



Kenosha County Hazard Mitigation Plan Update

May 2, 2017



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A photograph of a residential street in winter. The scene is heavily covered in snow. On the left, there are large evergreen trees and a fence, both heavily laden with snow. In the center, a car is almost completely buried under a thick layer of snow. On the right, a multi-story house with a snow-covered roof is visible. The sky is overcast and grey.

Agenda for Meeting

- Discuss purpose of plan update
- Review the updated plan
- Answer questions on the plan update
- Take comments on plan update



Plan Documentation

SEWRPC Community Assistance Planning
Report No. 278 (3rd edition), *Kenosha
County Hazard Mitigation Plan Update:
2017-2021*

Participating Jurisdictions

- City of Kenosha
- Village of Bristol
- Village of Paddock Lake
- Village of Pleasant Prairie
- Village of Silver Lake
- Village of Somers
- Village of Twin Lakes
- Town of Paris
- Town of Randall
- Town of Salem
- Town of Somers
- Town of Wheatland

During the planning effort, Silver Lake and Salem merged to form the Village of Salem Lakes

What is Hazard Mitigation?

- “Mitigation is any sustained action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards” —FEMA
- Actions to reduce the damages that result when disasters occur



What is Hazard Mitigation?

- Mitigation is not:
 - Emergency response
 - Crisis management
 - Disaster preparation and recovery
- Mitigation focuses on reducing the impacts from hazard events when they occur



Why Do We Mitigate Hazards?



- Disasters are costly
- State and Federal assistance are insufficient
- We can prevent future damages
- Lesser impacts mean a quicker response and recovery process
- Can do this locally

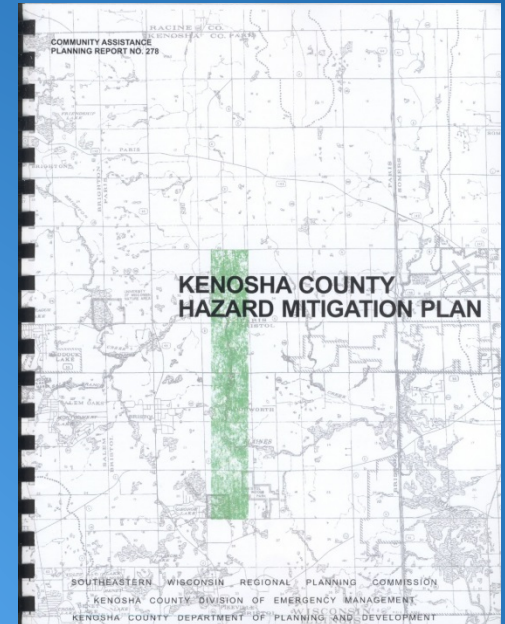


Kenosha County Hazard Mitigation Plan

- Includes all of the municipalities in the County
- Sets forth strategies for mitigating impacts of several natural and technological hazards
- Maintains eligibility for hazard mitigation funding from the Federal Emergency Management Agency (FEMA)
 - FEMA requires that local hazard mitigation plans be updated, revised, and reapproved every five years
 - Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, and the Pre-Disaster Mitigation Program

Kenosha County Hazard Mitigation Plan

- Initial plan developed 2004-2005
 - Report published 2005
- First update conducted 2009-2010
 - Coordinated with development of the County comprehensive plan
 - Report published 2010
- Current update conducted 2015-2017
 - The report will be published later this year



Kenosha County Hazard Mitigation Plan

- Plan development and updating is overseen by a Local Planning Team
 - Team includes elected officials, appointed officials, department and agency representatives, business representatives, knowledgeable citizens
 - Law enforcement, fire, and EMS departments; public works and engineering departments, planning departments, conservation departments, private sector firms, nonprofit agencies, and educational institutions
- Staff include Kenosha County Emergency Management Division, SEWRPC, Kenosha County Planning and Development Department

Reviewed and Revised Plan Components

(Described in Chapter I)

- Reviewed implementation activities
- Updated inventories of natural and built features
- Reviewed and reevaluated identification of hazards
- Updated and reevaluated risk analysis
- Reviewed and revised mitigation goals
- Reviewed and revised mitigation strategies
- Updated plan adoption, implementation, and maintenance strategies
 - Updated inventory of potential funding sources

Inventory Data

(Chapter II)

- Demographic characteristics
- Existing and planned land use
- Surface water and Lake Michigan Shoreline
 - One-percent-annual-probability floodplains
- Transportation and utility systems
- Critical community facilities
- Existing programs and regulations

Hazard Identification

(Chapter III)

- Local Planning Team input
 - Hazard and Vulnerability Assessment tool
- Past hazard experience
 - Frequency of occurrence
 - Property and crop damages
 - Fatalities and injuries

Natural Hazards Profiled in the Plan

(Required by FEMA)



Drought



Flooding



Fog



Lake Michigan
Coastal Hazards



Extreme
Temperatures



Thunderstorms
High Wind/Hail/Lightning

Natural Hazards Profiled in the Plan

(Required by FEMA)



Tornado



Wild Fire



Winter Storms

Technological Hazards Profiled in the Plan

(Optional under FEMA rules)



Contamination/Loss
of Water Supply



Hazardous Material
Incidents



Long-term
Power Outages



Transportation Accidents



Terrorism

Risk and Vulnerability Analysis

(Chapter III)

- Most profiles follow a similar format
 - Definition and description of the hazard
 - Description of notable recent and historical events that affected the County
 - Assessment of vulnerabilities to the hazard and community impacts from the hazard
 - Description of potential future changes in impacts
 - Discussion of any differences among communities in risks

Average Annual Damages

Table H-2

PRIORITY RANKING OF NATURAL AND OTHER HAZARDS AFFECTING KENOSHA COUNTY BASED UPON PROPERTY AND CROP DAMAGE

Order Based on Local Planning Team Perception ^a	Natural and Other Hazards	Period of Record	Number of Incidents per Year (average)	Total Property Damage per Year (dollars) ^b	Total Crop Damage per Year (dollars) ^b	Sum of Property and Crop Damage per Year (dollars) ^b	Priority Ranking Based on Analysis
6	Transportation Accidents	1999-2014 ^c	3,554.7	60,044,843 ^c	0	60,044,843 ^c	1
5	Flooding	1993-2014	4.8	591,882	608,359	1,200,241	2
3	Thunderstorms, High Wind, Hail, and Lightning	1964-2014	4.9	901,748	99,670	1,001,418	3
1	Tornadoes	1963-2014	0.2	488,207	0	488,207	4
13	Drought	2002-2014	0.3	0	150,280	150,280	5
8	Hazardous Material Incidents	1971-2014 ^d	1.4	85,627 ^d	0	85,627 ^d	6
4	Extreme Temperatures	1994-2014	2.9	770	3,874	4,644	7
2	Winter Storms	1994-2014	5.0	1,044	0	1,044	8
10	Fog	1999-2014	4.8	0	0	0	9
12	Terrorism Incidents	2000-2014	0.3	0	0	0	10
9	Lake Michigan Coastal Erosion	1975-1995	1.1 (feet of erosion per year)	--	--	--	11
11	Fires	-- ^e	-- ^e	-- ^e	-- ^e	-- ^e	12
7	Power Outages	--	-- ^e	-- ^e	-- ^e	-- ^e	13
14	Contamination or Loss of Water Supply	--	-- ^f	-- ^f	-- ^f	-- ^f	14

^aThese numbers indicate the ranked order of the hazards assigned by the Kenosha County Hazard Mitigation Plan Local Planning Team through responses given in the Hazard and Vulnerability Assessment Tool (HVA). Where hazards listed in the HVA have been consolidated for analysis and planning purposes, the order is based upon the highest rank given in the HVA. For more details see Hazard Identification section and Table III-3 in Chapter III in this report.

^bDollar values were adjusted to year 2014 by using the average annual Consumer Price Index (CPI) values from the U.S. Department of Labor, Bureau of Labor Statistics.

^cData reflect automobile accidents from years 1999 through 2013 and railroad accidents from years 1975 through 2014.

^dData reflect pipeline-related incidents from years 1976 through 2014 and transportation-related incidents from years 1971 through 2014.

^eIncidents have been reported, but no data are available to calculate averages.

^fNo data available.

Average Annual Fatalities and Injuries

Table H-1

PRIORITY RANKING OF NATURAL AND OTHER HAZARDS AFFECTING KENOSHA COUNTY BASED UPON MORTALITY AND INJURY

Order Based on Local Planning Team Perception ^a	Natural and Other Hazards	Period of Record	Number of Incidents per Year (average)	Number of Mortalities per Year (average)	Number of Injuries per Year (average)	Sum of Average Mortality and Injury Incidences per Year	Priority Ranking Based on Analysis
6	Transportation Accidents	1999-2013 ^b	3,554.7	21.45	1,939.50	1,960.95	1
3	Thunderstorms, High Wind, Hail, and Lightning	1964-2014	4.9	0.14	0.69	0.83	2
4	Extreme Temperatures	1994-2014	2.9	0.19	0.52	0.71	3
1	Tornadoes	1963-2014	0.2	0.00	0.29	0.29	4
8	Hazardous Material Incidents.....	1971-2014 ^c	1.4	0.08	0.12	0.20	5
2	Winter Storms	1994-2014	5.0	0.00	0.01	0.01	6
10	Fog	1999-2014	4.8	0.00	0.00	0.00	7
5	Flooding	1993-2014	2.1	0.00	0.00	0.00	8
12	Terrorism Incidents	2000-2014	0.3	0.00	0.00	0.00	9
13	Drought	2002-2014	0.3	0.00	0.00	0.00	10
9	Lake Michigan Coastal Erosion.....	1975-1995	1.1 (feet of erosion per year)	0.00 ^d	0.00 ^d	0.00 ^d	11
7	Power Outages	--	-- ^d	-- ^d	-- ^d	-- ^d	12
11	Fires	-- ^d	-- ^d	-- ^d	-- ^d	-- ^d	13
14	Contamination or Loss of Water Supply	--	-- ^e	-- ^e	-- ^e	-- ^e	14

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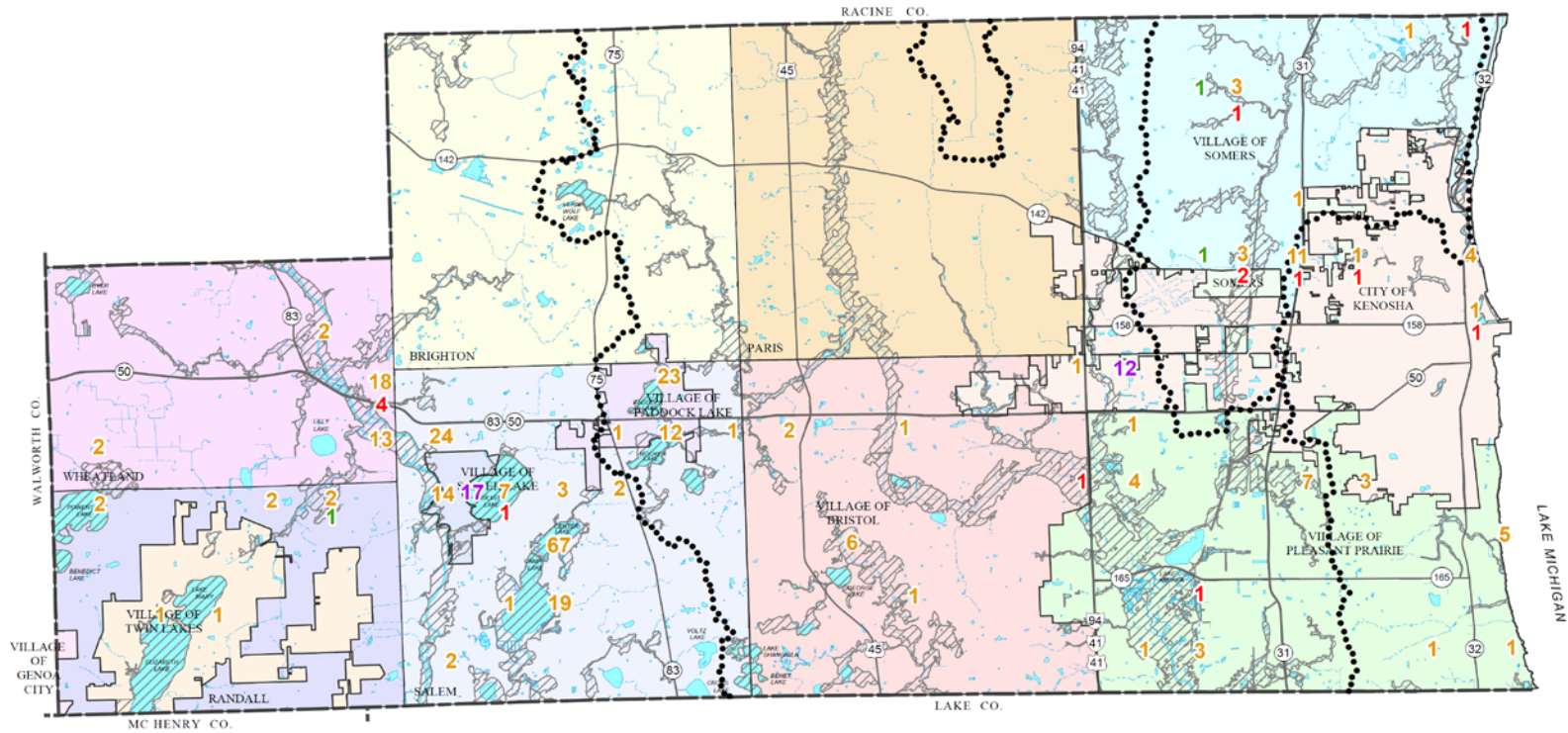
^cData reflect pipeline-related incidents from years 1976 through 2014 and transportation-related incidents from years 1971 through 2014.

^dIncidents have been reported, but no data available to calculate averages.






^eNo data available are available.

Map III - 2

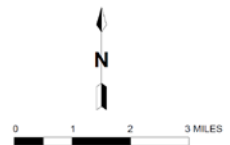
NUMBER OF STRUCTURES WITHIN FLOOD HAZARD AREAS BY CIVIL DIVISION IN KENOSHA COUNTY: 2015



- 281** RESIDENTIAL STRUCTURES WITHIN U.S. PUBLIC LAND SURVEY SECTION
- 14** COMMERCIAL STRUCTURES WITHIN SECTION
- 3** AGRICULTURAL STRUCTURES WITHIN SECTION
- 29** MOBILE HOMES WITHIN SECTION

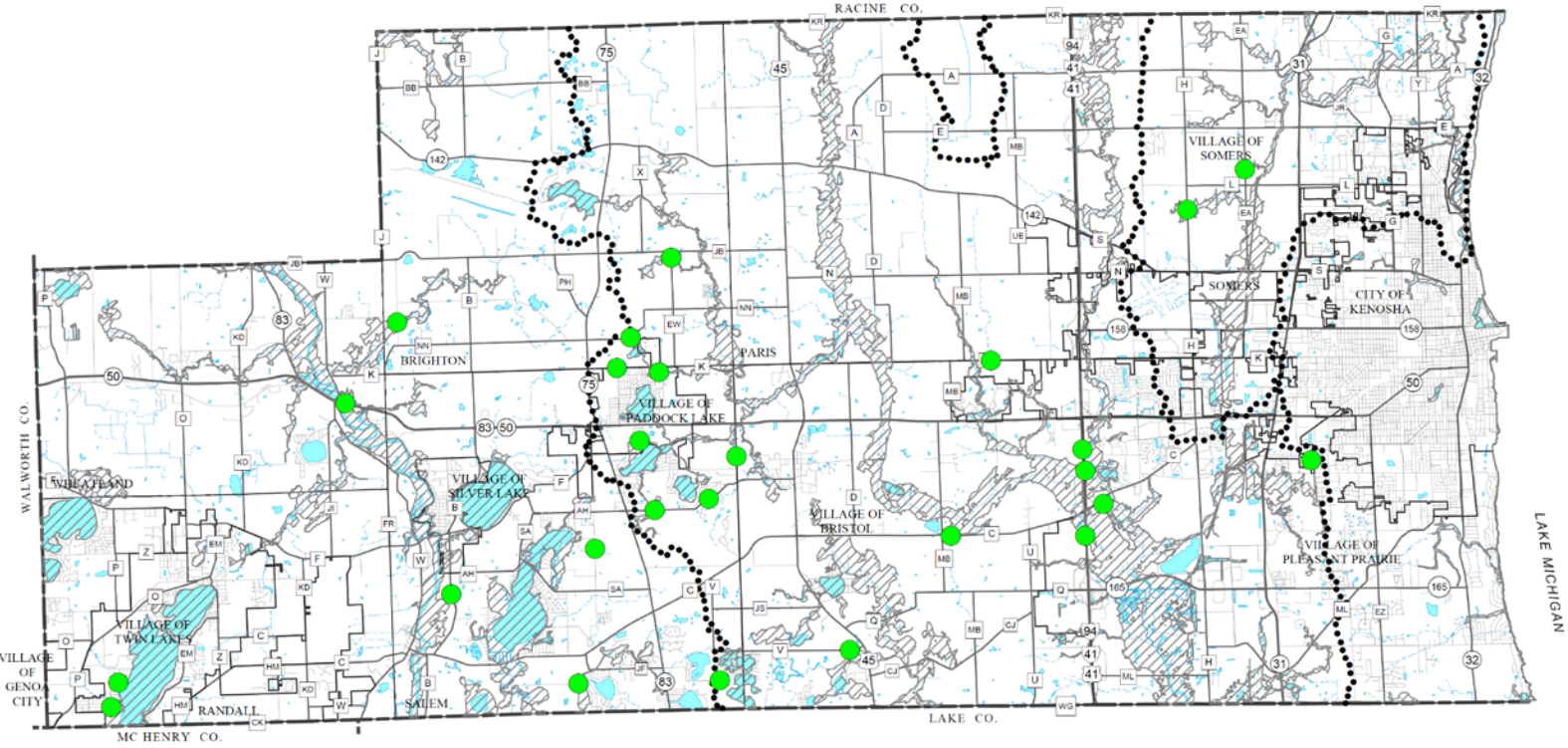
-  ONE-PERCENT-ANNUAL-PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAINS (2012)
-  SURFACE WATER
-  PERENNIAL STREAM
-  INTERMITTENT STREAM
-  MAJOR WATERSHED BOUNDARY

Source: Kenosha County and SEWRPC.



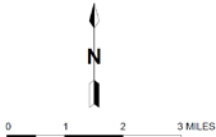
Map III - 6

ROADWAYS WITH REPORTED FLOODING IN KENOSHA COUNTY: 2015



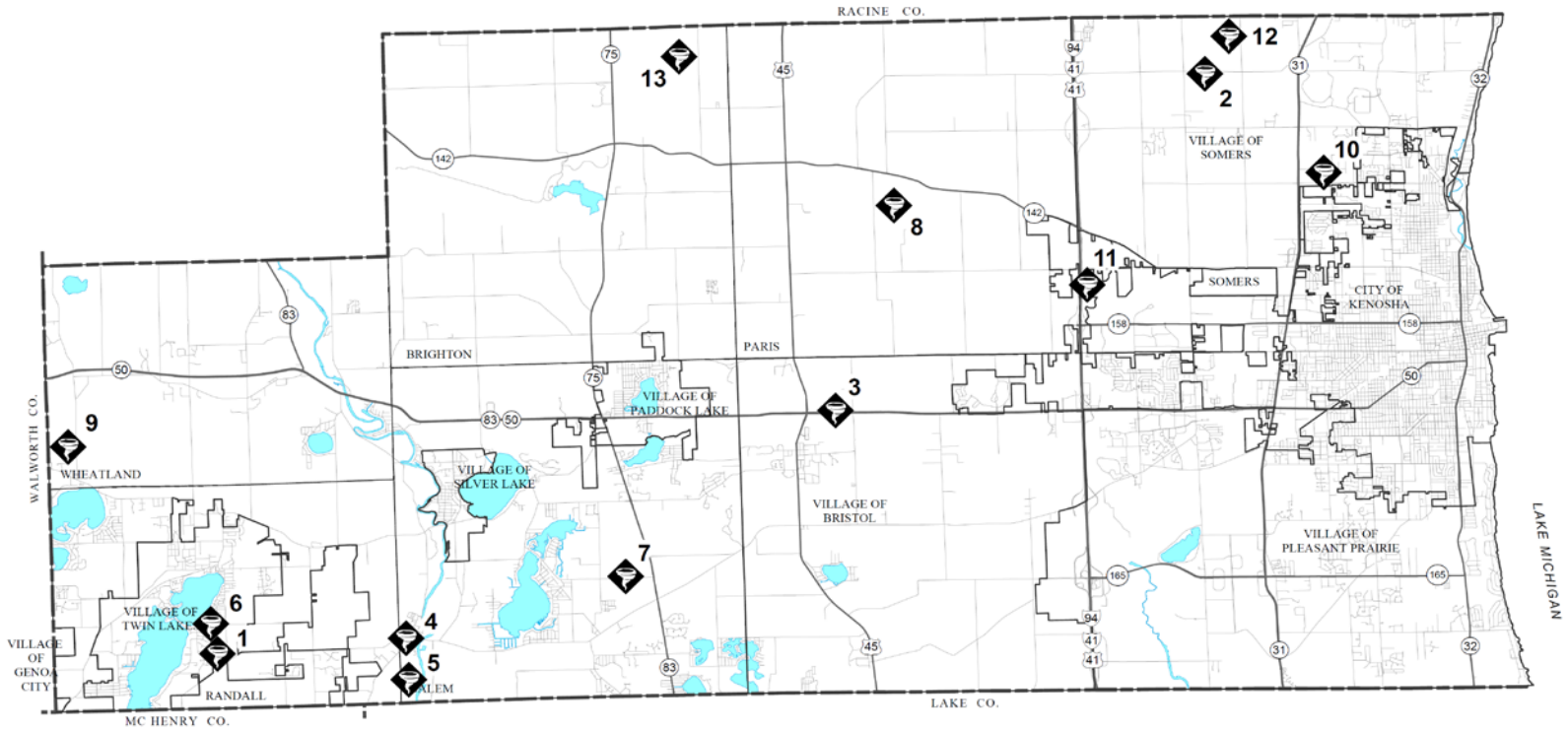
- REPORTED SITE OF ROAD FLOODING
- ONE-PERCENT-ANNUAL-PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAINS (2012)
- SURFACE WATER
- PERENNIAL STREAM
- INTERMITTENT STREAM
- MAJOR WATERSHED BOUNDARY

Source: SEWRPC.



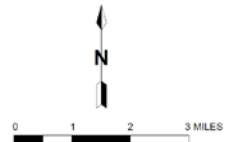
Map III - 8

TORNADO EVENTS IN KENOSHA COUNTY: JULY 1963 - DECEMBER 2014



 REPORTED TORNADO SIGHTING AND REFERENCE NUMBER (SEE TABLE III - 16)

Source: National Climatic Data Center and SEWRPC.



Hazard Mitigation Goals

(Chapter IV)

1. A spatial distribution of the various land uses that minimizes hazards and dangers to health, welfare, and safety as well as further enhancing the economic base of the County, and will result in a compatible arrangement of land uses properly related to the existing and proposed supporting transportation, utility, public safety, and public facility systems.
2. A spatial distribution of the various land uses that maintains biodiversity and will result in the protection and wise use of the natural resources of the County, including its soils, inland lakes and streams, groundwater, wetlands, woodlands, and natural areas and critical species habitats.

Hazard Mitigation Goals

3. An integrated transportation system that, through its location, capacity, and design, will safely, economically, and effectively serve the existing and proposed land use pattern and promote the implementation of the land use plan, meeting the current and anticipated travel demand and minimizing the potential for accidents and the associated toll on life and property damage.
4. The provision of facilities necessary to maintain a high quality of fire and police protection and emergency medical services throughout the County.

Hazard Mitigation Goals

5. The development of a stormwater and floodplain management system that reduces the exposure of people to drainage- and flooding-related inconvenience and to health and safety hazards and that reduces the exposure of real and personal property to damage through inundation resulting from flooding and inadequate stormwater drainage.
6. The identification of high erosion risk Lake Michigan shoreline areas and the development of a coastal erosion management program that reduces the exposure of people and real and personal property to shoreline erosion and bluff recession.

Hazard Mitigation Goals

7. The identification and development of programs that complement County and local emergency operations plans to mitigate the potential exposure to health and safety and the exposure of real and personal property resulting from a broad range of hazards that are unpredictable and not geographically specific in nature.
8. Communications interoperability throughout the County among all First Responders, so as to be able to quickly and effectively respond to any incident to prevent the loss of life and to save property.



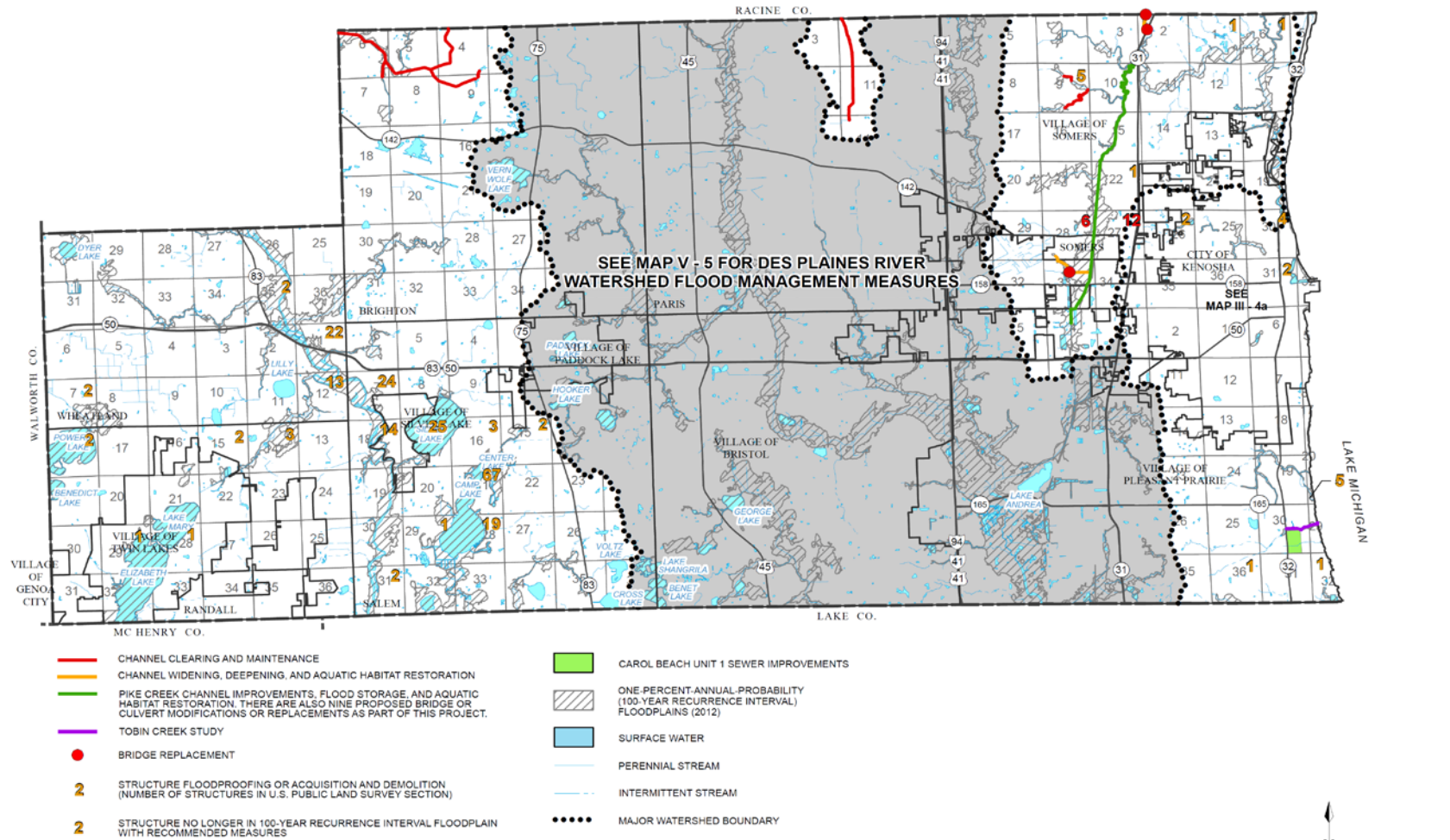
Development of Hazard Mitigation Strategies

(Chapter V)

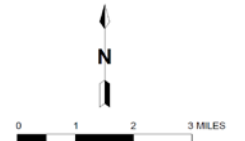
- Identified alternative strategies
 - Nonstructural, structural, public information and education
- Reviewed current programs
 - Federal and State, local
- Evaluation of alternatives and identification of mitigation actions
- Identified multi-jurisdictional considerations
- Select and set forth a revised set of priority mitigation measures

Map V - 4

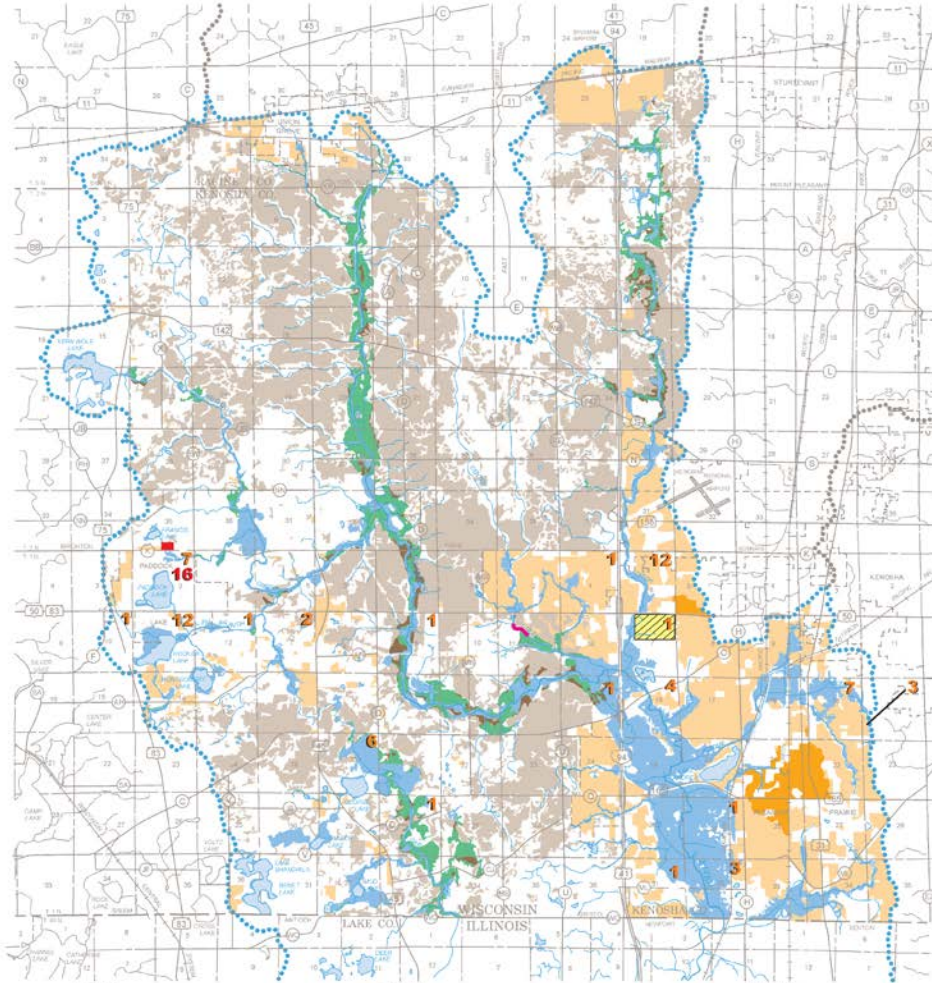
RECOMMENDED FLOODPLAIN MANAGEMENT MEASURES FOR THE KENOSHA COUNTY HAZARD MITIGATION PLAN: 2017



Source: SEWRPC.

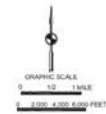


RECOMMENDED FLOODPLAIN AND STORMWATER MANAGEMENT MEASURES AND RECENTLY-COMPLETED PROJECTS FOR THE DES PLAINES RIVER WATERSHED



- ONE PERCENT ANNUAL PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAIN—PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS
- POTENTIAL WETLAND RESTORATION AREAS LOCATED WITHIN THE ONE PERCENT ANNUAL PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAIN
- POTENTIAL PRAIRIE RESTORATION AREAS LOCATED OUTSIDE THE ONE PERCENT ANNUAL PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAIN
- POTENTIAL PRAIRIE RESTORATION AREAS LOCATED WITHIN THE ONE PERCENT ANNUAL PROBABILITY (100-YEAR RECURRENCE INTERVAL) FLOODPLAIN
- AREAS OF PLANNED URBAN DEVELOPMENT WHERE DETENTION STORAGE WOULD BE PROVIDED
- MAJOR AREAS OF DEVELOPMENT SINCE 1990 THAT INCLUDE DETENTION STORAGE FACILITIES

- CHATEAU EAU PLAINES SOUTH-WEST POND STUDY AREA
- CHANNEL RIPRAP
- DETENTION FACILITY
- 2 STRUCTURE FLOODPROOFING OR ACQUISITION AND DEMOLITION (NUMBER OF STRUCTURES IN U.S. PUBLIC LAND SURVEY SECTION)
- 2 STRUCTURE NO LONGER IN 100-YEAR RECURRENCE INTERVAL FLOODPLAIN WITH RECOMMENDED MEASURES



The recommended floodland and stormwater management plan element calls for structure floodproofing, elevation, and removal; detention storage to control runoff from new development (100-year storm release rate=0.3 cfs/acre, two-year storm release rate=0.04 cfs/acre); prairie restoration on six square miles of agricultural land (20 percent of the potential restoration area); wetland restoration within floodlands (3.1 square miles); specific measures along Unnamed Tributary No. 6 to Brighton Creek and Unnamed Tributary No. 1 to Hooker Lake; and initiation of a monitoring program to assess sediment conditions along the Upper Des Plaines River.

Source: SEWRPC.

Flood Mitigation Strategies

Floodland and wetland zoning and zoning review

Preservation of open space and sensitive areas

Purchase, demolition, and removal or flood proofing of 277 structures

Channel cleaning, maintenance, or rehabilitation for selected streams

Stormwater management planning and regulation

Stormwater management facility maintenance

Restoration of prairies and wetlands

Survey of buildings near flood hazard areas



National Flood Insurance Program (NFIP) map updating

Continued participation in NFIP Community Rating Systems

Mitigation Strategies for Weather-related Hazards



Maintain early warning systems

NOAA Weather Radio, EAS broadcasting, HAZCollect

Public information and education

Identify and advertise shelters

Installation of community storm shelters at mobile home parks

Review and enforcement of building code requirements

Continued coordination of local government emergency operations and response plan

Mitigation Strategies for Human-induced Hazards

Public information and education

Driver safety, hazardous materials, public health, power outages

Continued coordination of emergency response

Governmental units, emergency responders

Continued support of training, equipping, planning, and preparedness for emergency responders



Plan Implementation

(Chapter VI)

- Updated estimates of mitigation measure costs
- Summarized benefits of implementing mitigation measures
- Designated lead management agencies
- Updated current implementation status
- Identified potential sources of funding





Approval and Adoption

- When a draft plan is complete
 - Incorporate comments
 - Review by Wisconsin Division of Emergency Management → Incorporate comments
 - Review and approval by FEMA → Incorporate comments
 - The plan will need to be adopted by:
 - Kenosha County Board
 - Governing bodies of the Cities and Villages in the County

Project Web Site

- <http://www.sewrpc.org/HMP>
 - Agendas and other meeting materials
 - Summary notes from meetings
 - Presentations
 - Draft chapters as they are completed
 - Comment screen
 - Other ways to send a comment
 - Please send comments by May 12, 2017
- Email to jboxhorn@sewrpc.org