

Community Assistance Planning Report No. 345

MILWAUKEE COUNTY HAZARD MITIGATION PLAN UPDATE

Chapter 6

PLAN ADOPTION, IMPLEMENTATION, MAINTENANCE, AND REVISION

The Hazard Mitigation Plan described in this report is designed to attain the goals and objectives outlined in Chapter 4, to the maximum extent practicable. However, the plan is not complete until the steps to convert the plan into actions, policies, and programs have been specified. This Chapter presents the Plan implementation strategies envisioned and includes information on plan adoption, maintenance, and revision.

6.1 PLAN REFINEMENT, REVIEW, AND ADOPTION

As described in Chapter 1, Milwaukee County initiated its hazard mitigation planning program in 2011. The plan set forth in this report began in 2021 and was conducted pursuant to the mitigation planning requirements of 44 *Code of Federal Regulations*, Section 201.6(d) (44 CFR 201.6(d)), which call for local hazard mitigation plans to be reviewed; updated to reflect changes in development, progress in local mitigation efforts, and changes in priorities; and reapproved every five years for local jurisdictions to be able to receive hazard mitigation funding. In 2002, the Federal Emergency Management Agency (FEMA) published rules for hazard mitigation planning in response to the Disaster Mitigation Act of 2000. These rules address State and local mitigation planning and are important for the Milwaukee County Hazard Mitigation Program in the following manner.

- The Wisconsin Department of Military Affairs, Division of Emergency Management (WEM), is directly involved in a partnership role for all-hazard mitigation planning. That agency is responsible for preparing and periodically updating a State all-hazard mitigation plan, providing technical assistance and guidance for local all-hazard planning, and administering planning grant programs for FEMA.

- The rules outline State and local mitigation planning guidelines for accessing hazard mitigation grant funds. For disasters declared after November 1, 2004, local government units must have a FEMA-approved mitigation plan to receive project grants from the Hazard Mitigation Grant Program (HMGP) and the Building Resilient Infrastructure and Communities (BRIC) Program. This element is important because it requires local adoption of a hazard mitigation plan to remain eligible for grants from specific mitigation funds. Communities can formally adopt the County Plan or create and adopt their own plan.
- The rules and related guidance provide more specificity and detail on the hazard mitigation plan content than did the previous rules. The Milwaukee County Hazard Mitigation Plan has been structured to meet the 2002 guidance.

This Milwaukee County Hazard Mitigation Plan was prepared under the guidance of the Milwaukee County Hazard Mitigation Local Planning Team (LPT), comprised of representatives of all of the communities within the County knowledgeable in hazard mitigation matters. The LPT met three times during the plan preparation period to provide input on the types of hazards to be considered, the appropriate mitigation strategies, and to review and refine the draft report chapters to reflect the comments and recommendations of the LPT. The activities of the LPT are documented in Appendix A.

Each community has unique capabilities available to mitigate and reduce long-term vulnerability to natural hazard events. These capabilities include authorities, policies, programs, staff, technical knowledge, and funding. The Milwaukee County LPT participated in an online Community Capabilities Assessment. By gathering this input, communities will be able to better identify the capabilities currently effective in reducing disaster impacts and identify areas where increased capacity may improve their ability to reduce risk. A copy of the survey assessment provided to LPT members, as well as the results from the survey, are documented in Appendix K.

During the drafting of the Plan, public informational meetings were held to review the Plan following completion of the first three chapters and after completion of the Plan in draft form. In addition, as draft chapters of the updated Plan were completed, copies were placed in downloadable form on the Southeastern Wisconsin Regional Planning Commission (Commission) website on which members of the public could ask questions and submit comments on the draft plan update.

Additionally, consideration of the input and needs of underserved and vulnerable populations was incorporated throughout the planning process. Public feedback on the draft plan was solicited online through the websites of both the Milwaukee County Office of Emergency Management (OEM) and the Commission, and public participation was encouraged through social media posts. Physical copies of the draft Plan were available to be printed on behalf of the public through the Milwaukee County OEM. An opportunity for in-person public comment was provided at public informational meetings, held in the evening to accommodate people who could not attend during normal business hours. Meeting notices were provided via local print, internet (i.e., email notifications), printed flyers, and social media. Note, public meeting flyers were distributed throughout the County at locations accessible to the general public, including those populations considered vulnerable (elderly, disabled, low-income, etc.).¹

Following Plan finalization, the Plan was presented for consideration and adoption to the Milwaukee County Board of Supervisors on [INSERT DATE]. A copy of the signed Plan adoption resolution is included in Appendix C. Copies of the Plan were provided electronically to each of the local units of government in the County advising them of the need for adoption in order to retain future eligibility for mitigation funding from the FEMA HMGP and the BRIC Program administered by WEM. In addition, County and Commission staff have been made available to meet with communities on an individual basis to review the Plan and consider adoption and implementation steps. The Milwaukee County OEM maintains a status report on Plan adoption by the County and local government units.

6.2 PLAN IMPLEMENTATION STRATEGIES

An important first step in implementing the updated Hazard Mitigation Plan for Milwaukee County is its formal adoption by the County, the Cities of Cudahy, Franklin, Glendale, Greenfield, Milwaukee, Oak Creek, St. Francis, South Milwaukee, Wauwatosa, West Allis, and the Villages of Bayside, Brown Deer, Fox Point, Greendale, Hales Corners, River Hills, Shorewood, West Milwaukee, and Whitefish Bay. Upon formal adoption, the Plan becomes an important guide to hazard mitigation and related management decisions for the County and participating local units of government, including MMSD. Such adoption serves to signify agreement with and official support of the Plan recommendations and enables government officials and staff to begin integrating the Plan recommendations into the other ongoing County and municipal programs, such as land use and public works development planning and programming.

¹ *Despite County and LPT outreach efforts, no public input was received on the Hazard Mitigation Plan Update.*

Realization of the Plan will require a long-term commitment to the objectives of the Plan and a high degree of coordination and cooperation among the following: County officials and staff; various County and community departments; MMSD; the Hazard Mitigation LPT; intergovernmental task forces or other committees that may be created in the future to help address common hazard mitigation issues; other concerned units and agencies of government and their respective officials and staffs; area developers and lending institutions; businesses, industry, and institutions; and concerned private citizens. Coordination and cooperation is vital to undertaking the substantial investments and series of actions needed to implement the Plan. Close cooperation with WEM and FEMA is also essential.

A summary of the Plan elements and selected implementation strategy information, including current status, general priority assignments, designated management agencies, and schedules is included in Table 6.1. It is recommended that Milwaukee County, MMSD, and local units of government incorporate the analyses performed and mitigation strategies recommended into other local planning efforts, such as those related to stormwater management, stream and river protection, land and water conservation, and comprehensive planning, where appropriate.

6.3 HAZARD MITIGATION FUNDING SOURCES

The ability of each participant in this Hazard Mitigation Plan to implement the proposed measures is most often limited by their ability to finance the projects and dedicate sufficient staffing time toward implementing projects while still providing other essential services. Financing the construction, operation, and maintenance of hazard mitigation measures may be accomplished through a number of means, including: establishing a stormwater utility; tax incremental financing (TIF) districts; local property taxes; reserve funds; general obligation bonds; private-developer contributions, including fees applied to construction of regional stormwater management facilities in lieu of providing onsite facilities; State grants or loans; and certain Federal and State programs.

Identifying potential funding sources, including sources other than solely local-level sources, is an integral part of implementing a successful mitigation plan and serves as one way for Plan participants to expand on and improve their capability to mitigate the impacts of hazard events in their communities. Successfully pursuing and receiving grant funding takes a considerable amount of time and effort and the lack of available staff time to pursue funding opportunities is often a major barrier to successful plan implementation. Having sufficient staff time dedicated to pursuing grant funding opportunities represents

a way to expand a community's capability to implement the hazard mitigation measures recommended in this Plan, particularly with increasing funding becoming available through the Bipartisan Infrastructure Law.²

The following description of funding sources includes those that appear to be applicable for the County and local units of government as of 2025. However, because funding programs and opportunities are constantly changing, the involved staff of County and local units of government will need to monitor the potential funding sources and programs. Nonetheless, the list of sources and programs provided below can provide a starting point for identifying possible funding for implementing potential hazard mitigation plan recommendations.

Some of the programs described in this Chapter may not be available under all envisioned conditions in the County or to its residents and/or property owners for a variety of reasons, including, for example, eligibility requirements or lack of funds at a given time in Federal and/or State budgets. Nonetheless, the list of sources and programs set forth in this Chapter should provide a starting point for identifying possible funding for implementing the Hazard Mitigation Plan recommendations in this report (see also Appendix L).

U.S. Federal Emergency Management Agency Programs (FEMA)

FEMA provides several pre-disaster or non-emergency disaster assistance programs to states, tribal governments, and to local governments. These preparedness grants support citizens and first responders, as well as improve the capability to prepare for, protect against, respond to, recover from, and mitigate high-consequence disasters and emergencies. These FEMA funding programs are administered through Wisconsin Emergency Management (WEM).

U.S. Army Corps of Engineers (USACE)

The Army Corps of Engineers programs are potential sources of funding for implementing the flood management recommendations of this plan. To be eligible for funding, the plan components must meet specific Corps economic feasibility and other criteria.

U.S. Department of Agriculture - Farm Service Agency (FSA)

The U.S. Department of Agricultural Farm Service Agency (USDA-FSA) oversees several voluntary conservation-related programs that provide direct and indirect hazard mitigation benefits. These programs work to address a large number of farming- and ranching-related issues including drinking water protection,

² U.S. Public Law No. 117-58 (2021), Infrastructure Investment and Jobs Act.

reducing soil erosion, preserving wildlife habitat, preserving, and restoring forest and wetlands, and aiding farmers whose farms have been damaged by natural disasters such as flooding and drought.

U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS)

The U.S. Department of Agricultural Natural Resources Conservation Service (USDA-NRCS) provides farmers and ranchers with financial and technical assistance to voluntarily install conservation measures to help the environment and agricultural operations concurrently.

U.S. Fish and Wildlife Service (USFWS)

The USFWS's *National Fish Passage Program* provides financial and technical assistance in support of fish passage projects. This program works to restore rivers and conserve aquatic resources by removing or bypassing barriers, including obsolete and dangerous dams, ultimately eliminating public safety hazards and restoring river ecosystems. The program also works with transportation agencies and others to improve road stream crossings for flooding and fish passage.

U.S. Department of Housing and Urban Development (HUD)

Community Development Block Grant (CDBG) programs, funded by the U.S. Department of Housing and Urban Development, are administered by the Wisconsin Department of Administration (DOA). The CDBG Emergency Assistance Program is a special program that the Wisconsin DOA Division of Energy, Housing and Community Resources activates to assist local units of government that have recently experienced a natural or man-made disaster.

U.S. Environmental Protection Agency (USEPA)

USEPA's mission is to protect human health and the environment. USEPA has several programs that provide grants to state environmental programs, local units of government, nonprofit organizations, and educational institutions.

Wisconsin Department of Transportation (WisDOT)

WisDOT programs assist local governments with needed improvements to local roads, highways, and bridges.

Wisconsin Department of Natural Resources (WDNR)

The WDNR administers a number of grant programs that may serve as potential funding sources for flood mitigation efforts by the County and local communities.

Wisconsin Emergency Management

Under Wisconsin Act 265 and *Wisconsin Statute* 323.63 the WEM Pre-Disaster Flood Resilience Grant Program was initiated. This new program provides funding to applicants for the purpose of identifying flood vulnerabilities, identifying options to improve flood resiliency, and restoring hydrology in order to reduce flood risk and damages in flood-prone communities. The focus for this program is intended to be on wetland and floodplain restoration.

Other Potential Funding Sources

A variety of other potential funding sources exist which may provide funds for implementation of elements of the Hazard Mitigation Plan recommendations. These are listed in Appendix K.

6.4 PLAN MONITORING AND REEVALUATION STRATEGIES

For a hazard mitigation plan to be successful it must not only be implemented but also monitored. Plan monitoring is best accomplished through a formal, periodic process designed to measure and assess progress in implementation, changes in outside circumstances that may affect the plan and efforts to implement it, and changes to the plan or the implementation process. The plan should also be reviewed following each hazard event to assess its continued viability and the need for revisions.

Plan Monitoring

Review

To ensure successful monitoring of the Hazard Mitigation Plan, it is recommended that the Milwaukee County All Hazards Mitigation Plan LPT meet periodically to review the Plan and the status of its implementation with a view toward enhancing and improving response to natural hazard events. Plan review meetings will be held following any disasters that affect the County and at the discretion of the Director of the County Office of Emergency Management. These meetings will provide the opportunity to develop and recommend any necessary revisions of the Plan to the Milwaukee County Board of Supervisors, as well as to the local units of government involved. The revisions would be proposed, considered, and adopted in the form of formal amendments to the Hazard Mitigation Plan. This review process will be coordinated and conducted by the County OEM, with input from, coordination with, and participation by all concerned County officials and staff, all units and agencies of government involved in plan implementation and concerned private parties. The LPT, in its review process, will periodically examine the Plan and the efforts to implement it with respect to the following:

1. Whether any hazards affecting the County and local units of government have changed, and if so, how they have changed
2. Whether any hazard mitigation goals and objectives have changed or need to be changed
3. The degree and extent of progress made in implementing previously identified hazard mitigation actions
4. Whether the plan elements and their priorities should remain unchanged or need modification
5. Whether any new plan elements are needed
6. Whether applicable funding programs and levels have changed

The meetings of the LPT will continue to be publicly noticed, and salient decisions will be recorded in the County Office of Emergency Management files and, where appropriate, on the County website and in press releases, among others. Meetings of the LPT are considered public meetings under Wisconsin Law and are open to all interested parties. County OEM staff will also continue to organize community-level events to increase public awareness, participation, and preparedness. The staff will ensure that appropriate notices, agendas, and other documentation are provided to interested people and LPT members in a timely manner. The venue and timing of these events shall be varied to ensure the widest possible participation and geographic spread across the County. Through these community-level events, staff will gain an understanding of issues of concern, encourage public involvement, and maintain hazard awareness and preparedness at a high level.

Post-Disaster Review

The plan monitoring and refinement strategy will include a post-disaster component whereby the Plan is reviewed and evaluated after any future major hazard event. Based upon this review, the Hazard Mitigation Plan will be updated or revised as needed based on the experiences, circumstances, and consequences of the hazard. In this regard, the post-disaster review effort will be coordinated with the emergency operations program administered by the County OEM in partnership with the local units of government. The experiences of emergency operations may indicate a need for refined mitigation actions that would then be incorporated into the plan. Any Plan updating found to be needed will be incorporated into the periodic plan update noted above.

Reevaluation Strategy

As a condition of eligibility for receiving project grant funding from its mitigation grant programs, FEMA requires that hazard mitigation plans be reviewed, revised, and resubmitted for approval every five years. The updated Plan should document changes that have occurred since the development of the Plan, such as implementing recommended mitigation measures, changes in development, occurrences of hazard events, and changes in local priorities. In addition, it should update the risk analysis. This should include both determining whether the risks posed by specific hazards have changed and reevaluating the identified hazards to determine whether any changes need to be made in the set of hazards addressed by the Plan. Finally, the updated Plan should evaluate the relevance of the Plan's goals, objectives, and recommended strategies and update them as appropriate.

To meet these requirements, it is recommended that the Hazard Mitigation Plan be updated at a minimum of five-year intervals. The Director of the Milwaukee County OEM should lead updating efforts in partnership with other appropriate County and local community departments. Reevaluation, updating, and revision of this plan should be initiated approximately 24 months prior to its expiration. As part of the updating process, the Director will reconstitute the Hazard Mitigation LPT to oversee the development of the updated Plan. The team should include representatives of all of the municipalities that are covered under the Plan. The meetings of the LPT will be publicly noticed. In addition, at appropriate times during the updating process, members of the public and adjacent communities will be provided with opportunities to review and submit questions and comment on the Plan update. Plan updating will be conducted according to relevant guidance available from FEMA and WEM. Following completion of the updated Plan in draft form, it will be submitted to WEM and FEMA for review and approval. Following approval by FEMA, the updated Plan will need to be adopted by the Milwaukee County Board and by the governing bodies of the incorporated municipalities in the County.

Incorporating Existing Planning Mechanisms

The Hazard Mitigation LPT will meet periodically to provide a mechanism for ensuring that the actions identified in the Plan are incorporated into ongoing County planning activities. Milwaukee County and its communities currently utilize comprehensive land use planning, land use regulations, neighborhood planning, and building codes to guide and control development in the County. These existing mechanisms will have hazard mitigation strategies integrated into them where applicable.

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TABLES

Table 6.1
Summary of Mitigation Measures and Funding Sources

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
	Multi-Hazards				
Continue to enforce State building code regulations that aim to improve the ability of structures to withstand increasingly harsh and/or hazardous weather conditions.	Implemented	High	Ongoing	Wisconsin Department of Safety and Professional Services (WSPS) Municipal-Building Inspector and/or Engineering/Development/Planning Department(s)	1, 2, 3, 6, 7, 8, 9, 21, 22, 23, 24, 26, 27, 29, 31, 34, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 50, 53, 54, 55, 56, 57, 58, 59, 61, 63
Encourage and persistently enforce the review of new and/or updated municipal and County development codes and regulations, especially in known hazard areas.	Partially Implemented	Medium	Ongoing	Commission, OEM, CMOEM, and Municipal Planning, Development, and Engineering departments Municipal- Building Inspector and/or Engineering/Planning/ Development Department(s)	
Encourage local municipalities to participate in the National Weather Service's (NWS) <i>StormReady</i> program (i.e., weather spotter training).	Not Implemented	Low	As funding and opportunities become available	NWS, OEM, and CMOEM Municipal-Fire/Police, Health and Human Services, and/or Community Outreach and Event Department(s)	
Continue the integration and expansion of hazard mitigation planning into other local and County planning efforts.	Implemented	High	Ongoing	FEMA, WEM, MMSD, and Commission Milwaukee County-OEM, DHHS, Sheriff s, and/or Parks Department(s) Municipal-Planning/ Development/Engineering, Utility/Public Works, Health and Human Services, and/or Fire/Police Department(s)	
Create and promote local funding opportunities and mechanisms for hazard mitigation.	Partially Implemented	Low	As funding and opportunities become available	OEM and CMOEM	

Table continued on next page.

Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Continue to update a list of potential funding sources associated with hazard mitigation planning.	Partially Implemented	Medium	Multi-Hazards (continued) Ongoing	FEMA, WEM, Commission, WCMP, OEM and CMOEM	1, 2, 3, 6, 7, 8, 9, 21, 22, 23, 24, 26, 27, 29, 31, 34, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 50, 53, 54, 55, 56, 57, 58, 59, 61, 63
Continue to regularly work with community event/outreach organizers on up-to-date emergency plans and procedures in case of severe weather.	Partially Implemented	High	Ongoing	WEM, Commission, OEM, and CMOEM Municipal-Fire/Police, Health and Human Services, and Community Outreach and Events Planning Departments	
Continue coordinating emergency response and operation plans among County and local governmental units and first responders.	Implemented	High	Ongoing	Milwaukee County-OEM, Sheriff's, GMIA, DHHS, and Parks Departments/Divisions	
Continue working with public health departments, emergency personnel, volunteer groups, NGOs, and American Red Cross on natural weather hazard preparedness and procedures.	Partially Implemented	High	Ongoing	Municipal-Fire/Police, Health and Human Services, and Public Works/Utility Departments	
Promote and expand training through the Southeastern Wisconsin COAD program.	Partially Implemented	Medium	Ongoing	American Red Cross, OEM, CMOEM, County Sheriffs, DHHS.	
Continually maintain and upgrade public early warning systems and communication networks.	Partially Implemented	High	Ongoing	Municipal EMS, Fire, and Police Departments	
Continue to maintain and update, as necessary, the County's shared interoperability radio communication network and infrastructure system "OASIS."	Partially Implemented	High	Ongoing and as needed	OEM and CMOEM	
Continue to bury and protect power and utility lines, where feasible and appropriate, to prevent damage from hazardous weather conditions.	Partially Implemented	Medium	Ongoing and as needed	NOAA, NWS, OEM, and Municipal Fire and Police Departments	
Continually promote the importance of having reliable on-site back-up power (i.e., generators) at critical community facilities and utility locations.	Partially Implemented	High	Ongoing	OEM We Energies, OEM, and Municipal Public Works, Engineering, Development, and/or Utility Departments OEM, MMSD, and Municipal Public Water/Wastewater Utilities Departments	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Encourage residents and business owners to consider the purchase of backup power systems (i.e., generators) in case of hazardous conditions.	Partially Implemented	Medium	Multi-Hazards (continued) As needed	OEM	1, 2, 3, 6, 7, 8, 9, 21, 22, 23, 24, 26, 27, 29, 31, 34, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 50, 53, 54, 55, 56, 57, 58, 59, 61, 63
Regularly update and maintain the County OEM website as well as other related county and local department and organization websites on hazardous weather events, preparedness, and resources.	Partially Implemented	Medium	Ongoing	OEM, CMOEM, and DHHS	
Continually increase participation in public outreach events that educate County residents, notably those in vulnerable situations, on severe weather events and preparedness resources.	Partially Implemented	High	Ongoing	OEM, CMOEM, and DHHS Municipal-Fire/Police and Health Departments	
Encourage residents to develop a Family Emergency Preparedness Plan and Disaster Supply Kit (Appendix H).	Partially Implemented	Medium	Ongoing	FEMA, WEM, OEM, CMOEM, and DHHS Departments	
Continue to publicize, through various modes of communication, to all County residents on the availability and accessibility of emergency shelter sites.	Implemented	Medium	Ongoing	Municipal-Fire/Police, DHHS, and Community Outreach Departments OEM, CMOEM, and DHHS and Municipal Planning, Engineering, and Parks Departments	
Continue to educate and promote the use and importance of severe weather warning apps. (i.e., FEMA's <i>ready.gov</i> or Milwaukee's <i>MKEALERT</i>), especially to those most vulnerable.	Partially Implemented	Medium	Ongoing	FEMA, NWS, OEM, CMOEM and Municipal webpages	
Continue to implement and train on the use of different alert/warning systems, so that those most vulnerable, such as hard of hearing, deaf, or blind are also provided with adequate and reliable warning before and during a hazardous event.	Implemented	Medium	Ongoing	FEMA, NOAA, NWS, OEM, CMOEM, and Municipal Fire/Police Departments	
Continue providing information on flood and severe weather insurance programs.	Partially Implemented	High	Ongoing	WEM, OEM, CMOEM, MMSD, and Municipal Officials	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
<i>Floodland and Environmentally Sensitive Land Preservation Element</i>					
Maintain and update as necessary floodplain and wetland zoning regulations/ordinances.	Implemented	Medium	Ongoing	Milwaukee County, MMSD, and Municipal Engineering, Planning, and/or Zoning Departments	11, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 43, 48, 49, 50, 53, 54, 55, 56, 57, 62
Continued preservation and maintenance of floodplains, natural, and environmentally open space areas/sensitive lands.	Partially Implemented	High	As funding and opportunities become available	NRCS, The Conservation Fund, WDNR, Milwaukee County, MMSD, and County and Municipal Council/Board, Parks, Conservation, and/or Recreational, and Planning Departments	
Continue participating in MMSD Greenseams program.	Partially Implemented	Medium	As funding and opportunities become available	Milwaukee County Parks, MMSD, and Municipal Parks, Conservation, and/or Planning Departments	
<i>Floodplain Management Plan Element</i>					
Continue the implementation of MMSD's Watercourse and Flood Management Planning Program floodplain projects through planned year 2035	Implemented	High	Ongoing	Milwaukee County, Commission, MMSD, and Municipal Parks, Conservation, Public Works, and Engineer/Planning Departments	1, 2, 3, 4, 5, 7, 11, 14, 15, 16, 17, 18, 19, 20, 29, 30, 31, 35, 37, 39, 42, 44, 45, 49, 51, 52, 53, 54, 58, 59
Remove up to 16 repetitive loss structures	Partially Implemented	High	As funding and opportunities become available	FEMA, WEM, OEM, MMSD, Property Owners, and Municipal Council/Board, Engineering, Planning, and/or Zoning Departments	
Surveys of up to 1,276 structures identified as being potentially located in flood hazard areas.	Not Implemented	High	As funding and opportunities become available	OEM, MMSD, Property owners, and Municipal Engineering, Planning, and/or Zoning Departments	
Floodproofing 207 structures identified as potentially located in flood hazard area.	Not Implemented	Medium	As funding and opportunities become available	WEM, OEM, Property Owners, and Municipal Planning, Engineering, and/or Zoning Departments	
Acquisition and removal/demolition of up to 1,260 structures identified as being potentially located in flood hazard area.	Not Implemented	High-Medium	As funding and opportunities become available	FEMA, WEM, OEM, MMSD, Property Owners, and Municipal Council/Board, Engineering, Planning, and/or Zoning Departments	
Removal of up to 16 manufactured homes identified as being potentially located in the flood hazard area.	Not Implemented	Medium	As funding and opportunities become available	FEMA, WEM, OEM, Property Owners, and Municipal Engineering, Planning, and/or Zoning Departments	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
		Flooding and Associated Stormwater Problems (continued)	<i>Floodplain Management Plan Element (continued)</i>		
Emphasize actions that address and protect vulnerable infrastructure (i.e., roadways) to flooding.	Not Implemented	High	As funding and opportunities become available	WEM, OEM, CMOEM, City of Milwaukee Public Works Infrastructure Division, and other Municipal Engineering, Planning, and/or Zoning Departments	1, 2, 3, 4, 5, 7, 11, 14, 15, 16, 17, 18, 19, 20, 29, 30, 31, 35, 37, 39, 42, 44, 45, 49, 51, 52, 53, 54, 58, 59
Highly consider floodproofing and/or relocating critical facilities located within or nearby flood-prone areas.	Not Implemented	Medium	As funding and opportunities become available	FEMA, WEM, OEM, City of Milwaukee and Village of Greendale Council/Board Members, Port of Milwaukee Officials, and Municipal Engineering, Planning, and Zoning Departments	
Continue to participate in FEMA's National Flood Insurance Program (NFIP) and floodplain modeling and map updating efforts.	Implemented	High	Ongoing	FEMA, WEM, WDNR, OEM, Commission, MMSD, and Municipal Engineering, Planning, and/or Zoning Departments	
Encourage County participation in FEMA's Community Rating System (CRS) program. Promote and encourage implementation of further documentation of the extent of future floods.	Partially Implemented	Medium	Ongoing	FEMA, WEM, WDNR, OEM, Commission, and MMSD	
Continue to increase stream channel maintenance activities including concrete and debris removal projects.	Partially Implemented	High	As future flooding occurs	WDNR, OEM, MMSD, and Municipal Engineering, Planning, and/or Zoning Departments	
Lending institutions and real estate agent policies should continue and enforce their practice of determining and informing the flood-prone status of properties before mortgage transactions are complete.	Implemented	High	Ongoing	Milwaukee County, MMSD, and Municipal Parks, Recreation/Conservation/Natural Resources, and/or Engineering/Planning Departments	
Encourage the installation of new USGS stream gages, while maintaining and updating the current systems.	Partially Implemented	High	Ongoing	Lending Institutions, Real Estate Brokers	
Regular inspection and continued maintenance of dams.	Implemented	Medium	At a minimum, as required by WDNR	USGS, WDNR, MMSD, Milwaukee County, local municipalities, academic institutions, and Commission	
Continue to update and enforce the regular review of dam emergency action plans and procedures.	Partially Implemented	High	Ongoing	WDNR, Milwaukee County, MMSD, and Private Dam Owners	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Flooding and Associated Stormwater Problems (continued)					
<i>Stormwater Management Plan Element</i>					
Continue to develop and maintain stormwater management plans/programs.	Implemented	High	Ongoing	WDNR, Milwaukee County, and Municipal - Public Works and/or Engineering Departments	1, 2, 3, 4, 5, 7, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 29, 31, 33, 36, 39, 40, 42, 43, 45, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59
Continuation of stormwater-related regulations, including installation of up-to-date stormwater drainage systems.	Partially Implemented	High	Ongoing and as funds become available	WDNR, Milwaukee County, MMSD, and Municipal - Public Works and/or Engineering Departments	
Continued participation in MMSD's Watercourse and Flood Management Planning Program.	Implemented	High	Ongoing	COMMISSION, MMSD, and Municipal Conservation and Natural Resources and Engineering/Planning/Zoning Departments	
Continue to implement and enhance green infrastructure and/or nature-based practices in stormwater management.	Partially Implemented	Medium	As funding and opportunities become available	WDNR, Milwaukee County, MMSD, and Municipal Engineering/Public Works Departments	
<i>Public Informational and Educational Element</i>					
Continue to enhance public education and outreach activities related to flooding and stormwater management.	Partially Implemented	High	Ongoing	UW-Extension, WDNR, OEM, CMOEM, MMSD, and Municipal Public Works/Engineering Departments	26, 33, 38, 40, 43, 54, 55
Promote and distribute information related to the NFIP, including those that live outside the mapped floodplain.	Partially Implemented	Medium	Ongoing	FEMA, WEM OEM, CMOEM, Commission, MMSD, and Municipal Engineering/Planning/Zoning Departments	
<i>Severe Thunderstorm and Thunderstorm-Related Events (Strong Winds, Hail, and Lightning)</i>					
Maintain and regularly update County and local first responders' equipment, such as thermal imaging devices to help detect or mitigate lightning-related fires.	Implemented	Medium	As needed	County and Municipal Fire and Rescue Departments	1, 2, 3, 6, 7, 8, 9, 23, 24, 37, 38, 40, 42, 44, 45, 52, 54, 56, 58, 59, 63
Continue to enforce local ordinances that require adequate electrical grounding in newly constructed buildings.	Implemented	Medium	As needed	Wisconsin Department of Safety and Professional Services, Municipal Building Inspector and/or Engineer	
Provide information and encourage the use of fire-resistant materials and surge protectors on critical electronic equipment					

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
	Severe Thunderstorm and Thunderstorm-Related Events (Strong Winds, Hail, and Lightning) (continued)				
Install and upgrade, as needed, lightning surge protection devices on critical electronic components and facilities used by government officials and public safety personnel.	Partially Implemented	High	As needed	OEM, CMOEM, MMSD, GMIA, and County Officials/Directors at Critical Community Facilities	1, 2, 3, 6, 7, 8, 9, 23, 24, 37, 38, 40, 42, 44, 45, 52, 54, 56, 58, 59, 63
Increase public education and awareness, particularly to those considered vulnerable, on the potential severity and dangers related to thunderstorms and thunderstorm-related events.	Partially Implemented	Low	Ongoing	Municipal-Council/Boards, and Public Works, Planning, and/or Development Departments, Fire/EMS/Police Departments, and Local Officials/Directors of Critical Community Facilities/Utilities Locations NWS, UW-Extension, WEM, and OEM and CMOEM	
Extreme Temperature Events					
Organize and enhance neighborhood outreach groups/networks who look after vulnerable citizens, especially during extreme heat and cold events.	Implemented	High	Ongoing	OEM, CMOEM and DHHS and Municipal Fire/EMS/Police	2, 3, 24, 26, 37, 38, 40, 45, 47, 56
Provide special arrangements for payment of heating and cooling bills for customers unable to pay due to financial constraints.	Partially Implemented	High	As funding and opportunities become available	OEM, CMOEM, DHHS, and Municipal Council/Boards	
Reschedule outdoor public events during periods of extreme heat or cold.	Implemented	High	As needed	OEM, CMOEM, DHHS, Municipal Council/Boards, and Education, Sporting and/or Public Event Staff and/or Coordinator, and Health and Human Services Departments	
Extend public swimming pool hours during extreme heat events.	Partially Implemented	Medium	As needed	OEM, CMOEM, Milwaukee County Parks, DHHS, and County/Municipal Council/Board Members	
Establish and publicize a donation program of functional window air conditioner units and fans and distribute these items to vulnerable populations.	Partially Implemented	Medium	As needed	OEM, CMOEM, DHHS, and County/Municipal Council/Board Members	
Promote and continue to expand winter weather clothing drives (coats, hats, mittens) of gently used winter clothing to distribute to those with limited income and resources.	Partially Implemented	High	As needed	OEM, CMOEM, DHHS, and Municipal Health and Human Services and Council/Board Members	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Promote measures (i.e., green infrastructure practices) to help reduce urban heat island effects.	Partially Implemented	Medium	Extreme Temperature Events (continued) As funding and opportunities become available	USEPA, FEMA, NWS, WEM, WDNR, MMSD, Milwaukee County Parks, OEM, DHHS, CMOEM, and Municipal Health, Development, Emergency Management, Planning, and Public Works Departments, and Council Members	2, 3, 24, 26, 37, 38, 40, 45, 47, 56
Distribute safety information on safety precautions and potential dangers on the use of generators, space heaters, fireplaces, and stoves.	Partially Implemented	Medium	Ongoing	OEM, CMOEM, DHHS, and Municipal Fire Departments, and Public and Private Educators	
Tornadoes					
Ensure usage policies/procedures of the County's public outdoor warning sirens are up-to-date and reflect the needs of public safety personnel.	Partially Implemented	Medium	Ongoing	OEM	3, 9, 14, 16, 23, 24, 37, 38, 42, 44, 45, 47, 58, 59, 63
Require and enforce construction regulations of safe rooms in new schools, daycares, community centers, hospitals, and nursing homes.	Implemented	Medium	Ongoing	Wisconsin Department of Safety and Professional Services, Municipal Council/Board Members, and Planning, Development and/or Engineering Departments, Building Inspector, and/or Engineer	
Regularly conduct an inventory and inspection of municipal and County facilities to ensure the quality, quantity, and accessibility of tornado shelters.	Implemented	Medium	Ongoing	Wisconsin Department of Safety and Professional Services, OEM, CMOEM, and Municipal Planning, Development and/or Engineering Departments, Building Inspector, and/or Engineer	
Continue to maintain and upgrade the operational and structural functions of the County's outdoor warning sirens for an effective and reliable warning system.	Implemented	High	Ongoing	OEM	
Routinely inspect manufactured housing parks to ensure safety material (e.g., tie-downs) is provided and accessible during a tornado event.	Not Implemented	Low	As needed	OEM and Municipal Fire Departments	
Increase public education and awareness of the potential severity of tornadoes, notably to those considered most vulnerable.	Implemented	Medium	Ongoing	NWS, WEM, OEM, CMOEM, Municipalities and Public/Private Educators	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)	
Ensuring safety information is readily available and maintained for all citizens visiting large/popular outdoor public venues before or during a severe or hazardous weather event.	Implemented	High	Ongoing	WEM, OEM, CMOEM, Milwaukee County Parks, DHHS, and Sheriff's Department, and Municipal Fire/Police and Parks/Recreation Departments	3, 9, 14, 16, 23, 24, 37, 38, 42, 44, 45, 47, 58, 59, 63	
			Tornadoes (continued)			
Review the energy efficiency and winter readiness of critical facilities/utilities and housing throughout the County. Continue to work with agencies (e.g., American Red Cross) and/or other organizations to establish a reliable short-term sheltering network for vulnerable populations. Pursue additional funding opportunities to assist with budgeting for overtime hours and extra governmental personnel needed during extreme winter events. Ensure that the necessary amount of snow removal, anti-icing, and deicing equipment is available and operational. Work with utility companies to assess and improve, as needed, electric service system dependability. Continue to promote and enhance, via various modes of communication, winter hazard awareness and resources to all County residents, including home and travel safety measures.	Partially Implemented	Medium	As needed	OEM, CMOEM, DHHS, and Municipal Development and/or Engineering Departments, Building Inspector, and/or Engineer	1, 3, 7, 24, 37, 38, 44, 45, 47, 58, 59, 63	
	Partially Implemented	High	Ongoing	American Red Cross, OEM, CMOEM, and DHHS		
	Partially Implemented	Medium	As needed	OEM, CMOEM, and Municipal Council/Boards		
	Partially Implemented	Medium	Ongoing	Milwaukee County DOT and Municipal Public Works Departments		
	Partially Implemented	Medium	Ongoing	We Energies, OEM, CMOEM, and Municipal Public Works and/or Utility Departments		
	Partially Implemented	Low	As needed	OEM, CMOEM, Milwaukee County DOT, DHHS, and Municipal Public Works Departments		
	Encourage the development and maintenance of drought emergency plans for local utilities and communities. Promote regional activities to protect groundwater recharge areas inside and outside of the County.	Partially Implemented	Low	As needed	Municipal Water Utilities and Planning Departments	22, 24, 32, 34, 36, 38, 39, 40, 53, 55, 56, 57
		Partially Implemented	Medium	As needed	NRCS, Commission, UW-Extension, and Municipal Development, Planning, and Water Utilities	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Promote and encourage the use of drought-resistant landscaping practices (i.e., native plantings).	Partially Implemented	Low	Drought (continued) As needed	UW-Extension, Milwaukee County, and Municipal Development, Water Utilities, Planning, and/or Land and Water Resources/Conservation Departments	22, 24, 32, 34, 36, 38, 39, 40, 53, 55, 56, 57
Support ordinances to prioritize or control water use during drought conditions.	Partially Implemented	Low	As needed	Milwaukee County Water Works and Municipal Water Utilities	
Design and plan for water supply infrastructure systems that are effective and reliable during drought events.	Partially implemented	Medium	Ongoing	USGS, WDNR, Milwaukee County Water Works, Municipal Water Utilities and Planning Departments, and Property Owners	
Consider implementing the recommendations made in the regional water supply plan for additional water supply facilities and programs to meet forecast water use demands.	Partially Implemented	Medium	As needed	USGS, WDNR, Commission, Milwaukee County Water Works, and Municipal Water Utilities and Planning Departments	
Continue operation of stream gaging stations and groundwater monitoring wells.	Partially Implemented	Low	Ongoing	USGS, WDNR, MMSD, Commission, and Milwaukee County	
Increase public education and awareness of the potential severity of drought events.	Partially Implemented	Low	Ongoing	USDA, NRCS, UW-Extension, Milwaukee County, Commission, and Municipal Water Utilities, Planning, and Land and Water Resources/Conservation Departments	
Lake Michigan Coastal Hazards Regulations and Policy Measures					
Continue to participate in FEMA's NFIP and RiskMAP floodplain mapping program for updated Lake Michigan coastal V and VE zones.	Implemented	High	Ongoing	FEMA, WEM, WCMP, OEM, MMSD, and Municipal Development and/or Engineering and Utility Departments along Lake Michigan	3, 4, 7, 12, 48
Develop and enforce consistent county and municipal shoreland regulations and policies (i.e., ordinances) relating to setbacks along bluffs and ravines.	Implemented	High	Ongoing	WCMP, OEM, Milwaukee County Parks, and Municipal Development, Planning and/or Engineering and Utility Departments along the Lake Michigan coastline	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
Lake Michigan Coastal Hazards (continued)					
<i>Bluff Top Mitigation Measures</i>					
Develop and encourage bluff top best management practices.	Partially Implemented	Medium	As needed	WCMP, OEM, Milwaukee County Parks, Property Owners and Municipal Development, Planning and/or Engineering and Utility Departments along the Lake Michigan coastline	3, 5, 7, 11, 12, 15, 36, 37, 38, 43, 48, 53, 54, 55
Continue to implement engineering studies that assess the variables influencing bluff stability and shoreline recession which determine the stable slope angle setback.	Partially Implemented	Medium	As funding and opportunities become available	WCMP, OEM, Milwaukee County Parks, Property Owners and Municipal Development, Planning and/or Engineering and Utility Departments along the Lake Michigan coastline	
Consider relocating buildings within high-risk bluff failure areas.	Partially Implemented	High	As needed and as funding opportunities become available	FEMA, WEM, WCMP, OEM, Milwaukee County, municipalities, and Property Owners	
Continue to promote and enforce local and County coastal ravine and bluff top setback regulations or recommendations.	Partially Implemented	Medium	Ongoing	OEM, Milwaukee County Parks, Property Owners and Municipal Development, Planning and/or Engineering and Utility Departments along the Lake Michigan coastline	
<i>Bluff Face and Near Shore/Shoreline Protection Measures</i>					
Conduct an updated assessment of the condition and effectiveness of all shoreline protection structures in the County.	Partially Implemented	Medium	As funding and opportunities become available	WCMP, OEM, Milwaukee County Parks, and Municipal Development, Planning and/or Engineering Departments along the Lake Michigan coastline	3, 5, 7, 11, 12, 15, 35, 36, 37, 38, 43, 48, 53, 54
Ensure breakwater walls and piers within and around the Port of Milwaukee/Harbor District are properly designed and constructed to withstand severe environmental conditions of Lake Michigan.	Partially Implemented	High	As needed and as funding opportunities become available	City of Milwaukee OEM and Port/Harbor District Authority/Officials, and MMSD	
Construct and maintain shoreline protection structures and bluff stabilization measures where public and critical infrastructure is at risk.	Partially Implemented	High	As needed and as funding opportunities become available	FEMA, WEM, WCMP, OEM, Milwaukee County Parks, CMOEM, MMSD, City of Milwaukee Port/Harbor District and Municipal Engineering Departments along the Lake Michigan coastline	

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Table 6.1 (Continued)

Mitigation Measures	Status	Priority	Implementation Timetable	Designated Department, Management Agency, or Personnel	Potential Funding Programs (see Appendix L)
<i>Bluff Face and Near Shore/Shoreline Protection Measures</i>					
Possible acquisition and demolition of up to 28 structures identified as potentially being located in the low-lying shores of Lake Michigan's 1-percent-annual-probability floodplain.	Partially Implemented	Medium	As needed and as funding opportunities become available	FEMA, WEM, WCMP, OEM, Municipalities, and Property Owners	3, 5, 7, 11, 12, 15, 35, 36, 37, 38, 43, 48, 53, 54
Encourage the practice of non-structural or nature-based shoreline protection measures, such as living revetment or seawalls and artificial beach and beach nourishment.	Partially Implemented	Medium	As needed and as funding opportunities become available	WCMP, OEM, Milwaukee County Parks, Municipalities and Property Owners	
<i>Public Informational and Education Outreach and Programming</i>					
Work with WCMP to conduct public outreach and to provide technical assistance regarding BMPs to prevent shoreline erosion and bluff recession.	Partially Implemented	Medium	Ongoing	WCMP, OEM, Milwaukee County Parks, Municipalities and Property Owners.	7, 11, 12, 13, 48
Promote flood insurance to residents along the County's low-lying coast located in Lake Michigan's flood hazard area.	Partially Implemented	High	Ongoing	FEMA, WEM, WCMP, OEM, and Property Owners and Municipal Development, Planning and/or Engineering Departments along the Lake Michigan coastline.	

Note: The following abbreviations are used for designated management agencies or departments:

- CMOEM = City of Milwaukee Office of Emergency Management
- COAD = Citizens and Organizations Active in Disasters
- Commission = Southeastern Wisconsin Regional Planning Commission
- DHHS = Milwaukee County Department of Health and Human Services
- DOT = Department of Transportation
- FEMA = Federal Emergency Management Agency
- MMSD = Milwaukee Metropolitan Sewerage District
- NOAA = National Oceanic and Atmospheric Administration
- NRCS = Natural Resources Conservation Service
- NWS = National Weather Service
- OEM = Milwaukee County Office of Emergency Management
- USGS = U.S. Geological Survey
- WCMP = Wisconsin Coastal Management Program

Source: *Southeastern Wisconsin Regional Planning Commission*