



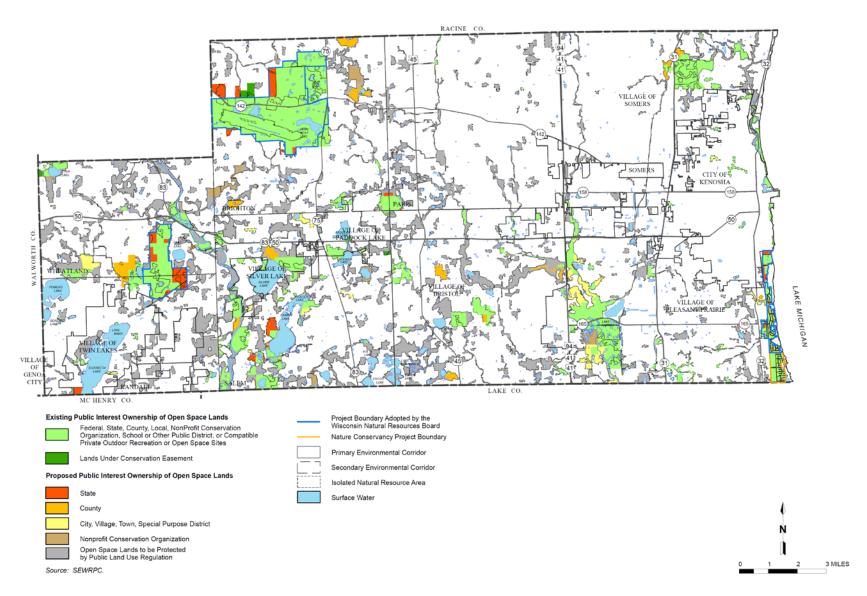
# Chapter V Overview

- Presents and evaluates alternative approaches to mitigating each hazard
- Identifies and recommends priority mitigation measures for each hazard
- Flooding section is organized by plan element and watershed
- Sections for other hazards follow a standard format
- Summary section looks at costs and benefits and prioritizes hazards

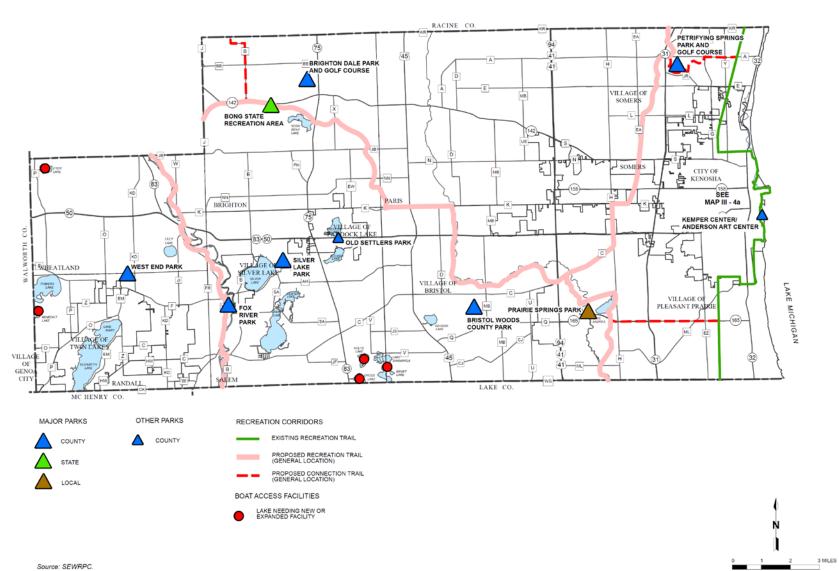
### **Hazard Sections**

- Most profiles follow a similar format
  - Identification of alternative mitigation strategies
    - Nonstructural, structural, public information and education
  - Review of current programs
    - Federal, State, and Local
  - Evaluation of alternatives and identification of mitigation actions
  - Multijurisdictional considerations
  - Priority mitigation measures

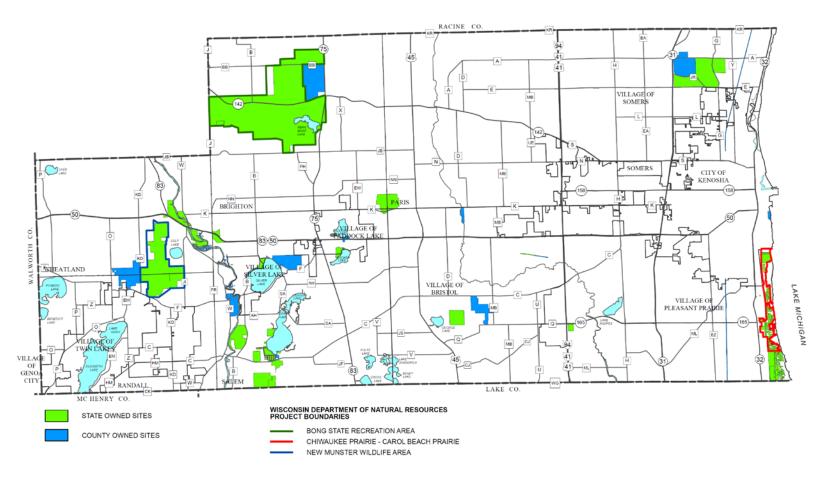
Map V - 1
OPEN SPACE PRESERVATION ELEMENT OF THE KENOSHA COUNTY PARK AND OPEN SPACE PLAN: 2035



Map V - 2
OUTDOOR RECREATION ELEMENT OF THE KENOSHA COUNTY PARK AND OPEN SPACE PLAN: 2035



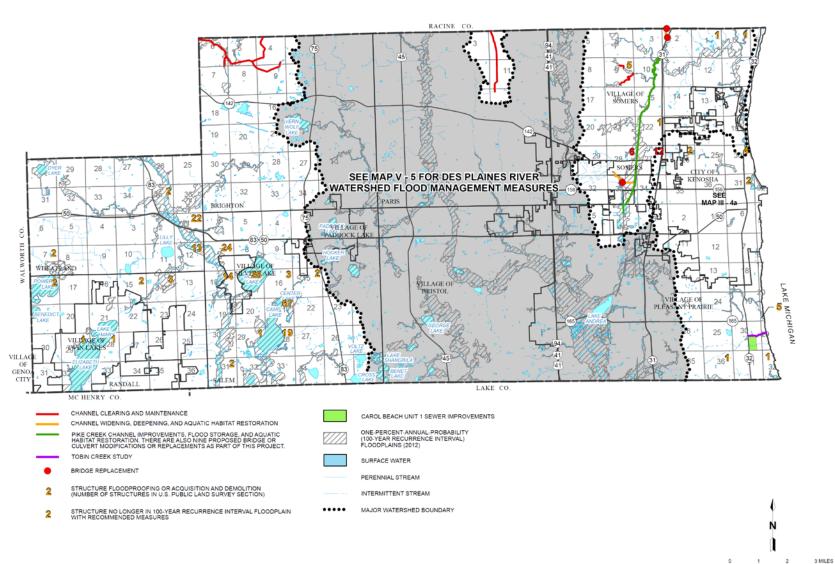
Map V - 3
KENOSHA COUNTY AND STATE OF WISCONSIN PARK AND OPEN SPACE SITES: 2016





Map V - 4

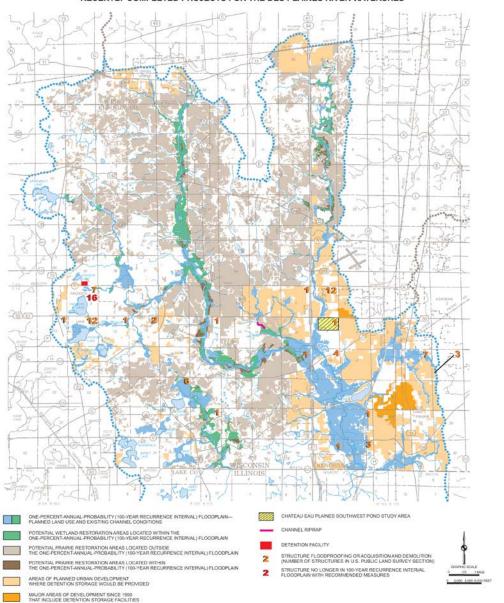
RECOMMENDED FLOODPLAIN MANAGEMENT MEASURES FOR THE KENOSHA COUNTY HAZARD MITIGATION PLAN: 2017



Source: SEWRPC.

Map V - 5

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



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=0.4 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.

Table V-8

COST-BENEFIT ANALYSIS SUMMARY OF MEASURES INCLUDED IN THE KENOSHA COUNTY HAZARD MITIGATION PLAN

		Estimat	ed Cost <sup>a</sup>	Ir	Costs of mplementation	<sub>1</sub> b	Estimated	Direct Benefits					
Hazard	Mitigation Measures	Capital (thousands of dollars)	Average Annual Operation and Maintenance (thousands of dollars)	Low	Moderate	High	Average Annual Benefits from Flood Damage Reduction (thousands of dollars) <sup>C</sup>	Enhanced Preparedness/ Protection	Reduced Property Damage	Reduced Injuries	Reduced Mortalities	Indirect Benefits <sup>d</sup>	Community/Jurisdictions Affected
Flooding and Related Stormwater	Floodland and Environmentally Sensitive Land Preservation Element												
Drainage Problems <sup>e</sup>	Floodplain and wetland zoning	g	. <u>.</u> g	×			•	x	х	x	×	5	Kenosha County; City of Kenosha; Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, Somers, and Twin Lakes; and Towns of Brighton, Paris, Randall, Salem, Somers, and Wheatland
	Environmentally sensitive area and open space preservation actions	20,940.2 <sup>i</sup>	. J	-	•	×	•	X	Х			4	Kenosha County; City of Kenosha; Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, Somers, and Twin Lakes; and Towns of Brighton, Paris, Randall, Salem, Somers, and Wheatland
	Floodland Management Plan Element Fox River Watershed												
	Removal of 203 structures <sup>f,k,l</sup>	31,010.2				×	600.4	×	×	×	x	5	Kenosha County; Villages of Silver Lake and Twin Lakes; and Towns of Randall, Salem, and Wheatland
	Elizabeth Lake spillway modifications	121.0			×			×				4	Village of Twin Lakes
	Hoosier Creek and tributaries brush clearing	302.4			x			×	X			3	Village of Brighton
	Root River Watershed <sup>m</sup> Channel clearing along 2 miles of East Branch Root River Canal	62.2	1.9	×			•	×	x			3	Kenosha County and Town of Paris
	Pike River Watershed <sup>n</sup> • Upper Pike River— channel widening/deepening	163.6	0.7		x			х	х			3	Kenosha County, Village of Somers, and Town of Somers
	Upper Pike River—     bridge replacements	1,169.0			-	×		×	×			3	Kenosha County <mark>, Village of Somers,</mark> and Town of Somers
	Upper Pike River—     aquatic habitat     restoration	85.8		×					X			3	Kenosha County, Village of Somers, and Town of Somers
	Watershedwide—removal of eight structures <sup>1, K</sup> , I	1,222.1				х	38.4	×	×	×	х	5	Kenosha County, City of Kenosha, Village of Somers, and Town of Somers

Table N-1

PRIORITIZATION OF MOBILE HOME PARKS IN
KENOSHA COUNTY FOR INSTALLATION OF COMMUNITY SAFE ROOMS

Park	Municipality	ID on Map II-7	Park Size	Proximity to Shelter	Shelter Capacity	Special Needs	Safety Advice	Total Score	Priority
Rainbow Lakes Manor	Village of Bristol	2	4	2	2	1	1	10	High
City View Manufactured Home Communities	Village of Pleasant Prairie	15	2	1	2	1	1	7	High
Wheatland Estates Mobile Home Court	Town of Wheatland	21	2	2	2	0	1	7	High
Oakdale Estates	Town of Somers	23	2	2	2	0	1	7	High
Westwood Mobile Home Park	Village of Pleasant Prairie	17	4	1	2	0	0	7	High
Lakewood Estates Mobile Home Park	Town of Salem <sup>a</sup>	18	0	1	2	1	1	5	Medium
Bristol Heights	Village of Bristol	1	0	2	2	0	1	5	Medium
Kenosha Estates	Village of Somers	3	0	2	2	0	1	5	Medium
Prairie Lake Estates	City of Kenosha	12	1	1	2	0	1	5	Medium
Shorecrest Pointe Mobile Home Park	City of Kenosha	14	1	1	2	0	1	5	Medium
Timber Ridge Manufactured Home Park	Village of Pleasant Prairie	16	2	1	2	0	0	5	Medium
Shady Nook Mobile Home Park	Town of Brighton	22	0	2	2	0	1	5	Medium
Kenosha Estates	Village of Somers	5	0	1	2	0	1	4	Low
Pleasant Prairie Mobile Home Park	Town of Somers	11	0	1	2	0	1	4	Low
Scotty's Mobile Home Park	Village of Pleasant Prairie	13	0	1	2	0	1	4	Low
Lake Crest Mobile Home Park	Village of Silver Lake <sup>a</sup>	19	1	0	2	0	1	4	Low
Oakwood Mobile Home Community	City of Kenosha	9	3	0	0	0	0	3	Low
Carefree Estates	Town of Salem <sup>a</sup>	20	2	0	0	0	1	3	Low
Maple Lane Mobile Home Park	City of Kenosha	6	1	0	0	0	1	2	Low
Nelson's Hillcrest Mobile Home Park	Village of Somers	8	0	1	0	0	1	2	Low
Alpine Mobile Home Park	City of Kenosha	4	0	0	0	0	1	1	Low
Mid-City Mobile Home Park	Village of Somers	7	0	0	0	0	1	1	Low

<sup>&</sup>lt;sup>a</sup>On November 21, 2016 the Wisconsin Department of Administration approved a cooperative plan submitted by the Village of Silver Lake and the Town of Salem. Effective February 14, 2017 the two municipalities merged to become the Village of Salem Lakes. As of February 14, 2017, the plan implementation responsibilities for the Village of Salem Lakes.

Source: SEWRPC.

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	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 <sup>b</sup>	3,554.7	21.45	1,939.50	1,960.95	1
3	Thunderstorms, High Wind, Hail, and Lightning		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- <mark>2014</mark>	0.2	0.00	0.29	0.29	4
8	Hazardous Material Incidents	1971-2014 <sup>C</sup>	1.4	0.08	0.12	0.20	5
2	Winter Storms	1994- <mark>2014</mark>	<b>5.0</b>	0.00	0.01	0.01	<mark>6</mark>
10	Fog	1999- <mark>2014</mark>	4.8	0.00	0.00	0.00	7
<mark>5</mark>	Flooding	1993- <mark>2014</mark>	2.1	0.00	0.00	0.00	8
12	Terrorism Incidents	2000- <mark>2014</mark>	0.3	0.00	0.00	0.00	9
13	Drought	2002- <mark>2014</mark>	0.3	0.00	0.00	0.00	10
9	Lake Michigan Coastal Erosion	1975-1995	1.1 (feet of erosion	0.00 <sup>d</sup>	0.00 <sup>d</sup>	0.00 <sup>d</sup>	11
_			per year) d				
7	Power Outages		a	d	d	d	12
11	Fires	d	a	a	d	d	13
14	Contamination or Loss of Water Supply		e	e	e	e	14

<sup>&</sup>lt;sup>a</sup>These 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.

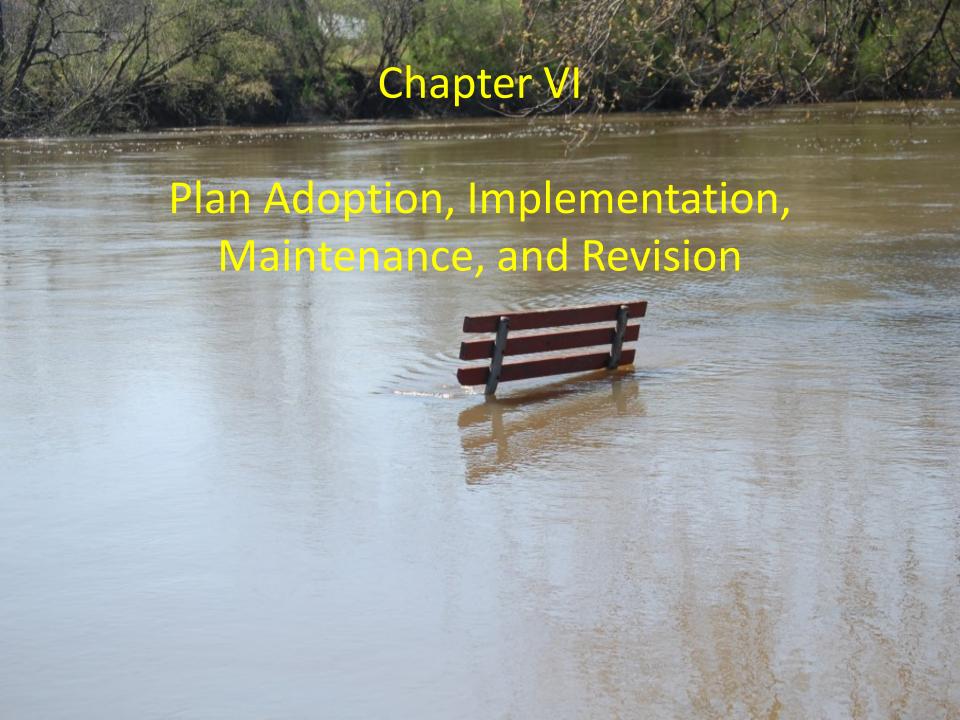
Source: National Climatic Data Center; U.S. Department of Transportation, Office of Pipeline Safety; Wisconsin Department of Transportation; Kenosha County Division of Emergency Management; and SEWRPC.

<sup>&</sup>lt;sup>b</sup>Data reflect automobile accidents from years 1999 through 2013 and railroad accidents from years 1975 through 2014.

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.

<sup>&</sup>lt;sup>e</sup>No data available are available.



## **Chapter VI Overview**

- Plan refinement, review, and adoption
- Plan implementation strategies
- Funding sources
- Plan monitoring and reevaluation strategies
  - Annual review
  - Post-disaster review

Table VI-1

KENOSHA COUNTY HAZARD MITIGATION PLAN SUMMARY AND IMPLEMENTATION STRATEGIES

		Fatimated O	a		
		Estimated Co			
Hazard	Mitigation Measures	Capital (thousands of dollars)	Average Annual Operation and Maintenance (thousands of dollars)	Plan Implementation Schedule	Potential Funding Programs (see Appendix J)
Flooding and Related	Floodland and Environmentally Sensitive Land Preservation Element				
Stormwater Drainage Problems	Floodplain and wetland zoning	b	b	Plan implementation is in place; some review and refinement needed in local community ordinances	1,2,5,11,16,18,36,37,39,40,44,46,47,49
	Environmentally sensitive area and open space preservation actions	\$20,940.2 <sup>c</sup>	c	Plan implementation is in place or ongoing; additional actions needed in some areas	1,2,5,6,7,9,10,12,13,15,17,18,19,24,33,35, 36,37,38,39,42,45,46,47,50,55,59,62
	Floodland Management Plan Element				
	Fox River Watershed <sup>d</sup>				1,2,5,6,7,9,10,12,17,19,23,24,35,36,37,38,
	Removal of 203 structures <sup>e</sup>	\$31,010.2	••	Ongoing in the Village of Silver Lake and the Towns of Salem and Wheatland	47,59
	Elizabeth Lake spillway modifications	121.0		Implemented	
	Hoosier Creek and tributaries brush clearing	302.4		First assessment December 2009	
	Root River Watershed <sup>9</sup>				
	Channel clearing along two miles of the East Branch Root River Canal	\$62.2	\$1.9	To be determined	1,2,5,6,7,8,9,10,12,13,17,18,19,36,37,38, 50
	Pike River Watershed <sup>h</sup>				
	Upper Pike River: channel widening/deepening	\$163.6	\$0.7	To be determined	1,2,5,6,7,9,10,12,17,19,23,33,34,36,37,38, 51,62,63,64
	Upper Pike River: bridge replacements	1,169.0		To be determined	51,62,63,64
	Upper Pike River: aquatic habitat restoration	85.8		To be determined	
	Watershedwide: removal of eight structures <sup>e</sup>	1,222.1		To be determined	
	<ul> <li>Pike Creek: channel improvements, floodwater detention storage, bridge replacements, and aquatic habitat restoration</li> </ul>	14,679.1	24.6	To be determined	
	<ul> <li>Airport Branch and Tributary to Airport Branch: channel improvements, bridge replacement, and aquatic habitat restoration</li> </ul>	2,439.3	1.9	To be determined	
	Somers Branch and tributary: channel cleaning	20.6		Implemented	
	Pike River Town of Somers flood mitigation repair work	30.7		Implemented	
	Des Plaines River Watershed <sup>i</sup>				
	<ul> <li>Provision of onsite detention storage facilities for planned new development</li> </ul>	\$59,889.4 <sup>j</sup>	\$573.2	Ongoing	1,2,5,6,12,15,16,23,33,34,36,37,38,39,42, 45,50,51,59,62,63
	Restoration of prairie conditions <sup>k</sup>	23,685.7	30.5 to 2,151.5	To be determined	
	Restoration of wetland conditions <sup>k</sup>	10,468.6	16.1 to 1,107.9	To be determined	
	Land rental cost for restored wetlands and prairies		1,027.6	2nd level planning in progress	
	Floodproofing of 42 residential, commercial, and agricultural structures <sup>e</sup>	988.5		To be determined	

Table VI-2 SUMMARY OF KENOSHA COUNTY HAZARD MITIGATION MEASURES AND PRIMARY IMPLEMENTING GOVERNMENTAL UNITS AND AGENCIES

Mitigation Measures	Kenosha County	City of Kenosha	Village of Bristol	Village of Paddock Lake	Village of Pleasant Prairie	Village of Silver Lake <sup>a</sup>	Village of Somers	Village of Twin Lakes	Town of Brighton	Town of Paris	Town of Randall	Town of Salem <sup>a</sup>	Town of Somers	Town of Wheatland
Floodland and Environmentally Sensitive Land Preservation Element														
Floodplain and wetland zoning	KCPD, KCB	CKDCD, CKCC	VBPC, BVB	PLPC PLVB	PPPC, PPVB	SLPC, SLVB	VSPC, SVB	TLPC, TLVB	KCPD, KCB	KCPD, KCB	KCPD, KCB	KCPD, KCB	KCPD, KCB	KCPD, KCB
Environmentally sensitive area and open space preservation actions	KCPW	CKDCD, CKPK	VBPC, VBPK	PLPC, PLPK	PPPC, PPPAC	SLPC, SLPW	VSPC, VSPK	TLPC, TLPK	TBPC	TPPC	RPB, RPK	TSPLU, TSPK	SOPC, SOPK	WPLZ
Floodland Management Plan Element														
Fox River Watershed <sup>b</sup> Removal of 203 structures	KCHA													
<ul> <li>Elizabeth Lake spillway modifications</li> </ul>							•	TLPRD						
Hoosier Creek and tributaries brush clearing							•		RCBDC					
Root River Watershed <sup>C</sup> • Channel clearing along the East Branch Root River Canal	RCBDC													

NOTE: Agency abbreviations in the table are as follows:

BVB	Bristol Village Board	PLPK	Village of Paddock Lake Parks Department	RPK	Town of Randall Park Board	TBPC	Town of Brighton Planning Commission	TSPLU	Town of Salem Planning and Land Use
CKCC	City of Kenosha Common Council	PLVB	Paddock Lake Village Board	SLPC	Village of Silver Lake Planning Commission	TLPC	Village of Twin Lakes Planning Commission	VBPC	Village of Bristol Planning Commission
CKDCD	City of Kenosha Department of City Development	PPPAC	Village of Pleasant Prairie Parks Commission	SLPW	Village of Silver Lake Sanitary Sewer and Public Works Department	TLPK	Village of Twin Lakes Board of Park Commissioners	VBPK	Village of Bristol Parks Department
KCB	Kenosha County Board	PPPC	Village of Pleasant Prairie Planning Commission	SLVB	Silver Lake Village Board	TLPRD	Twin Lakes Lake Protection and Rehabilitation District	VSPC	Village of Somers Park Committee
KCHA	Kenosha County Housing Authority	PPVB	Pleasant Prairie Village Board	SOPC	Town of Somers Planning Commission	TLVB	Twin Lakes Village Board	VSPK	Village of Somers Planning Commission
KCPD	Kenosha County Department of Planning and Development	RCBDC	Racine County Board of Drain Commissioners	SOPK	Town of Somers Parks Commission	TPPC	Town of Paris Planning Commission	WPLZ	Town of Wheatland Planning and Zoning Commission
PLPC	Village of Paddock Lake Planning Commission	RPB	Town of Randall Planning Board	SVB	Somers Village Board	TSPK	Town of Salem Parks Commission		

#### SEWRPC Community Assistance Planning Report No. 278-3ED

#### KENOSHA COUNTY HAZARD MITIGATION PLAN UPDATE: 2016-2020

### Appendix J

# POTENTIAL FUNDING PROGRAMS TO IMPLEMENT PLAN RECOMMENDATIONS

#### FUNDING PROGRAM DESCRIPTIONS

Reference Number	Administrator of Grant Program	Name of Funding Program	Eligibility	Types of Projects and Funding Eligibility Criteria	Assistance Provided	Application Deadline
1	U.S. Federal Emergency Management Agency (FEMA)	Hazard Mitigation Grant Program	State agencies and participating National Flood Insurance Program (NFIP) communities, private nonprofit organizations	Floodproofing     Relocation     Elevation of structures     Property acquisition     Safe room construction	75 percent Federal cost-share assistance: 12.5 percent State match and 12.5 percent local match required <sup>a</sup>	Within 60 days of a Presidential disaster declaration
2	FEMA	Flood Mitigation Assistance Grant Program	State agencies and participating NFIP communities	Elevation, relocation, or demolition of insured structures     Acquisition     Dry floodproofing     Minor structural projects     Beach nourishment activities	\$ 20 million available nationally. <sup>D</sup> 75 percent Federal cost-share assistance; 25 percent local match required; two types of grants: Planning grant and project grant <sup>D</sup>	Varies
3	FEMA	Homeland Security Preparedness Technical Assistance Program	State and local governments	Implementation of National Infrastructure Protection Plan     Strengthen chemical, biological, radiological, nuclear, and explosive detection, response, and decontamination capability	No statutory matching requirements. Amounts awarded vary based on the scope of the project	Varies
4	FEMA	National Training and Education Division	State and local first responders	Provides preparedness training and exercise support to first responders in the event of a weapons of mass destruction event     Provides assistance for local units of government to obtain terrorism readiness equipment	Provides over 150 training courses for first responders	Varies

#### SEWRPC Community Assistance Planning Report No. 278-3ED

#### KENOSHA COUNTY HAZARD MITIGATION PLAN UPDATE: 2016-2020

### Appendix K

### **FUNDING PROGRAMS CONTACT INFORMATION**<sup>a</sup>

Administrator of Grant Program	Name of Grant Program	Address	Phone Number	Internet Web Address
Federal Emergency Management Agency (FEMA)	Hazard Mitigation Grant Program Public Assistance Program	Federal Emergency Management Agency Region V 536 South Clark Street, 6th Floor Chicago, IL 60605	(312) 408-5500	https://www.fema.gov/hazard-mitigation-grant-program https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit
FEMA	Flood Mitigation Assistance Grant Program Pre-Disaster Mitigation Program	Headquarters: Federal Emergency Management Agency Federal Insurance & Mitigation Administration 500 C Street, SW Washington, DC 20472	(202) 646-2500	https://www.fema.gov/flood-mitigation- assistance-grant-program https://www.fema.gov/pre-disaster-mitigation- grant-program
U.S. Army Corps of Engineers (USACE)	Small Flood Damage Reduction Program Snagging and Clearing for Flood Control Emergency Bank Protection Program Water Resources Development and Flood Control Act Small Hurricane and Storm Damage Reduction Program Flood Hazard Mitigation and Aquatic Riverine Ecosystem Restoration Program	U.S. Army Corps of Engineers 231 S. LaSalle Street, Suite 1500 Chicago, IL 60604 U.S. Army Corps of Engineers 477 Michigan Avenue, Room 617 Detroit, MI 48226	(312) 846-5330 (313) 226-6760	www.usace.army.mil
U.S. Department of Agriculture (USDA)	Watershed Protection and Flood Prevention Program	Headquarters: Department of Agriculture Natural Resources Conservation Service 1400 Independence Avenue SW Washington, DC 20113	(202) 720-3413	https://www.nrcs.usda.gov/wps/portal/nrcs/main /national/programs/landscape/wfpo/
USDA	Water and Waste Disposal Systems for Rural Communities	U.S. Department of Agriculture Rural Utilities Service Water and Environmental Programs Room 4050-S, Stop 1548 1400 Independence Avenue, SW Washington, DC 20250	(202) 690-2670	https://www.rd.usda.gov/programs- services/water-waste-disposal-loan-grant- program

### Public Meeting on Hazard Mitigation Plan

- May 2, 2017
  - 6:00 pm
  - Kenosha County Center
- Review the plan update
- Seek public input
  - Answer questions
  - Mitigation measures and projects
  - Comments on draft plan

# Remaining Effort on Plan Update

- Public Meeting
- Review by the Wisconsin Division of Emergency Management
  - Any necessary revisions
- Review by the Federal Emergency Management Agency
  - Any necessary revisions
- Formal adoption by the Kenosha County Board
  - Covers the Towns
- Formal adoption by the governing bodies of the incorporated municipalities of the County

## Project Web Site

- http://www.sewrpc.org/HMP
  - Agendas and other meeting materials
  - Summary notes from meetings
  - Presentations
  - Draft of the plan report
  - Comment screen
  - Other ways to send a comment

Email to jboxhorn@sewrpc.org