

#	EXTREME WINTER WEATHER	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Continue enforcement of building codes for new construction by following most recent State of MI Building Code and applicable local zoning ordinances.	X				Countywide
2	Promote structural maintenance and improvements by identifying non-conformities during the building permitting process.	X				Countywide
3	Snow load design standards - develop planning grant for a study of snowfall patterns and occurrence of damage.	X				Countywide
4	Continue delivery of NWS severe weather messages to community members.				X	Countywide
5	Continue the Leelanau County Senior Services' (LCSS) provision of discounted snow plowing/home repair services, heating/utility/food delivery assistance to qualified seniors, along with a "telephone reassurance" call service to check on homebound seniors during extreme winter weather events(?)				X	Countywide
6	Continue and strengthen partnerships with local government agencies and non-profits to provide public emergency shelters when needed and provide public education and/or information on individual emergency preparedness.	X			X	Countywide
7	Pursue clearing of trees (particularly diseased or dead trees, i.e., from Emerald Ash Borer infestations) along various road right-of-ways to minimize power outages and road blockages during heavy ice/snow storms.	X				Countywide
8	Investigate opportunities to bury overhead utilities underground to minimize power outages during storms.	X	X			Countywide
9	Track patterns of electrical interruptions during winter storms and collaborate with electric companies to address areas that experience frequent outages during storms.		X		X	Countywide

#	T-STORM, HIGH WINDS, HAIL, TORNADO, LIGHTNING	Strategy Type				Affected Jurisdictions
		Local Planning &	Building & Infra-	Natural Systems	Education & Awareness	
1	Continue building code enforcement for new construction by following State of MI Building Code and applicable local zoning ordinances.	X				Countywide
2	Create a special county construction code to address updated wind loads on various structure types.	X				Countywide
3	Continue tree management by power companies (Cherryland Electric, Consumer's Energy) within power line easements.	X			X	Countywide
4	Pursue clearing of trees (particularly diseased or dead trees, i.e., from Emerald Ash Borer infestations) within road right-of-ways to minimize road blockages during storms.	X			X	Countywide
5	Investigate opportunities to bury overhead utilities underground (for example, during a construction project) to minimize power outages during storms.	X	X			Countywide
6	Track patterns of electrical interruptions during winter storms and collaborate with electric companies to address areas that experience frequent outages during storms.		X		X	Countywide
7	Continue to conduct and promote sustainable forestry management practices through the Leelanau Conservation District, Leelanau Conservancy, NPS and MDNR.			X	X	Countywide
8	Continue collaboration between communities and the County Dept. of Emergency Management to develop Incident Action Plans for large public events.	X	X			Countywide
9	Track patterns of electrical interruptions during winter storms and collaborate with electric companies to address areas that experience frequent outages during storms.				X	Countywide
10	Provide local governments, institutions and citizens information on funding opportunities for constructing shelter sites, safe rooms, and the installation of generators for shelter sites.		X		X	Countywide

#	FLOODING AND EROSION	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building and Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Utilize, as needed, FEMA's 2018 FIRM Maps that identify current flood hazard areas.	X			X	All except Kasson Twp.
2	Continue maintenance of major dams in the county, with updated Emergency Response Plans on file and regular inspections (3 years) completed by EGLE for dams with "High" or "Significant" downstream hazard potential.	X				Leland Twp. (Leland Dam), Elmwood Twp. (Cedar Lake Dam and Meeuwenberg Dam)
3	Continue to relay/broadcast flood advisories issued by the National Weather Service and flood watches/warnings via					Countywide
4	Identify wetlands in the county (using EGLE's Wetlands Map Viewer website: https://www.mcgi.state.mi.us/wetlands/mcqiMap.html)	X		X		Countywide
5	Create prioritized list of wetlands or flood-/erosion- prone areas to be designated for open space preservation (through acquisition, conservation easement, etc.).	X		X		Countywide
6	Continue to enforce the Leelanau County Stormwater Ordinance, which incorporates Part 91 of Act 451 (formerly Act 347), Michigan's Soil Erosion and Sedimentation Control Law, regulates and requires a permit for: <ul style="list-style-type: none"> All commercial projects Earthwork within 500 feet of a lake or stream (includes minor projects) Earthwork within 100 feet of a regulated wetland (includes minor projects) Construction of a driveway with a slope of 10% or greater Every project that will disturb one or more acres of soil Any work done in a subdivision and all projects in Leland and Solon townships need a permit, whether within 500' of water or not 	X		X		Countywide
7	Continue enforcement of current building codes for new construction through the required processes in local zoning administration and code enforcement.	X				
8	Continue to enforce approved well and septic system ordinances in: Glen Arbor Township (2014), the Village of Empire (2013), Cleveland Township (2018), Empire Township (2019) and Centerville Township (2020) in Leelanau County.	X				
9	Per the 2016 The Septic Question report by TOMWC and HDNWMI, consider the use of pilot program for other communities without well and septic ordinances to evaluate a trial Septic Inspection ordinance.	X				
10	Per the 2016 The Septic Question report by TOMWC and HDNWMI, target the most urgent areas for protection when considering mandatory pumping or inspection ordinances. For example an Overlay District could target properties with septic systems within 1,000 feet of an inland lake or stream or a Great Lake.	X				
11	Transition from individual septic systems to sewer systems around Lakes?	X	X			
12	Complete drainage improvements in areas of high flooding potential, including upgrading aging stormwater abatement structures		X			
13	Replace undersized and/or aging culverts/bridges for improved river function and hydraulic activity		X			

#	COASTAL HAZARDS	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness	
1	Increase public education efforts regarding natural resilient shoreline preservation strategies to protect against beach erosion and coastal flooding.			X	X	All except Kasson and Solon Townships
1a.	Reference LIAA's Northwest Michigan Coastal Resilience Atlas to identify and promote awareness of the impacts to public and private properties from "lucky", "expected" and "perfect storm" coastal flooding scenarios, as well as the predicted advancement of coastal recession. Investigate possibly relocating structures in areas prone to coastal flood damage and erosion.		X		X	All except Kasson and Solon Townships
1b.	Continue ACE outreach messaging to the public and flood/erosion-prone areas about green infrastructure and floodplain management strategies	X			X	
2	Continue to enforce the Leelanau County Stormwater Ordinance, which incorporates Part 91 of Act 451 (formerly Act 347), Michigan's Soil Erosion and Sedimentation Control Law, regulates and requires a permit for: <ul style="list-style-type: none"> All commercial projects Earthwork within 500 feet of a lake or stream (includes minor projects) Earthwork within 100 feet of a regulated wetland (includes minor projects) Construction of a driveway with a slope of 10% or greater Every project that will disturb one or more acres of soil Any work done in a subdivision and all projects in Leland and Solon townships need a permit, whether within 500' of water or not 	X		X		
3	Create additional drainage districts within the Leelanau County Stormwater Ordinance to require more detailed soil erosion permits in an effort to prevent slide (subsidence) areas and provide for drainage control, grading, debris flow measures and native vegetation placement.					
4	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				
5	Continue to implement applicable local zoning administration and code enforcement	X				
6	Inventory coastal erosion problem sites, including problem roads/culverts.		X			
7	Utilize resources offered by the Great Lakes Water Safety Consortium to increase beach safety awareness and incident prevention at public beaches along Lake Michigan.	X	X			
8	Track patterns of electrical interruptions during winter storms and collaborate with electric companies to address areas that experience frequent outages during storms.				X	

#	WILDFIRE	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infra-structure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Continue to provide public education and awareness activities such as programs and brochures regarding fuel management, fire-resistant vegetation, and fire breaks through the "FireWise" awareness events held at Cedar Area Fire & Rescue Dept.				X	Solon Twp., ...
2	Continue to provide public education on wildfire prevention at the Leelanau State Park area and campground utilizing the MDNR and FEMA information fliers.				X	Leelanau Township
3	Continue enforcement, through the County Building Safety Department, of state fire codes regarding setback requirements in the permitting process.	X				Countywide
4	Real estate and insurance agents to distribute information on wildfire mitigation and risk areas				X	
5	Continue the local Fire Chief's incorporation of routine jurisdictional assessments from their crews to regularly assess fire suppression access and make improvements.	X	X			Countywide
6	Understand the MDNR's wildfire/urban interface rules/plan; Continue the local MDNR Fire Supervisors' active participation in monthly County Fire Chief Association meetings.	X			X	Countywide
7	Collaborate with campgrounds, the NPS and MDNR to develop a notification system regarding fire danger; create areas of refuge involving imminent fire dangers at campgrounds; and establish evacuation routes for campgrounds and neighborhoods.	X			X	
8	Collaborate amongst local fire departments, local communities and the MDNR to ensure there are water sources (dry hydrants?) readily available for fire extermination purposes.	X	X		X	
9	Continue to provide LCD's Forestry Services program.	X	X		X	Countywide
10	The National Park Service maintains their "no extinguish" policy on wildfires on the Sleeping Bear Dunes National Lakeshore and NPS lands. NPS also continues to manage the park's wildfire risk by utilizing their wildfire and prescribed fire management programs on park land. Engage in public education efforts to improve neighboring resident awareness and understanding of NPS' wildfire management practices.	X			X	Empire Twp., Glen Arbor Twp.(including S. Manitou Island), Cleveland Twp., Centerville Twp., Leland Twp. (including N. Manitou Island)
11	Identify 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 three-year action plan to reduce ignition risk to homes, and complete annual educational and risk reduction actions identified in the plan.	X			X	

#	EXTREME TEMPERATURES	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Increase collaboration between thhe Leelanau County Emergency Management Dept. with local communities and non-profits to ensure that adequate emergency shelters are available to the public, particularly for heating/cooling during extreme temperature days and when power outages occur (i.e., consider expanding sites to senior centers, libraries).	X			X	Countywide
2	Provide local governments or public/private organizations information on funding sources for the installation of generators for emergency shelter locations.		X			Countywide
3	Continue the Leelanau County Senior Services' (LCSS) provision of discounted home repair services and heating/utility assistance to qualified seniors, along with a "telephone reassurance" call service to check on homebound seniors during extreme temperature events(?)				X	Countywide
4	Reference LIAA's NW MI Coastal Resilience Atlas - Ch. 5 for maps of areas along the Lake MI shoreline where vulnuable populations are most at risk from extreme heat events. Share with the LCSS, local charities/non-profits, emergency responders and local governments.				X	All jurisdictions except Kasson and Solon Twps.
5	Continue and strengthen partnerships with local government agencies and non-profits to provide education and/or information on individual emergency preparedness during extreme temperature events.	X			X	Countywide
6	Promote residential weatherization improvement program(s) offered through State agencies and the County.		X		X	Countywide

#	DROUGHT	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	<i>Develop 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. Utilize the National Weather Service's U.S. Drought Monitor https://www.cpc.ncep.noaa.gov/products/Drought/</i>				X	Agriculture and forested communities
2	<i>Develop agreements for secondary water sources that may be used during drought conditions.</i>	X				
3	<i>Establish 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.</i>	X		X		
4	<i>Require mandatory water conservation measures during drought emergencies, including:</i> <ul style="list-style-type: none"> ▪▪ 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				
5	<i>Continuation of the USDA NRCS's provision of free technical assistance, such as resource assessment, practice design, resource monitoring, and determination of financial assistance for local farmers, ranchers and forest managers.</i>				X	
6	<i>Continue involvement with MSU Extension to provide information on agriculture management and best practices in drought situations.</i>				X	

#	INVASIVE SPECIES	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Continue to monitor, treat and remove aquatic and terrestrial invasive species.			X	X	Countywide
2	<i>Continue and improve collaboration amongst the NW MI Invasive Species Network, The Watershed Center at Grand Traverse Bay, NRCS, MSUE, MNDR, NPS and lake associations (i.e., Glen Lake) regarding technical assistance, outreach and education about aquatic and terrestrial invasive species management.</i>			X	X	Countywide
3	<i>Utilize the Michigan Invasive Species Grant Program https://www.michigan.gov/invasives/grants/misgp to submit proposals for projects that will: prevent the introduction or spread of invasive species by engaging the public in prevention practices and reducing the risk of moving invasive species into high-risk areas; or aid in early detection and response efforts for species on Michigan's Watch List; or increase regional or statewide response preparedness for new or emerging invasive species; or develop or improve tools, such as risk assessments and prioritization models, to inform management and control decisions.</i>	X		X		Countywide
4	<i>Utilize the Michigan State University Extension's "Clean Boats, Clean Waters" comprehensive aquatic invasive species boater outreach program resources; apply for grant funding to communicate aquatic invasive species prevention information through outreach materials and in-person educational events to boaters. https://www.canr.msu.edu/clean_boats_clean_waters/index</i>			X	X	Countywide
5	<i>Utilize resources and technical assistance provided by the Michigan Department of Agriculture and Rural Development (MDARD), MDNR, and the MI Dept. of Environment, Great Lakes and Energy (EGLE), such as "NotMISpecies" webinars and control and management resources (https://www.michigan.gov/invasives/take-action).</i>				X	Countywide
6	<i>Continue participation in the annual Great Lakes Aquatic Invasive Species "Landing Blitz" event, emphasizing the need to Clean, Drain, Dry boats whenever they come out of the water, and Dispose of any unwanted bait in the trash.(?)</i>				X	Countywide
7	<i>Continue to implement a County forestry management plan that outlines mitigation efforts for invasive species(?)</i>	X		X		Countywide
8	<i>Continue provision of boat washing stations through organizations such as _____</i>	X	X			Countywide
9	<i>Track patterns of electrical interruptions during winter storms and collaborate with electric companies to address areas that experience frequent outages during storms.</i>			X	X	Countywide

#	PUBLIC HEALTH EMERGENCY	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Ensure that County residents, particularly vulnerable populations, have access to healthy, affordable food options.					
1a.	Community gardens	X	X			
1b.	Continue to provide and improve food assistance programs and emergency food programs to help communities prepare for unanticipated pandemics, but also increase food accessibility.				X	
1c.	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	
1d.	Continue LCCS's "telephone reassurance" call service and meal delivery services to income-limited/homebound seniors (Meals-on-Wheels; partnerships to deliver food from local food pantries; Commodity Supplemental Food Program; Project Fresh Coupons).	X			X	Countywide
2	Maintain proper levels of PPE for healthcare workers and first responders, with additional supplies for long-term care facilities.	X			X	Countywide
3	Update Continuity of Operations (COOP) plans and alternative "work from home" schedules.				X	
4	Provide back-up generators for water and wastewater treatment facilities to maintain acceptable operating levels during power failures.	X	X			
5	Continue interdepartmental cooperation and coordination of police, fire and rescue services to achieve county wide coverage availability.	X				Countywide
6	Continue to provide vaccination clinics and senior home visits for vaccinations (BLDHD/LCSS partnership).	X			X	Countywide
7	Continue collaboration amongst the Benzie-Leelanau District Health Department with federal, state, and local partners to coordinate the response to COVID-19. This includes investigation and contact tracing of newly diagnosed COVID-19 cases; coordination of testing for those who meet criteria; providing information to health care providers and the public; and planning and conducting COVID-19 vaccination clinics.	X			X	Countywide

#	MISC.	Strategy Type				Affected Jurisdictions
		Local Planning & Regulations	Building & Infrastructure Projects	Natural Systems Protection	Education & Awareness Efforts	
1	Continue to implement and promote the <u>multi-hazard alert system</u> .	X			X	Countywide
2	Continue collaboration with governmental entities in the county as well as non-governmental entities, organizations, businesses and the public to advance natural hazard mitigation efforts	X			X	Countywide
3	Incorporate applicable strategies and policies from this Natural Hazard Mitigation Plan into existing elements of Leelanau County's <i>Master Plan, Recreation Plan, and CIP</i> .	X	X			Countywide
4	<i>Continue to partner with MSUE, MDARD, NRCS, MDNR to provide public education on the status and prevention of existing or emergent diseases affecting livestock or wildlife.</i>			X	X	Countywide
5	<i>Continue to provide improvements in cellular coverage and internet access throughout the County.</i>		X			Countywide