources and Best Practices to prevent and manage invasive species</b>	Prevention tips and action steps to control or remove invasive species.	<a href="https://www.michigan.gov/invasives/take-action">https://www.michigan.gov/invasives/take-action</a>	Invasive Species
Q1	<b>Michigan Invasive Species Grant Program</b>	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. Tribal units of government are eligible to apply. Projects must support the overall goals of the MISGP:  Prevent new invasive species introductions. Strengthen statewide invasive species early detection and response network. Limit the dispersal of recently confirmed invasive species. Manage and control widespread, long-established invasive species.	<a href="http://www.michigan.gov/invasives/grants/misgp">www.michigan.gov/invasives/grants/misgp</a>	Invasive Species
R1	<b>Clean Boats, Clean Waters Program</b>	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.	<a href="http://www.canr.msu.edu/clean_boats_clean_waters/index">www.canr.msu.edu/clean_boats_clean_waters/index</a>	Invasive Species
S1	<b>EGLE's "NotMISpecies" webinar series</b>	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.	<a href="https://www.michigan.gov/invasives/take-action">https://www.michigan.gov/invasives/take-action</a>	Invasive Species
T1	<b>MSU Michigan Inland Lakes Partnership</b>	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.	<a href="https://www.canr.msu.edu/michiganlakes/convention/">https://www.canr.msu.edu/michiganlakes/convention/</a>	Inland flooding, shoreline erosion; Invasive Species
U1	<b>USDA Natural Resources Conservation Service (NRCS)</b>	The NRCS helps America's farmers, ranchers, and landowners conserve our nation's resources through voluntary programs and science-based solutions.	<a href="https://www.nrcs.usda.gov/">https://www.nrcs.usda.gov/</a>	Drought; Extreme Temperatures; Invasive Species; Public Health Emergency
V1	<b>North Country Cooperative Invasive Species Management (NCCISMA) (Lake, Mason, Mecosta, Missaukee, Osceola &amp; Wexford Counties)</b>	NCCISMA acts as an umbrella organization, bringing together a diverse group of partners to collaborate on programs and projects designed to combat invasive species. 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	<a href="https://www.northcountryinvasives.org/">https://www.northcountryinvasives.org/</a>	Flooding, Coastal Hazards, Invasive Species, Public Health Emergency

Manistee County Hazard Mitigation Strategies RESOURCE LIST

Key	Resource	Description	Website	Hazard Type
W1	Manistee Conservation District	MCD connects private landowners to numerous services and information for natural resource concerns, including access to government programs and technical land-management assistance. Our services assist Manistee County residents and landowners in the protection, enhancement and restoration of natural resources.	<a href="https://www.manisteedc2.org/">https://www.manisteedc2.org/</a>	Flooding, Coastal Hazards, Invasive Species, Public Health Emergency
X1	Conservation Resource Alliance (10-county northwest MI region, along with the southerly adjoining counties of Mason, Lake, Osceola, Oceana and Newaygo.)	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.	<a href="https://www.rivercare.org/">https://www.rivercare.org/</a>	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency
Y1	Little Manistee Watershed Conservation Council	They monitor the health of the watershed with implementing annual and periodic water quality and wildlife surveys, including assessment of bank erosion, sedimentation from road crossings, and fish habitat degradation. They identify, recommend to appropriate state and local authorities, secure permits for, fund, and staff various remediation projects or contract for the completion of those projects when necessary, and identify potential funding sources. Partners include the MDNR, CRA, USFS, USF&WS, the Little Manistee River Watershed Restoration/Partnership Committee, and the Little River Band of Ottawa Indians	<a href="http://www.lmwcc.org/">http://www.lmwcc.org/</a>	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency
Z1	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.	<a href="https://great-lakes-stream-crossing-inventory-michigan.hub.arcgis.com/">https://great-lakes-stream-crossing-inventory-michigan.hub.arcgis.com/</a>	Flooding & Erosion
A2	Grand Traverse Regional Land Conservancy (includes Manistee Co.)	GTRLC focuses land conservation efforts on protecting crucial wildlife habitat and corridors, critical watersheds, unique high-quality farm lands, valuable forestland and ecologically significant dunes along Lake Michigan. They protect land in several ways: Working with landowners to permanently protect private land through voluntary conservation easements; Acquiring high quality natural lands by purchase or donation to create Conservancy owned nature preserves; Assisting local units of government in creating or expanding public parks and natural areas that result in enhanced public access to nature and improved recreational opportunities; and Providing technical assistance to local units of government with the administration of farmland protection programs.	<a href="https://www.gtrlc.org/">https://www.gtrlc.org/</a>	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency
B2	Manistee County Community Foundation	The mission of the Manistee County Community Foundation is to build community endowment, effect positive change through grantmaking and provide leadership on key community issues, all to enhance the quality of life for Manistee County. The Foundation is the only entity serving Manistee County that impacts all aspects of life: youth, education, human services, the arts, environment, community development and more.	<a href="http://manisteefoundation.org">http://manisteefoundation.org</a>	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency
C2	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.	<a href="https://www.groundworkcenter.org/food-farming/">https://www.groundworkcenter.org/food-farming/</a>	Public Health Emergency
D2	Bear Lake Improvement Board	Established by the three municipalities (Village of Bear Lake, Bear Lake Township and Pleasanton Township) surrounding Bear Lake, the LIB has legal authority to take the necessary steps to treat the lake for invasive aquatic species and to assess those who benefit from the treatment.	<a href="http://www.bearlakeimprovement.org/">http://www.bearlakeimprovement.org/</a>	Invasive Species; Flooding & Erosion, Public Health Emergency
E2	Portage Lake Watershed Forever	Since 2009, Onekama Township has had annual lake management plans to improve the quality of the water and protect Portage Lake into the future. Each annual plan includes water quality monitoring, surveys of aquatic vegetation, and exotic weed control. These lake improvement activities are funded by assessments on property owners within a special assessment district. The PLWF Water Quality and Environmental Monitoring Committee provides technical advice to the township with regard to lake management.	<a href="https://www.portagelakewatershed.com/">https://www.portagelakewatershed.com/</a>	Invasive Species; Flooding & Erosion, Public Health Emergency

## MANISTEE COUNTY HAZARD MITIGATION GOALS

- 1 Increase local awareness and participation in natural hazards mitigation strategies
- 2 Integrate natural hazards mitigation considerations into the community's comprehensive planning process
- 3 Utilize available resources and apply for additional funding for natural hazards mitigation
- 4 Develop and complete natural hazards mitigation projects in a timely manner

### STRATEGY TYPES

<b>1</b>	<b>Local Planning &amp; Regulations</b>
<b>2</b>	<b>Building &amp; Infrastructure Projects</b>
<b>3</b>	<b>Natural Systems Protection</b>
<b>4</b>	<b>Education &amp; Awareness Efforts</b>

### PRIORITY

<b>HIGH</b>
<b>MEDIUM</b>
<b>LOW</b>