Clark County
Multi-Hazard Mitigation Plan
2026-2031









Draft – 10/16/26

WCWRPC
WEST CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

CLARK COUNTY
MULTI-HAZARD MITIGATION PLAN
2026-2031

PREPARED BY:

Clark County Multi-Hazard Mitigation Plan Steering Committee
Clark County Emergency Management
Clark County communities

WITH ASSISTANCE BY:

West Central Wisconsin Regional Planning Commission

ADOPTED MONTH XX, 2026
BY THE CLARK COUNTY BOARD OF SUPERVISORS

<INSERT FEMA acceptance letter(s) here once approved>

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CLARK COUNTY MITIGATION PLAN SUPPLEMENT SECTIONS

The *Plan Supplement* is a supporting document that contains additional data and analysis of the hazard threats facing the County, capabilities to mitigate these threats, and other related documentation. For purposes of meeting FEMA mitigation planning requirements, the main Mitigation Plan document and the Plan Supplement, together, constitute Clark County's Multi-Hazard Mitigation Plan.

Note: References to Sections herein (e.g., Section III.C.) are referring to chapters of the main document. References to chapters within the Supplement are identified as Plan Supplement #s (e.g., Plan Supplement 1.C.).

SUPPLEMENT 1. COMMUNITY PROFILE

A. Natural Features and Environment
B. Demographic and Economic Profile
C. Fire and First Responder Service Areas
D. Transportation Systems
E. Historical Resources

SUPPLEMENT 2. ADDITIONAL HAZARD ASSESSMENT INFORMATION

A. Description of Natural Hazards of No Significant Risk
B. Hazards Addressed in Other Plans
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M. Active Threats
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A. Capability Assessment Table
B. Progress on 2020 Mitigation Plan Recommendations
C. Evaluating Mitigation Strategy Alternatives
D. Recommended County-Level Preparedness Actions

SUPPLEMENT 4. OTHER REFERENCE INFORMATION

A. Stakeholder & Public Involvement
B. Incorporation of Related Plans, Reports, and Data
C. Summary of Plan Changes since 2020 Mitigation Plan
D. Potential State & Federal Grant Programs for Mitigation Projects

SUPPLEMENT 5. CITY & VILLAGE SUB-PLANS

SUPPLEMENT 6. PUBLIC EDUCATIONAL INSTITUTION SUB-PLANS

SECTION I. INTRODUCTION

A. PURPOSE OF THE PLAN

The *Clark County Multi-Hazard Mitigation Plan* has been prepared with financial support due to the County's application for, and award of, Building Resilient Infrastructure & Communities (BRIC) mitigation planning funds (Project #EMC-2023-BR-004-0027); the sub-grant was awarded in December 2024. These funds are disbursed by the Federal Emergency Management Agency (FEMA) through Wisconsin Emergency Management (WEM).

> The Code of Federal Regulations states...
>
> "The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards."
>
> (44 CFR Part 201.6, pp 8851)

Mitigation is a long-term action that minimizes or prevents losses or damage due to a significant risk. The primary purpose of this plan is to evaluate the County's risks, vulnerabilities, and capabilities related to natural disasters and identify appropriate mitigation strategies. After evaluating the disaster threats facing Clark County, County Emergency Management determined that the plan update should continue to include select non-natural hazards. This plan also includes some discussion of preparedness capabilities and recommendations.

Completion and approval of this plan will continue to make Clark County and participating jurisdictions eligible to apply for future FEMA hazard mitigation project funds for a five-year period until the next full hazard mitigation plan update.

The Clark County Emergency Management Coordinator is the primary contact regarding this mitigation plan.

B. PLANNING PROCESS

To fully meet FEMA mitigation planning requirements, the mitigation planning update for Clark County consists of two primary documents:

1. The ***Clark County Multi-Hazard Mitigation Plan*** (this document), which covers the most important aspects of the County's trends, hazard assessment, capabilities, and strategies.
2. The ***Clark County Multi-Hazard Mitigation Plan Supplement*** *(or Mitigation Plan Supplement)*, which contains additional data, analysis, and information related to the plan update, including the sub-plans by participating jurisdictions (i.e., city, villages, public educational institutions).

Clark County contracted with West Central Wisconsin Regional Planning Commission (WCWRPC) to facilitate this update to the County's hazards mitigation plan previously approved by FEMA and adopted by the County Board in December 2020. This previous plan will be referred to as the **2020 Plan** in this update, while the update will be referred to as the **2026 Plan**.

Update of the *Clark County Multi-Hazard Mitigation Plan* (the "2026 Plan") meets the planning requirements and guidance provided by the Federal Emergency Management Agency (FEMA)[1] and the Wisconsin Department of Military Affairs, Wisconsin Emergency Management at the time of the grant award.[2] As such, the 2026 Plan meets the requirements of the Disaster Mitigation Act of 2000. The 2026 Plan's scope is inclusive of all of Clark County and is considered a multi-jurisdictional plan under Federal guidelines. For this plan update, public educational institutions with facilities within Clark County were also invited to be full participants, which is discussed in Section I.C.

To guide the plan's update, Clark County utilized the County's Local Emergency Preparedness Committee as the plan update steering committee representing a broad range of public, private, and non-profit stakeholder organizations shown in **Table 1.** In addition to bringing insight into their respective roles, the Committee members also are very knowledgeable of the issues and concerns of the County's residents, vulnerabilities, community lifelines, industry, and response agencies. The Committee provided input on the planning process, reviewed information and materials, discussed capabilities and related plans, set plan goals, and prioritized hazard risks and mitigation strategies.

Table 1. Clark County Hazard Mitigation Plan Steering Committee

Name	Representative of:
DuWayne Trunkel	LEPC Chairman; County Board & Town of Hendren
Kerry Kirn	Clark County Sheriff's Department
Jason Thornton	Clark County Emergency Management
Mary Roman	Clark County Emergency Management
Jim Hirsch	Clark County Sheriff's Department
Brent Leech	Thorp Fire and EMS
Christopher Keller	Sanford-MMC-Neillsville
Brittany Mews	Clark County Health Department
Kelsey Wussow	Clark County Health Department
Brian Duell	Clark County Hwy Dept
Jason Lemke	Abbyland Foods
Dale Erickson	WCCN Radio
Dean Lindner	Grassland Dairy
Jenny Legaspi	American Red Cross
Luong Huynh	American Red Cross- Alternate

Update of the plan began, in earnest, in July 2025 following the general stages of plan development shown in **Figure 1** at the end of this section. Primary local engagement activities during the planning process are discussed in Section I.C. and I.D. A summary of plan changes since the 2020 Plan is provided in Section IV.D. of the ***Mitigation Plan Supplement***, and includes a brief synopsis of how the Steering Committee considered each section of the plan.

[1] Federal Emergency Management Agency, Local Mitigation Planning Policy Guide. FP 206-21-0002, April 19, 2022.

[2] Wisconsin Emergency Management, Resource Guide to All Hazards Mitigation Planning in Wisconsin. April 2003. and WEM Local Mitigation Planning Handbook. February 7, 2023.

With consideration of national, regional, and local hazard risks and vulnerabilities, the Steering Committee agreed that the 2026 Plan should continue to focus on the same hazard threats, except:

- The risk assessment for wind storms is combined with tornados due to the very similar vulnerabilities and the frequent inability to distinguish between the two event types at the local level.
- Expanded hazard assessment sections should be added for cyber-attack and active threats; there was limited discussion in the 2020 Plan on these threats.

Similar to the 2020 Plan, communicable disease continues to be largely addressed by other plans and is more briefly discussed within Section II.B. of the Mitigation Plan Supplement. In addition to the Steering Committee meetings, community input during the planning process was gathered through meetings, interviews, surveys, and the review of other pertinent plans as will be discussed later in this section. In August 2026, the full draft plan was released for public review and submitted to Wisconsin Emergency Management (WEM) for pre-review. Copies of adopting resolutions/letters for all plan participants are included in **Section VII**.

C. PLAN PARTICIPANTS

The *Clark County Multi-Hazard Mitigation Plan* is a multi-jurisdictional plan and encompasses all incorporated and unincorporated jurisdictions within Clark County, except for:

- The City of Stanley, which is primarily located in Chippewa County and is covered under the Chippewa County mitigation plan.
- The Village of Unity, which is primarily located in Marathon County and is covered under the Marathon County mitigation plan.

The following units of government and public educational institutions actively participated in the plan update and have adopted the 2026 Plan:

County Government
Clark County
Cities & Villages (incorporated municipalities)
Village of Curtiss
Village of Dorchester
Village of Granton
Village of Withee
City of Abbotsford
City of Colby
City of Greenwood
City of Loyal
City of Neillsville
City of Owen
City of Thorp

Public Educational Institutions
School District of Abbotsford
Colby School District
Granton Area School District
School District of Neillsville

Portions of the Village of Dorchester, City of Abbotsford and City of Colby lie within Marathon County; this hazard mitigation plan (and their respective sub-plans) include these communities in their entirety. For the 2026 Plan update, all public school districts serving Clark County were invited to be full participants for the first time. Clark Electric Cooperative and Jackson Electric Cooperate are the primary non-profit electric cooperative serving the County and also actively participated, though other electric cooperatives do provide some service within the County.

All participating jurisdictions in Clark County were actively involved in the planning process:

- The Steering Committee included representation from different areas in the County. The Committee, supplemented by the stakeholder interviews/meetings listed in Supplement 4.A. was largely responsible for providing the county-level input into the 2026 Plan update.
- WCWRPC conducted an interview meeting with each participating village and city on the planning effort, and input was obtained on changes since the 2020 Plan, including hazard issues/trends, vulnerabilities, community lifelines, progress on 2020 strategies, barriers to implementation, updated plan recommendations, and community engagement. Each city and village were then requested to complete a web-based capabilities assessment survey. This individualized approach allows for unique hazard-related issues or strategies for each community to be identified, while recognizing that each local municipality has the authority to regulate and plan for the development of their community.
- Clark County and all incorporated municipalities in Clark County with 100-year floodplains identified on Flood Insurance Rate Maps (FIRMs) are participants in good standing in the National Flood Insurance Program (NFIP), with the exception of the Village of Granton. The meeting and sub-plan for Granton addressed this non-participating status; a County-level, related strategy is included in Supplement 5.
- An introductory mailing with a project brochure was sent to each public educational institution. This was followed by a web-based mitigation planning presentation on 7/31/25, 8/5/25, and 10/20/25 by WCWRPC for interested schools, including an overview of related mitigation grants and potential grant projects. The educational institutions were then invited to complete a web-based mitigation planning survey that assesses risk and capabilities, then identifies mitigation strategies. Four school districts in Clark County choose to participate.
- WCWRPC used the city, village, and educational institution input to create draft "sub-plans" for each participant, which are included in Supplements 5 & 6. The draft sub-plans were then distributed to each community for review and input. As discussed in Supplement 4.C., these sub-plans are a new approach to the 2026 Plan update.

Adopting resolutions or approving letters for all of the above participating jurisdictions are in **Section VII.**

Figure 1. Clark County Multi-Hazard Mitigation Planning Process Diagram

Plan Initiation
scope: local decision to proceed, contract w/ WCWRPC
County roles: mandate to proceed, establish Steering Committee
RPC roles: facilitate process and pre-planning
Cmte roles: initial meeting; discuss process, scope, & new plan reqmts

Community Profile
scope: data-collection phase (inventory, stats, uses, trends)
local roles: assist w/ data collection, including existing plans
RPC roles: data collection, analysis, & compilation
Cmte roles: review and discuss findings; additional direction if needed
other issues: identification of critical facilities; initial contacts

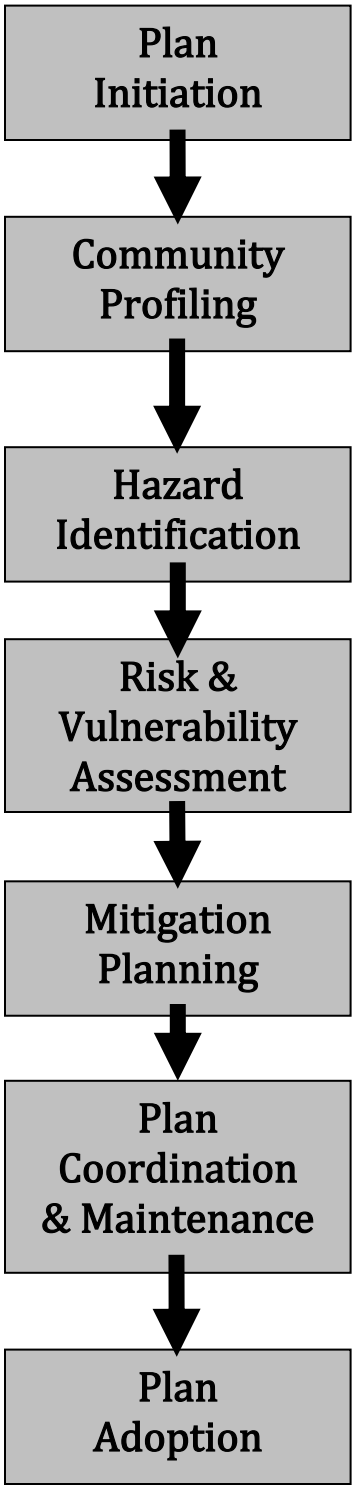
Hazard Identification
scope: update data and re-confirm key hazards
local roles: assist w/ data collection (historical records on events)
RPC roles: data collection (w/ NOAA data) & facilitation
Cmte roles: review and confirm key hazards

Risk & Vulnerability Assessment
scope: identify risks (full history & trends), and vulnerabilities (estimate potential losses to assets)
local roles: identify issues, concerns, and "hotspots; capacity assessment
RPC roles: data collection, analysis, & facilitation; interview/meetings
Cmte roles: review and discuss findings; provide addition insights

Mitigation Planning
scope: goals, objectives, strategies, & action plan
local roles: identify current activities and progress on 2020 Plan
RPC roles: facilitation, analysis & guidance on strategies
Cmte roles: update goals; review and prioritize strategies
other issues: cost-benefits analysis; resource/action plan

Plan Coordination & Maintenance
scope: relationship to other plans & future plan review/updates
local roles: help identify links to other plans; vision for reviews
RPC roles: facilitation & suggestions
Cmte roles: discuss related plans & future plan monitoring/updates
other issues: re-assess evaluation process

Plan Adoption
scope: Cmte/local agency review -> public comment period -> Cmte re-consideration if needed ->WEM pre-review -> County & local adoption-> formal WEM & FEMA approval
local roles: facilitate public meetings, notifications, & adoption
RPC roles: assist with any questions and modifications to plan
Cmte roles: consider public comments
other issues: special mailings; media; County/Participant adoptions



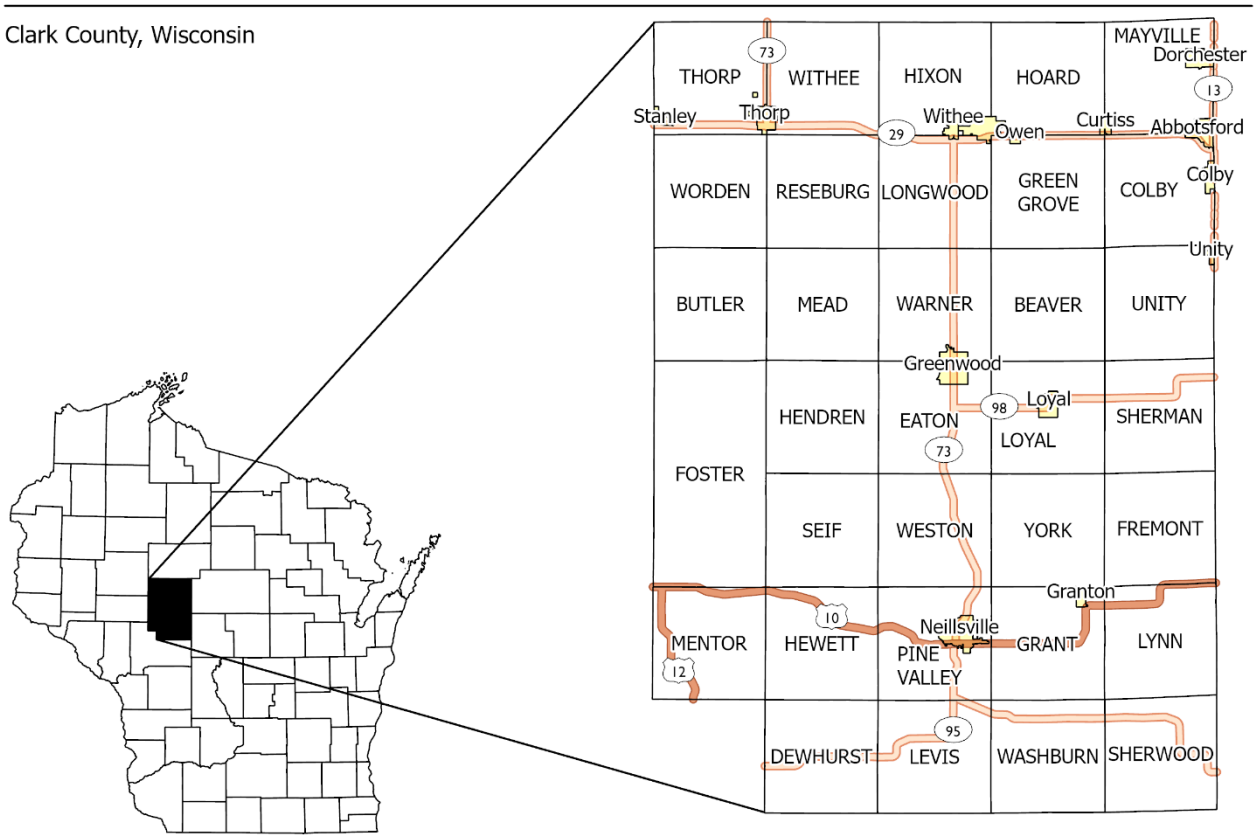
SECTION II.
COMMUNITY PROFILE – CLARK COUNTY

A. GEOGRAPHIC LOCATION

Clark County is located in west-central Wisconsin (see **Figure 2**). With 1,210 square miles of surface area, Clark County is the seventh largest county in the State of Wisconsin. The county is bordered to the west by Chippewa and Eau Claire counties, to the south and west by Jackson County, to the east by Wood and Marathon counties, and to the north by Taylor County.

The County is made up of 46 minor civil divisions, which includes 33 towns, 5 villages, and 8 cities as shown in **Figure 2**. The City of Neillsville, with an estimated 2024 population of 2,371 is the largest community in Clark County and is also the county seat.

Figure 2. Clark County Location & Civil Divisions



B. PHYSICAL SETTING

Section I.A. of the *Mitigation Plan Supplement* provides an overview of the physical setting, natural features, and environment of Clark County.

Historically, Clark County's landscape was dominated by a range of vegetation that includes various types of maple, birch, and pine. As shown on **Figure 3**, agriculture and deciduous forests now dominate the landscape. The County is largely rural with 6% of the land cover considered developed, and two-thirds of that developed area considered open spaces.

Surface waters make up a very small portion of the County's land area; just under 3,000 acres or 0.37%. There are 19 lakes in Clark County, but none of these lakes are natural. In most cases, water levels on these man-made flowages are controlled by dams, which reduce the potential of flooding. The county also has numerous streams which flow into one of three major waterways—Eau Claire River to the west, Yellow River to the east, and Black River which runs directly through the center of the county. Wetlands—key for water storage, filtration, and flood mitigation—comprise roughly 16% of the County's land area and have ecological importance.

The climate of Clark County is classified as mid-latitude continental. Warm, humid summers and cold, snowy winters are the main characteristics. At the NOAA weather station in Neillsville, the average monthly temperature since 1990 ranges from 14.6º Fahrenheit in January to 68.1º Fahrenheit in July.

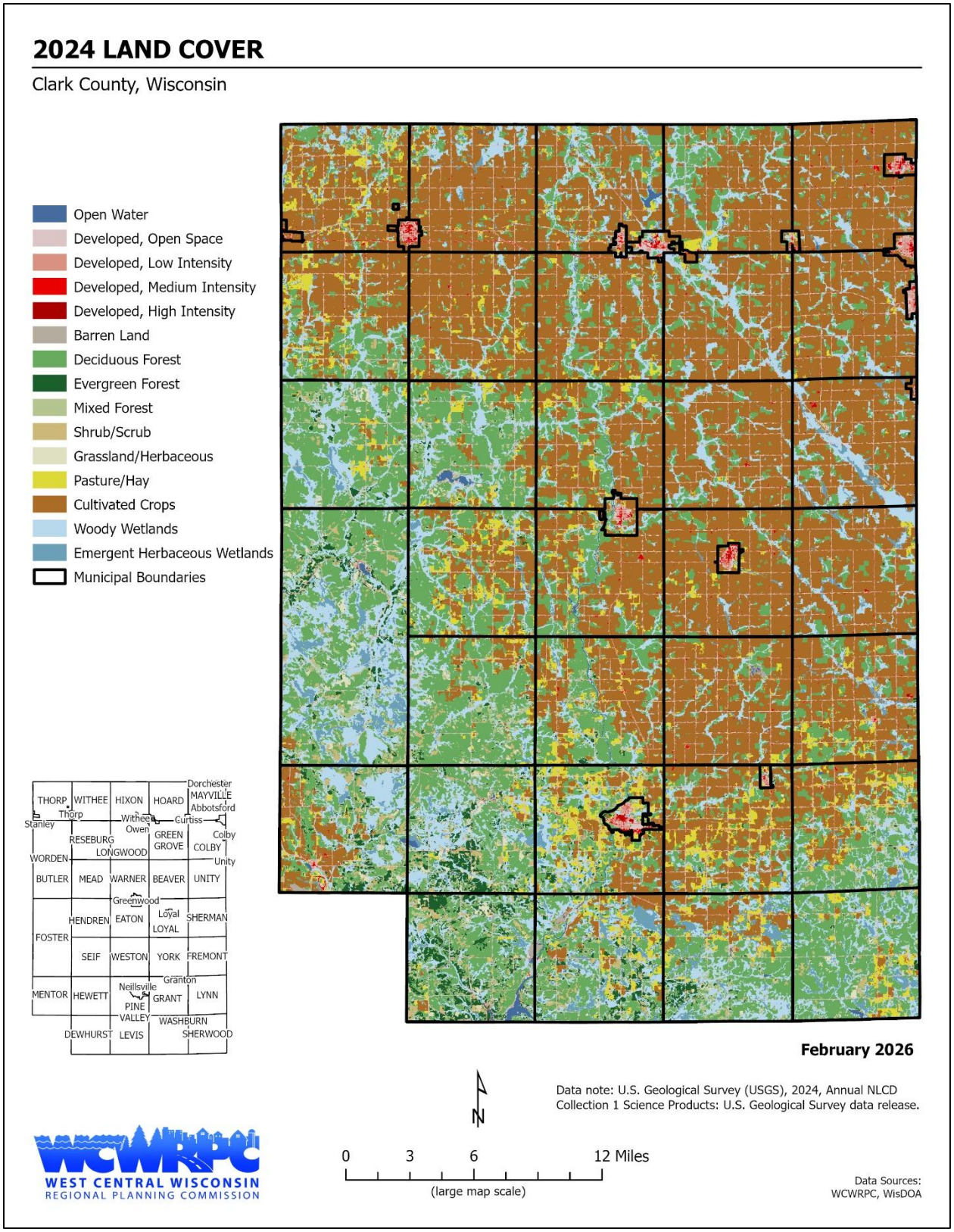
C. SOCIO-ECONOMIC SETTING

The following are highlights from Section I.B. of the *Mitigation Plan Supplement*, which provides data tables and information related to Clark County's demographics and economy.

Population & Housing

- Housing unit growth in the County has been sporadic between 1980 and 2020. After seeing double-digit growth from 2000-2010, the total number of units declined from 2010-2020.
- Population growth has also been volatile, with growth between 2000-2010 and decline (albeit minimal) between 2010-2020.
- The average number of people per household has decreased from 2.66 in 1980 to 2.35 in 2020.
- Twenty-nine communities (6 cities, 4 villages, 19 towns) are considered economically rural disadvantaged communities.
- Collectively, towns have a lower median age (35.6) than villages (35), and villages have a lower median age than cities (40.8).
- Single-family detached housing is the most prevalent housing unit throughout the County, comprising roughly 77% of all housing units. The percentages are higher in towns (80%) than in the city and villages (72%).

Figure 3. Clark County Predominant Land Cover



- There are 991 mobile homes and 28 assisted living and nursing home facilities located within the County. These sites are of heightened concern during extreme weather events due to their vulnerable populations and the medical needs of their residents.
- The County (37) is younger than the State (40.1) and has a lower per capita income ($34,736 to $42,019). Within the County, there are age and income discrepancies between older, more affluent cities and younger, less affluent villages and towns. As the elderly and economically challenged households are both groups of concern, these differences present unique challenges and vulnerabilities for each community type.
- Unlike most communities, the number of residents ages 65 and over is projected to decrease from 17.9% of the total population in 2020 to 16.8% in 2040. The percentage of the population less than 19 years of age will grow from 31.3% of the total population in 2020 to 39.6% in 2040. Some communities believe that the State population projections underestimate anticipate growth.
- Clark County has a large Plain Community (e.g., Amish, Mennonite, Baptist Brethren) scattered throughout much of the County and a significant immigrant community, especially Hispanic/Latino, in northeastern part of the County. These populations have unique implications for disaster preparedness, mitigation, and emergency response. Language can be a communications barrier for outreach to some of these residents.
- Rural homelessness exists, including people living in vehicles. Point counts planned to obtain a better estimate of numbers. No shelter options currently exist within Clark County.

The potential vulnerability to hazardous events increases along with residential development and population growth. The increase of both housing and residents over the past 40 years presents a significant concern throughout the mitigation process, as each new unit and resident must be considered when determining vulnerability and projected losses during hazardous events.

Economic Overview

- The County has low unemployment and strong trade and manufacturing sectors.
- While median net worth exceeds the national average ($204,032), household income is lower than the national averages ($74,365).
- The County has seen a decrease in the number of households under the poverty level and in those above the ALICE (Asset Limited, Income Constrained, Employed) threshold ($57.133). This indicates that, while situations are improving for the most impoverished, households on average are falling behind in terms of income growth.
- Manufacturing is the County's largest employment sector with 3,635 jobs (31.9% of all jobs) and government is the second highest employment sector with 1,974 jobs (17.3%).
- Health Care and Social Assistance and Retail Trade sectors lost the most jobs between 2014 and 2024. Despite losses in eight of the eighteen sectors with sufficient data, the County increased its employment by 827 jobs, or 7.8%, between 2014 and 2024.

Agricultural Overview

- As noted previously and shown on Figure 3, cultivated crops are the most common land cover in Clark County.
- Between 2017 and 2022, the number of farms and acres of farmland decreased by 15 percent and 9 percent respectively. As of 2022, the County had 1,785 farms and 409,582 acres of farmland.
- Agriculture continues to be an important part of Clark County's economy with the market value of products sold exceeding $568 million in 2022.
- Milk from cows, row crops (grains), and cattle were the largest agricultural sales in 2022. The County is the largest producer of livestock and 5th largest producer of crops in the State. More specifically, Clark County is the top producer of milk (from cows) and a collective "other crops and hay" category as identified in the 2022 USDA Census of Agriculture.
- In 2019, it was estimated by the University of Wisconsin that agriculture supports 7,083 jobs and contributes to over $2.5 billion in positive economic impacts within Clark County.

Many of the hazards discussed later in the plan can significantly impact crops and livestock, including tornados, power loss, extreme temperatures, drought, and zoonotic disease.

D. DEVELOPMENT TRENDS

Disaster events can have many impacts, including damage to buildings and building contents. This sub-section provides insight into the taxable improvements and growth patterns within Clark County, which will be important when considering hazard vulnerabilities in Section III.D. According to the Wisconsin Department of Revenue, the aggregated assessed value for Clark County in 2024 was just under $3 billion.[3] **Table 2** summarizes the 2024 Statement of Assessments for the County. The State repealed personal property taxes through 2023 Act 12, effective Jan. 1, 2024.

Table 2. Clark County 2024 Assessed Total Values *(not equalized)*

Land	$ 563,414,650
Improvements	$ 2,211,959,600
Real Estate	$ 2,775,374,250

From 2019 to 2024, the County's total assessed value of improvements grew by over $692 million (45.6% increase or +9.12% per year). **Table 3** further breaks down the 2024 assessed values by primary land uses. The largest percentage of improvement value is residential (35.7%). Over 25% of the County's manufacturing improvement value is attributed to the Grassland Dairy Products development located in the Town of Eaton. Not included in these tables are tax-exempt properties. Nearly 133,000 acres in western Clark County are County Forest lands. The County Forest and other public resource lands, mostly forested and wetlands, are tax exempt. Governmental properties and schools constitute the largest portion of existing improvements and structures not included in Tables 2 and 3, though other facilities on tax-exempt lands owned by non-profit institutions (e.g., churches, scouting camps, housing authority structures) are also not included.

[3] Wisconsin Department of Revenue, Bureau of Equalization. Line Summary for 2024 Final Statement of Assessment, Unequalized assessed values are used to best represent the actual value of improvements. Not all assessed values were available for all categories.

Table 3. Clark County Assessed Value by Land Use • 2024

Use	Number of Parcels	Land Value	Number of Parcels Improved	Improvement Value	Total
Residential	13,805	$201,008,600	12,113	$1,474,380,100	$1,675,388,700
Commercial	1,463	$28,511,700	1,113	$291,592,700	$320,104,400
Manufacturing	131	$5,817,300	93	$84,059,200	$89,876,500
Agricultural	15,071	$73,874,900	-	-	$73,874,900
Undeveloped	12,273	$33,672,850	-	-	$33,672,850
Ag Forest	4,791	$68,424,700	-	-	$68,424,700
Forest Lands	3,183	$127,655,800	-	-	$127,655,800
Other	2,748	$24,448,800	2,691	$361,927,600	$386,376,400
Totals	**53,465**	**$563,414,650**	**16,010**	**$2,211,959,600**	**$2,775,374,250**

Source: Wisconsin Department of Revenue. 2024 Line Summary for Final Statement of Assessment.

The land cover map (**Figure 3)** showed the generalized development pattern in Clark County. Cultivated crops dominate the northern and eastern portions of the County, while deciduous forests and wetlands are prevalent throughout the southern and western portions. Urban development occurs within city and village boundaries. In 2020, the County had an overall population density of 28.7 persons per square mile, which is significantly less than the State of Wisconsin's density of 108.8 persons per square mile. Based on State official population projections, the County's density is projected to increase slightly to 31.2 persons per square mile by 2050. Given the County's rural character, population growth and development is not limited to the incorporated communities.

Between 2019 and 2024, Clark County experienced a net increase of 516 improved, assessed parcels, or an average increase of 103.2 parcels per year. Residential parcels accounted for the majority of improvements (526), while manufacturing and "other" property classifications saw a decrease over the 5-year period. Most improved, residential parcels are in towns (62.5%), and they account for 87.2% percent of all residentially-assessed acreage in the County. Residential development in unincorporated areas is typically at low densities.

Cities account for the highest concentrations of improved commercial parcels (58.13%) and manufacturing parcels (45.2%) in Clark County. The per-acre assessed value of commercial land and improvements are roughly five times higher in cities compared to towns and two times higher for manufacturing assessments. This indicates that commercial activity in cities is more intensive, concentrated, and includes commercial uses much larger in scale than towns. In general, most commercial uses tend to be located within incorporated areas and along highway corridors.

Agriculture is the most prevalent land use in Clark County. It accounts for 63.3 percent of the assessed acreage in the County while acreages assessed as agricultural forests or forest lands constitute another 19.8 percent. Land assessed as "undeveloped" makes up 11.7 percent of the assessed acreage in the County. In total, 94.79 percent of the County's assessed acreage is agricultural, forested, or otherwise undeveloped.

E. COMMUNITY LIFELINES & EMERGENCY SERVICES

Community lifelines are services and facilities that are fundamental to all aspects of society. FEMA encourages communities to mitigate the potential hazard impacts to community lifelines and give priority to stabilizing community lifelines during initial response. Clark County's principal community lifelines are summarized in **Table 4** on the following page. The fifth column identifies the data source(s) for each lifeline:

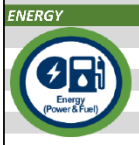
HAZUS	FEMA Hazard Program
WDPI	Wisconsin Department of Public Instruction
WCWRPC	West Central Wisconsin Regional Planning Commission
WDNR	Wisconsin Department of Natural Resources
WDHS	Wisconsin Department of Health Services
HIFLD	Homeland Infrastructure Foundation-Level Data
WPSC	Wisconsin Public Service Commission
FCC	Federal Communications Commission
WISLR	Wisconsin Information System for Local Roads

During the planning process, it was noted that:

- The data for some lifelines is incomplete and some subcomponents have not been locally confirmed or mapped. Table 4 should be considered a starting point that can be built upon and improved for future mitigation plan updates.
- At least one county in the region is considering the different lifelines as a way to organize branches within the Emergency Operations Center (EOC).

For each hazard of significant risk in Section III.D., a vulnerability assessment table **e**valuates the potential vulnerabilities (impacts & losses) for each major category of community lifeline in Clark County. Cities and villages, as part of their sub-plans in **Mitigation Plan Supplements 5 & 6**, also frequently identify vulnerabilities, partnerships, or strategies related to these lifelines. **Plan Supplement 1.C.** includes service area maps for two safety lifelines—Fire Districts and Emergency Medical Service (EMS)/First Responder service areas. The fire departments in particular are important to the wildfire risk assessment and strategies. Also included in P**lan Supplement 1.D.** is a brief overview of the County's transportation infrastructure, which is an important lifeline that can be impacted by winter storm/ice, high wind, HazMat spills, and flooding events in particular.

Table 4. Summary of Clark County Community Lifelines

Lifeline	Component	Subcomponent	Count	Source/Date	Mapped
SAFETY & SECURITY					
	*Law Enforcement/Security*	Police Stations & Law Enforcement Agencies	9	FEMA 2025	Y
		Correctional Facilities	1	WCWRPC 2025	Y
	Fire & EMS Service	Fire/EMS Stations	12	FEMA 2025	Y
		Other Firefighting Resources			
	Search & Rescue	Local Search & Rescue, if separate than above			
	Government Service	Government Centers & Municipal Buildings (essential services)	49	FEMA 2025	Y
		Emergency Operations Centers (may also be within the above)	1	CLARK COUNTY 2014	Y
		Public K-12 Schools	21	WDPI 2025	Y
		Private K-12 Schools	16	WDPI 2025	Y
		Colleges & Post-Secondary Educational Institutions	*none identified*	WDPI 2025	Y
		Public Libraries	10	WDPI 2025	Y
	Community Safety	All Dams	81	WDNR 2025	Y
		Dams (significant to high hazard potential)	3	WDNR 2025	Y
		Emergency Shelters, Heating/Cooling Shelters, & Safe Rooms	*14*	CLARK COUNTY 2014	Y
		VOADS & Other Community Support Agencies	*none identified*		N
FOOD, HYDRATION, SHELTER					
	*Food*	Commercial Food Distribution (e.g., retail, market, school)	240	HAZUS 2023	Y
		Commercial Food Supply Chain			
		Food Distribution Programs (i.e., food banks)	14	WCWRPC 2025	Y
	Hydration	Bottled water distribution	*none identified*		
		see Water Systems lifeline for potable water systems			
	Shelter	Assisted Living Facilities & Nursing Homes	16	WDHS 2025	Y
		Homeless Shelters & Other Group Homes	10	WDHS 2025	Y
		Adult Day Care, Alcohol, Drug, Mental Health Treatment Centers	18	WDHS 2025	Y
		Hotels or Other Commercial Housing Facilities	11	WCWRPC 2025	Y
	Agriculture	*see Section II.C.iv.*			
HEALTH & MEDICAL					
	*Medical Care*	Hospitals	2	WDHS 2025	Y
		Dialysis Clinics	*none identified*	WDHS 2025	Y
		Pharmacies	5	FEMA 2025	Y
		Veteran's Affairs Health System	*1*	VA2025	
		Veterinary Services	*not inventoried*		
	Public Health	Public Health Office or Department	1	WDHS 2025	Y
		Other Health Clinics or Treatment Centers	6	WDHS 2025	Y
		Clinical Laboratories	36	WDHS 2025	Y
	Patient Movement	Ambulance Service Districts	25	CLARK COUNTY 2014	
		Air Ambulance/Heli-Pad	*none identified*	WISDOT 2025	
	Fatality Management	Funeral Homes/Morgue Spaces/Crematories	*not inventoried*		
ENERGY					
	*Electrical Power Grid*	Power Plants & Generation Systems, incl. hydroelectric & natural gas	2	WPSC 2025	Y
		Electric Transmission Systems	307 miles	USEIA 2025	Y
		Distribution Systems	*not inventoried*		
	Natural Gas, LP, & Other Fuels	Refineries/Fuel Processing	*none identified*		
	(some also qualify as HazMat lifelines)	Fuel Storage Facilities & "Tank Farms"	200	DATCP 2025	Y
		Natural Gas Pipelines	31.5 miles	USEIA2025	Y
COMMUNICATIONS					
	*Infrastructure*	Towers & Fixed Wireless	16	FCC 2024	Y
		Cable Systems & Wireline	*not inventoried*		
		Broadcast Facilities (TV & Radio)	3	HIFLD 2022	Y
		Data Centers	*none identified*		
	Responder Communications	ARES/RACES Base or Infrastructure	*not inventoried*		N
	Alerts, Warnings & Messages	Emergency/Storm Sirens	10	CLARK COUNTY 2014	Y
	Finance	FDIC Insured Banks & Credit Unions	6	FDIC2025	N
	911 & Dispatch	Dispatch & Public Safety Answering Points (PSAP)	2	FCC 2025	Y
TRANSPORTATION					
	Highway/Roadway/Motor Vehicle	Roads	2,035.79 miles	WISLR 2025	Y
		Bridges	235	WISDOT 2025	Y
	Mass Transit	Bus	*none identified*	WCWRPC 2024	Y
		Rail	*none identified*	NARN 2024	
	Railway	Freight	66 miles	NARN 2024	Y
		Passenger	*none identified*		
		Bridges	46	HIFLD 2022	Y
	Aviation	Commercial (cargo/passenger)	*none in the County*		
		General	6	WISDOT 2025	Y
HAZARDOUS MATERIAL					
	Facilities	HAZMAT-EPCRA Tier 1 EHS Planning Facilities (July 2026 count)	16	CLARK COUNTY 2018	Y
		HAZMAT-EPCRA Tier 2 Reporting Facilities (July 2026 count)	65	CLARK COUNTY 2018	Y
		EPA Active Hazardous Waste Facilities	89	HIFLD 2022	Y
		EPA Hazardous Waste Treatment, Storage and Disposal Facilities	*none in the County*	HIFLD 2022	Y
	Spill Response	Spill Response Agencies or Resources, excluding fire depts	*none identified*		Y
WATER SYSTEMS					
	Potable Water Infrastructure	Wellhead Protection Areas	96	WDNR 2025	Y
		Community Wells, Towers, & Distribition Systems	72	WDNR 2025	Y
		Private High Capacity Wells	95	WDNR 2025	Y
		Water Bottling Facilities	*none identified*		
	Wastewater Management	Community Wastewater Treatment Plants & Systems	12	HIFLD 2022	Y

SECTION III.
ASSESSMENT OF HAZARD CONDITIONS

In order to more effectively evaluate potential hazard mitigation alternatives and develop feasible strategies to address the risks associated with the identified hazards, the County must:

- identify the hazards that pose a significant risk to Clark County;
- profile the extent and severity of past hazard events that have affected the County and the probability of recurrence; and
- assess the vulnerability of the community to the threat of future hazard events.

A. HAZARD IDENTIFICATION

Although Clark County could potentially be at risk from a variety of hazards, this plan will attempt to narrow the scope of the hazards that will be addressed to those hazards that pose a significant risk.

i. Disaster and Emergency Declarations

Clark County, as a geographically large county, has experienced a relatively high number of disaster declaration and severe storm events. Since 1953, there have been twelve Presidential Declarations for a Major Disaster for which Clark County was a primary county impacted:

Month & Year	Federal Disaster Declarations	Public Assistance	Individual Assistance
April 1973	Severe storms & flooding	X	X
Summer 1993	Flooding and severe storms in Summer of 1993 resulted in a declaration for 47 Wisconsin counties. Statewide damages exceeded $740 million.	X	X
June 1998	Severe storms, high winds & tornados, heavy rain, flooding	X	
July 2001	Flooding	X	
June 2002	Severe storms & flooding	X	
Sept 2002	Severe storms, tornados, & flooding		X
May-July 2004	Severe storms & flooding	X	X

Sept/Oct 2010	Severe storms & flooding	X	
Sept 2016	Severe storms, flooding, & mudslide	X	
June 2018	Severe storms, straight-line winds & flooding	X	
July 2019	Severe storms, tornados, straight-line winds, & flooding	X	
April 2020	COVID-19 was declared a nationwide disaster on April 4, 2020.	X	X

While the above catastrophic events were of sufficient severity to warrant major Federal assistance, there have been at least 11 additional State or Federal Emergency Declarations involving Clark County:

Month & Year	State or Federal	State or Federal Emergency Declarations
June 1976	Federal	Drought
Aug 2003	State	Drought
July 2005	State	Drought
Sept 2005	Federal	Hurricane Katrina Evacuation
July 2006	State	Drought
Aug 2007	State/USDA	Drought/Agricultural Drought
Aug 2009	State	Drought
Aug 2010	State/USDA	Agricultural Drought + Late Frost/Freeze
July 2012	State	Drought
Mar 2020	State	Public Health Emergency for COVID-19
Mar 2020	Federal	COVID-19

During an emergency or major disaster declaration, Federal assistance will supplement State and local efforts. A State Emergency Declaration is declared by the Governor and puts into motion State assistance programs. Emergency declarations are typically more limited in scope and without long-term federal assistance.

Relying on Federal emergency and disaster declarations as a measure of risk can be misleading. While significant damage occurs during a declared disaster or emergency, the declaration area typically involves multiple counties, and a sizable percentage of the damage can also be limited to a certain area. Further, disaster events do occur that can be deadly and cause severe damage; but the total damage does not rise to the thresholds to qualify for Federal funding. The Winter 2014 Polar Vortex is one such event that caused major damage to water lines for many communities in the region, but this disaster was not declared. Such events can be especially hard on small communities when Federal assistance is not available.

To assist in determining what hazards should be evaluated in the plan, National Climatic Data Center (NCDC) information from the National Weather Service (NWS) was used. This data describes past, reported weather events and the resulting deaths, injuries, and damages associated with each of these events. Data for a wide variety of events has been maintained, while some older data is only available for tornado and thunderstorm-related events.

During the period from January 1, 1993, through December 31, 2025, there were 570 extreme weather hazard events reported to the National Climatic Data Center for Clark County on 316 different dates as will be discussed in the remainder of Section III. These events included:

- One death and nine injuries are in the database associated with tornado, strong wind, lighting, and ice storm events.
- Over $12.2 million in property damage was reported (unadjusted for inflation). There were seven events with more than $500,000 in property damage; three of these were tornado events, three were flooding events, and one was high winds.
- Thunderstorm Wind/High Winds (192 events), Hail (136), and Winter Storms/Extreme Cold (120) were the most frequently reported natural hazard events.

While being the best, accessible source of historical storm data, the NCDC database is far from complete and most types of hazard events are not included in the database for years prior to 1993. Damages in the NCDC database are frequently under-reported and some damage estimates represent a single event impacting multiple counties.

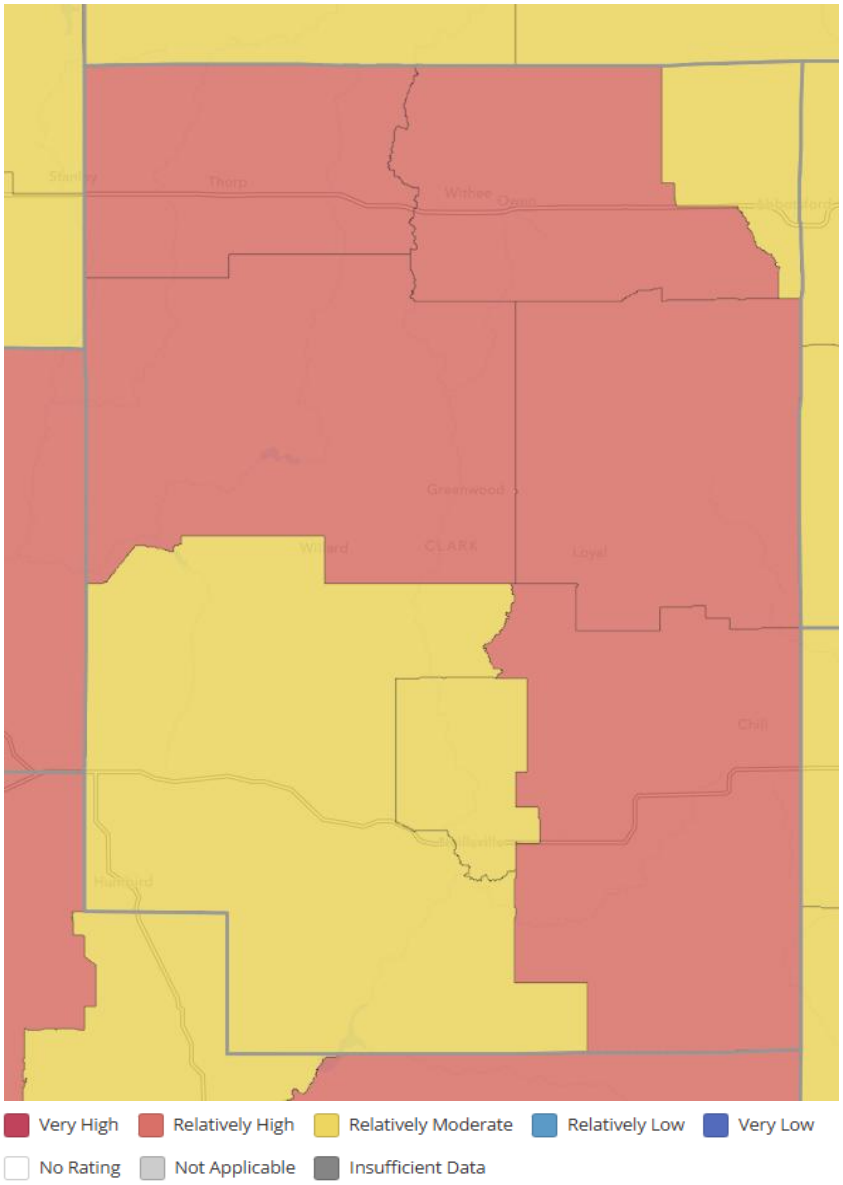
ii. Clark County Overall Risk Assessment & Priorities

FEMA National Risk Index

FEMA utilizes the vulnerability analysis, forecasted annual losses, and community resilience factors to produce their National Risk Index (NRI). NRI rankings are available at the state and national level. Some key findings from the NRI data are:

- Overall, Clark County has a relatively low risk in terms of expected annual losses, but has a very high social vulnerability ranking and lower community resiliency. This assessment suggests that many residents may have limited resources to prepare for and recover from a disaster event. However, this may also be somewhat misleading since these vulnerabilities partially reflect the County's significant Amish population, which is a very self-reliant and resilient community overall.
- Figure 4 shows the combined vulnerability distribution by census track. The relatively moderate vulnerability in the southwestern parts of the County are likely a reflection of the County Forest lands.
- Relative to other counties nationally, Clark County had high hazard risk ratings for Cold Waves and Flooding. Hail and Strong Winds were a moderate risk.

Figure 4. National Risk Index Scores for Clark County Census Tracts



- Expected Annual Losses, if injuries and deaths are included, for the County were the highest for Flooding (abt. $8 million), Cold Wave ($5.5 mil), and Tornados ($1.7 million).

Steering Committee Hazard Assessment & Priorities

During the update of the 2026 *Clark County Multi-Hazard Mitigation Plan*, Steering Committee members discussed natural hazard trends and concerns. This included reviewing the National Risk Index data for Clark County, the 2025 Health Vulnerability Assessment results (HVA) completed by the Northwest Wisconsin Healthcare Emergency Readiness Coalition, and the hazards included in the 2020 Plan.

Based on this discussion and each member's personal experiences, each Committee member rated the probability of a natural hazard event occurring and the vulnerability or impacts if such an event should occur. Identification of the hazards for inclusion in this risk and vulnerabilities survey was based on the hazards identified in the *Resource Guide to All Hazards Mitigation Planning in Wisconsin* prepared by Wisconsin Emergency Management.

PROBABILITY VS. VULNERABILITY

For purposes of this plan, the following definitions are used:

PROBABILITY:	*Likelihood and frequency of occurrence in the future.*
VULNERABILITY:	*If the event occurs, what are the impacts?*

For each hazard type, each Committee member was asked to assign ratings of 0 to 5 (0-no probability or vulnerability, 1-low, 3-moderate, 5-high) to reflect their opinion of which hazards pose the greatest concerns for Clark County. A composite overall average risk rating for each hazard was then calculated by totaling the average risk rating from each respondent and divided by the total number of respondents. The compiled results of the updated survey are shown in **Table 5.** An additional column is included in Table 5 identifying those hazards that the Committee recommended should be addressed as part of the 2026 Plan update and how best to organize those hazards in Section III.D.

The **National Risk Index** in Table 5 compares Clark County to rest of the U.S. based on expected annual losses, social vulnerability, and community resilience for each hazard as of 2025; these indices are slightly different than the 2026 NRI risks on the previous page. The 2025 **Northwest Wisconsin Healthcare Emergency Readiness Coalition's Hazard Vulnerability Assessment (NWHERC HVA)** is the relative risk and vulnerability for each threat in the region from a public health perspective based on a detailed assessment of various threats based on probability, potential impacts, and current capabilities.

Table 5. Clark County Hazards Probability & Vulnerabilities Survey Results

0 -- none; extremely low	3 – moderate; substantial
1 -- low; minimal	4 -- high; serious
2 – some; of concern	5 -- very high; extreme

Hazard	Probability	Vulnerability	Ntnl Risk Index	NCWHERC HVA	in 2020 Plan?	section of 2025 plan
Natural Hazards						
Riverine or Overbank Flooding	2.2	3.0	Low	12-27%	x	flooding
Overland or Stormwater Flooding	2.4	3.0			x	flooding
Heavy Snow Storm and Blizzards	3.2	3.4	Low	40%	x	winter storms & extreme cold
Ice Storms and Sleet	3.6	3.6	Low	40%	x	winter storms & extreme cold
Lack of Snow Cover During Cold	2.0	2.0			x	winter storms & extreme cold
Extreme Cold/Cold Wave	3.4	3.2	High	40%	x	winter storms & extreme cold
Forest or Wild Fire	2.4	2.8	V. Low	27%	x	wildfire
Tornados	3.2	4.0	Low	29%	x	tornados
High Winds	3.2	3.4	Moder		x	thunderstorms & high winds
Thunderstorms, Lightning, Hail, etc.	3.4	3.0	Low	40%	x	thunderstorms & high winds
Extreme Heat/Heat Wave	2.2	2.2	Low	22%	x	extreme heat
Drought	2.0	2.6	V. Low	20%	x	drought
Landslides or Sinkholes	0.2	1.6	Low	8%		*excluded*
Earthquakes	0.0	1.6	V. Low	9%		*excluded*
Fog	3.0	1.6				*excluded*
Technological Hazards						
Haz Mat Incident - Fixed	1.6	2.8		13%		hazardous materials spills
Haz Mat Incident - Transportation	2.0	3.4		12%		
Groundwater Contamination	2.4	3.2		24%		
Animal Waste Management	1.4	2.0				
Long-Term Power Outage	2.8	3.6		27%	x	long-term power outage
Nuclear Power Plant Incident	0.2	2.8		22%		*excluded*
Dam Failure Flooding	1.4	2.8		11%	x	flooding
Airline Accident	1.0	2.8				*excluded*, except haz mat spills
Railroad Accident	1.4	3.0		9%		
Other Hazards						
Pandemics/Zoonotic Disease	2.0	3.0		27%		brief communicable disease section referencing Public Health plans
Livestock Flu and Diseases	2.0	2.6				
Invasive Species & Diseases	1.4	2.4				*excluded*
Active Shooter/Active Threats	2.2	3.8		24-27%		active threats
Terrorism, Domestic (all)	1.6	3.4		13%		
Terrorism, International (all)	1.2	3.0				
Terrorism, Critical Infrastructure	1.6	3.4				
Cyber Attacks	2.6	3.8		29%		cyber attacks
Civil Unrest or Institutional Riot	1.4	2.4		27%		excluded

Reflecting Table 5, Clark County determined that the 2026 Mitigation Plan update should be a multi-hazard plan and not primarily limited to the natural hazard threats of greatest concern. More robust sections were added to Section III of this plan on:

- Hazardous Materials Spills
- Active Threats
- Cyberattack

The Steering Committee felt that the scope of the 2026 hazard mitigation plan update should be modified in one additional way when compared to the previous 2020 Plan:

- High winds are discussed with tornados due to similar vulnerabilities and impacts.

Of the above hazards, only flooding, wildfire, and, to a less extent, long-term power loss and hazardous materials spills, have geographic areas or locations of higher risk, as will be identified later in Section III.C.

Hazards Addressed in Other Plans

The Steering Committee discussed how best to approach zoonotic and communicable disease in light of the COVID-19 pandemic, and agreed that the 2026 Plan update should refer to and support, but not duplicate or supplant, the *Public Health Emergency Preparedness Plan*. As such, **Communicable Disease** is included in the *Hazard Mitigation Plan Supplement 2.B*.

Natural Hazards of No Significant Risk

The final column of Table 5 notes which hazards are excluded from the scope of this plan update, largely reflecting their lower probabilities. The reason for excluding certain natural hazards is further discussed in *Mitigation Plan Supplement 2.A.*

B. CHANGING WEATHER PATTERNS & NATURAL HAZARD RISK

Projecting future hazard risks and vulnerabilities is subject to the influence of possible large-scale, longer-term changes in weather.

How the Region's Weather Patterns are Changing

There is ongoing debate over the existence, causes, severity, and impacts of global climatic changes, such as global warming. According to a previous U.S. Environmental Protection Agency web site:

> "According to the National Academy of Sciences, the Earth's surface temperature has risen by about 1 degree Fahrenheit in the past century, with accelerated warming during the past two decades. There is new and stronger evidence that most of the warming over the last 50 years is attributable to human activities.... Rising global temperatures are expected to raise sea level, and change precipitation… could alter forests, crop yields, and water supplies. It could also affect human health, animals, and many types of ecosystems.... Most of the United States is expected to warm, although sulfates may limit warming in some areas. Scientists currently are unable to determine which parts of the United States will become wetter or drier, but there is likely to be an overall trend toward increased precipitation and evaporation, more intense rainstorms, and drier soils."

Regardless of the debate over the causes of such changes, there is clear evidence that Wisconsin's weather patterns are indeed changing. The 2003 report entitled *Confronting Climate Change in the Great Lakes Region* published by the Union of Concerned Scientists and the Ecological Society of America projected that by 2030, summers in Wisconsin may resemble those in Illinois overall, in terms of temperature and rainfall, and by 2100 the summers will generally resemble that of current-day Arkansas, and the winter will feel much like current-day Iowa. And a University of Maryland model suggests that by 2080, the long-term weather of the Menomonie area will be similar to that of northern Oklahoma.[4]

To further document these changes in weather patterns and explore their impacts on our State, the Wisconsin Initiative on Climate Change Impacts (WICCI) was formed as a collaborative effort of the University of Wisconsin and the Wisconsin Department of Natural Resources. The following are key takeaways from the WICCI 2021 Assessment Report:

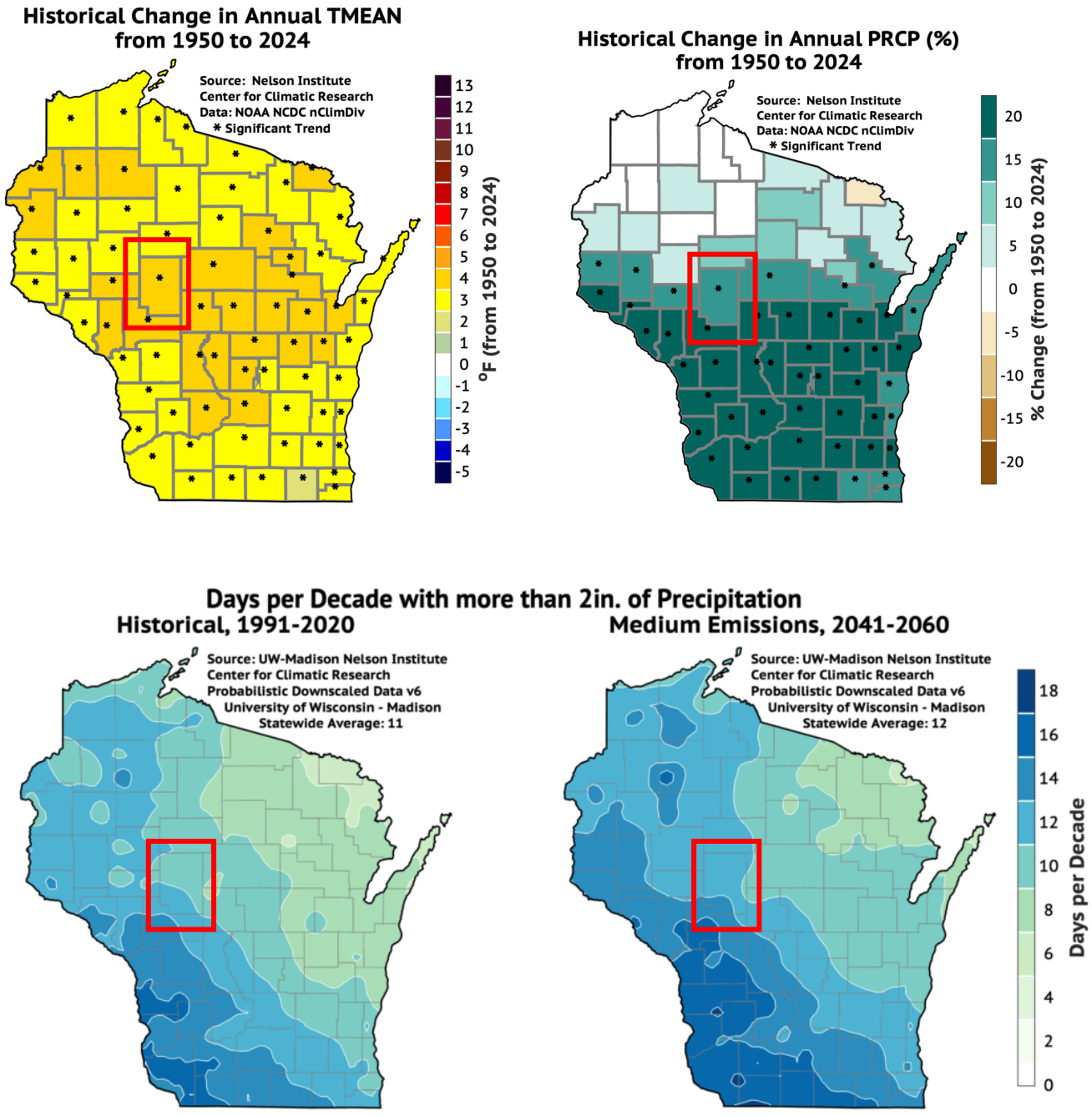
- Wisconsin's average daily temperature has become three degrees Fahrenheit warmer since the 1950's.
- The last two decades have been the warmest on record, and the past decade has been the wettest.
- Wisconsin has become wetter – average precipitation has increased 17 percent (about 5 inches) since 1950.
- Warming is happening fastest in the winter and at night.
- Southern Wisconsin has experienced the highest increase in precipitation.
- Very extreme precipitation events will increase in the future.

[4] https://www.umces.edu/futureurbanclimates

- Extreme events are already causing immense impacts across Wisconsin, and the frequency of those events will generally increase.

These findings are consistent with data for Clark County. **Figure 5** below includes WICCI data indicating some longer-term weather trends for Wisconsin with Clark County outlined. The data suggests that the County must anticipate increased extreme precipitation events annually, as well as greater severity within individual events.

Figure 5. Selected WICCI Maps



Potential Long-Term Weather Pattern Impacts on Natural Hazard Risk

The following summarizes the primary, potential impacts of long-term shifts in weather patterns for those natural hazards of significant risk to Clark County.

Tornados, Thunderstorms, and High Winds

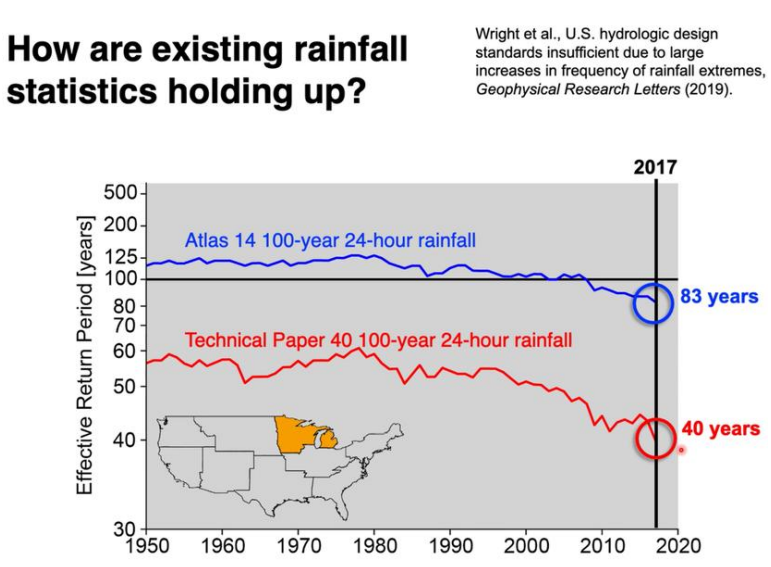
The link between long-term changes in weather and tornadoes, high winds, and thunderstorms is unclear. While extreme storm events are increasing, scientists are uncertain what role such long-term shifts in weather have, if any.[5] However, warmer temperatures will increase the number of weeks that Clark County experiences severe thunderstorms and tornadoes. And during the 2026 Plan update process, some local officials expressed concern with a perceived increase in the frequency of high wind events over the past decade. And Clark County has experienced four tornado events days from May 2024 – June 2026, which is much higher than the long-term average. The County needs to be prepared for an increase in tornados, severe thunderstorms, and episodes of high winds that are associated with strong storms.

Flooding

From 1958-2012, extreme rainfall events increased 37% in the Midwest.[6] WICCI data projects that the frequency of heavy rainfall events (2+" within 24 hours) will increase from about 10-12 per decade to 12-14 per decade. The data details that Clark County is already experiencing an increase in 100-year rainfall events and by 2060 will be experiencing up to ten 4"+ rainfall event days every 100-years.

Increased precipitation and heavy precipitation events are resulting in more flooding. Extreme rainfall events in particular have the potential to increase overland (stormwater) and flash flooding with severe consequences (e.g., road/culvert/bridge washouts, building damages, bank erosion, habitat destruction) if infrastructure is not able to manage such increased flows.

These increasing heavy rainfall and flooding events are not reflected in current floodplain maps and stormwater management models. For example, most stormwater modeling and design standards for Wisconsin municipalities use the precipitation frequency data from NOAA's Atlas 14 (based on 1900-2010 trends) and the older Technical Paper 40 (published in 1961). A 2019 study summarized by the graphic to the right shows that a 100-year rainfall event in based on Atlas 14 was occurring every 83 years by 2017 in the upper Midwest, and the frequency of such events has been increasing significantly since 2010. A separate National Weather Service-funded study from 2019



[5] http://blogs.ei.columbia.edu/2016/12/01/increasing-tornado-outbreaks-is-climate-change-responsible/
[6] https://nca2014.globalchange.gov/highlights/regions/midwest#statement-16934

suggests that today's 100-year rainfall event will be a 20-year storm by the late 21st century. Atlas 15 reflecting more recent trends is not expected to be released before 2027. In the interim, some Wisconsin municipalities are already considering these trends. As an example, Dane County continues to use Atlas 14 data, but in 2021 it updated its erosion control and stormwater management ordinance to require peak rate control based on 200-year storms, instead of 100-year storms.

An increase in flooding will not only impact the built environment, but it will also impact the natural environment. Riparian areas will be more vulnerable to damage with increases of flooding intensity. In addition, more opportunities will exist for debris to enter water bodies. This is consistent with the comments of many local officials during the plan update process, who felt that there has been an increase in heavy rainfall events, which have been contributing to localized flash or stormwater flooding.

Winter Storms, Ice Storms, and Extreme Cold

Per WICCI data, winter precipitation has increased more than 20% and winter nights have been 6º F warmer in Clark County since 1950, and these trends are projected to continue. By 2060, Clark County will experience 10% more winter and spring precipitation and a 5% increase in fall. More precipitation during the winter months increases the potential for heavy snow and ice storms and possibly flooding due to a large snow melt. Since winters may be warmer overall, ice storms could be a greater concern. Some scientists suggest that longer-term weather pattern changes may contribute to an increase in extreme temperature events (both hot and cold).[7] However, WICCI data suggests that extreme cold reports should decrease in frequency. Such long-term changes in weather could have some positive natural hazard impacts. For instance, the winter season would be shorter overall with fewer days of sub-freezing temperatures. But other problems may also be exacerbated, such as plant and animal diseases and infestations, Lyme's disease, air quality changes, change/impact natural habitats, and impacts to water quantity. During the 2026 Plan update, the Plan Update Steering Committee discussed the potential for increased ice storm events with high winds, which exacerbates the potential for power loss during periods of low temperatures or extreme cold. The need for warming shelters with emergency power received significantly greater attention during this plan update.

Extreme Heat

The number of extreme heat event days is projected to continue to increase. By 2060, WICCI projects that the number of extreme heat days will grow from about 7 to 21-28 per year for most of the County. An increase in extreme heat occurrences and higher summer temperatures will have a significant impact on the elderly and others. The majority of deaths and emergency room visits during heat waves are from persons over 65 years old. As Clark County continues to experience warmer temperatures and the number of individuals over 65 years old continues to increase, additional attention may be needed to address extreme heat vulnerabilities.

High temperatures will result in increased evapotranspiration and longer growing seasons. Over time, these trends have the potential to impact surface and groundwater as well as increase the risks of drought and wildfire. In addition, hotter temperatures and longer extreme heat episodes will increase stress on public infrastructure like road surfaces. During the 2026 Plan update, some service providers expressed

[7] https://www.climaterealityproject.org/blog/perfect-storm-extreme-winter-weather-bitter-cold-and-climate-change

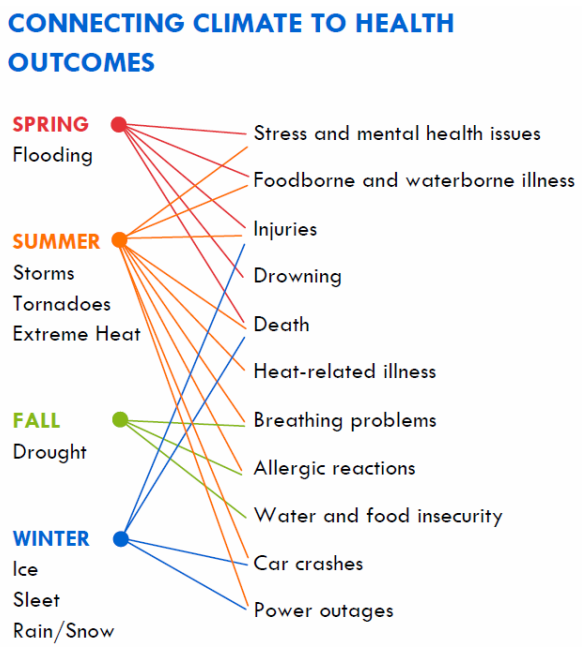
concern was expressed over recent increases in extreme heat events and there was increased discussion on the need for designated cooling shelters with emergency power.

Drought, Wildfire. and Forest Resilience

Projecting the impact of weather pattern changes on drought and wildfire is complicated. While precipitation is projected to increase, this will be offset by higher evapotranspiration and longer growing seasons. When and how this precipitation occurs is also important. Heavy rainfall events and fast snow melts can result in increased runoff and less soil infiltration, especially if the ground is frozen. Weather patterns can also influence wildfire potential and forest health.

Human Health

According to the Wisconsin Department of Health Services—Climate & Health Program[8], it is also important that we keep in mind the potential impacts of long-term weather changes on human health as summarized by the graphic to the right and list below:



- **flooding risks** – stress & mental health disorders, flood-related food and waterborne illnesses, injuries, and drowning.
- **extreme heat risks** – increased loss of life, especially among elderly and socially isolated individuals, air quality degradation and increases in pollen resulting in respiratory distress and allergic reactions
- **drought risks** – reduced drinking water, food insecurity, and respiratory distress from dust, pollen, and airborne particulates
- **winter weather risks** – traffic accidents, injuries, and deaths, power loss that place chronically ill patients on medical devices at higher risk
- **disease vectors** – wetter, warmer weather could be more favorable to mosquito- and tick-borne diseases (e.g., West Nile, Lyme)
- **surface water risks** – see flooding risks, contamination of water supplies, toxic algae blooms
- **groundwater risks** – reduced availability, contamination of water supplies

Everyone reacts differently to a disaster. The stress and losses from any disaster can cause serious mental or emotional distress not only to those living through the event, but also emergency responders and those from other supporting agencies. These individuals may develop or experience exacerbation of existing mental health or substance use problems, including for example, post-traumatic stress disorder. It is

[8] https://www.dhs.wisconsin.gov/climate/index.htm

important that local disaster recovery integrate public health principals, including providing mental health support and treatment when needed.

Adaptation as a Natural Hazard Mitigation Strategy

Weather pattern changes can have serious natural hazard implications. Most of our existing best practices and infrastructure are based on historic events and do not fully accommodate these longer-term patterns. Below are examples of what some other communities are doing to address such trends. and will be considered as Clark County and other participating jurisdictions identify and prioritize their mitigation strategy recommendations. Many of these adaptation strategies are not new mitigation tools (e.g., safe rooms, burying power lines, cooling shelters), but with weather changes there may be an increasing need to expand the use of these tools and best practices. Some of these strategies may be more applicable to urban areas and not the rural, less developed areas of Clark County.

Tornados, Thunderstorms, and High Winds

- Construct community safe rooms in developments that do not have basements.
- Work with electric utilities to make sure that powerlines do not have the ability to be impacted by fallen trees and branches through selective cutting/trimming, burying power lines.
- Make sure that electrical grids are resilient to power loss.
- Invest in generators for backup power and explore micro-grid alternatives, specifically at critical facilities (e.g., municipal buildings/facilities, hospitals, nursing homes).

Flooding

- Map areas where flooding is predicted to happen in the future and use those maps for land use decisions. Utilize updated stormwater modeling that considers the increasing frequency of heavy rainfall events.
- Create outreach programs to educate the public on the need for flood insurance.
- Implement land-use policies that prohibit building in areas that are predicted to be susceptible to future flooding, including beyond the current 100-year floodplain.
- Acquire property that is in future flood prone areas. Complete riparian/stream restoration plans and projects.
- Reevaluate all water-related infrastructure (e.g., bridges, levees, dams, culverts, stormwater system) for structural integrity.
- Promote solutions that support natural systems and low impact development policies to reduce stormwater runoff and encourage flood/stormwater storage. Incorporate permeable surfaces in new and existing development, including pavement systems and green roofs. Encourage rain barrels, bioswales, and rain gardens. Install, preserve, and maintain wetlands, natural flood retention areas, and stormwater basins.
- Increase focus and effort on eliminating debris from entering the water bodies (e.g., increase street cleaning operations, expand promotion of Rain-To-Rivers programming, provide community lawn waste pickup).

Winter Storms, Ice Storms, and Extreme Cold

- Research best management practices to deal with the potential increasing frequency of ice storms.
- Designate community warming shelters with emergency power.
- Implement smart salting/sanding best management practices.

Extreme Heat

- Create programs to check on and communicate with persons most vulnerable to extreme heat occurrences.
- Start a public outreach program to educate the public how to deal with extreme heat
- Designate community cooling shelters with emergency power.
- Implement smart-grid technologies that allow electric providers to access real-time data during high electric use times.
- Incorporate energy conservation techniques (e.g., technology, urban form, landscape, trees) to help reduce energy use.
- Implement repaving strategies (e.g., material, color) that reduce heat-related damage to streets.
- Shade asphalt and tops of buildings to reduce the urban heat island effect, which is most apparent in larger urban areas.
- Incorporate policy that reduces street pavement widths.

Drought, Wildfire, and Water Conservation

- Implement good forest and soil health best management practices and drought-tolerant plant varieties or types of crops that help offset some impacts from changes in weather.
- Encourage rural and urban water conservation.
- Promote integrated water management by planning water use in a manner that: (i.) considers natural systems (e.g., watersheds, the entire water cycle) as well as site-specific vulnerabilities; (ii.) are based on long-term projections of supply and demand that reflect recent trends; and (iii.) by tying water use, management, and related policy to land use and economic growth forecasts.
- Incorporate new best management practices for forested areas and developed lots in close proximity to areas that will be susceptible to wildfires in the future. This includes forest management practices to eliminate dead bio-fuel that adds to the intensity of wildfires, eliminate vegetation that will succumb to invasive insects, and increase wildfire buffer areas for developed areas.
- Create a comprehensive tree inventory in urban areas and public forests and parks to identify trees that are vulnerable to invasive insects. Increase awareness of forest and tree best management practices and encourage plantings that are native, diverse, and resilient.

Conclusion

Given the ongoing debate in the scientific community, this plan does not debate the causes of these longer-term weather patterns. Regardless of the cause, it is important that local officials and residents remain aware that the hazard trends presented in this report will mostly likely change in the future; and, in some cases, the frequency and magnitudes of disaster events will most likely intensify. Many of these changes will increase the chance of loss of life and damage to infrastructure.

It is also important that communities and residents keep informed of these changes in weather patterns use their best judgment as to the most appropriate action and response. The WICCI webpage www.wicci.wisc.edu(www.wicci.wisc.edu) includes suggestions on how communities may prepare for and adapt to such changes. The Wisconsin Department of Health Services has additional, related materials on at their webpage, including a community engagement toolkit: https://www.dhs.wisconsin.gov/climate/index.htm

C. RISK AND VULNERABILITY ASSESSMENT

This section is organized by the hazards that are a significant disaster threat to Clark County not primarily addressed in other plans. The assessment for each hazard is generally structured into the following sections, which are consistent with FEMA planning guidance, though there are some differences for the non-natural hazards:

Defining the Hazard – Describes the hazard, including related definitions.

Hazard Location – Describes the geographic extent or unique boundaries that may be affected by the hazard type. This may include or reference county, state, or other maps illustrating the geographic extent of any hazard areas. For most hazards in Section III.D., there is no geographic area uniquely at risk; most hazard events facing County residents often affect large areas, or are even county-wide, such as a drought, active shooter, cyber-attack, or an ice storm.

Hazard Extent (Potential Intensities) – Identifies the range of anticipated intensities that can occur within Clark County (e.g., how "bad" can it get). This is often expressed through a relative scale based on the intensity of hazard (e.g., wind speed, hail size) and/or the hazard's potential impacts (e.g., damage to property, potential for injury). A commonly accepted hazard extent or scientific scale is not available for all hazard types.

Event History –The organization of this section may differ, but for most natural hazards includes:

- **National Climatic Data Center Event Summary or other data source(s) depending on the nature and type of hazard.**
- **Significant Clark County (and/or Regional) Events** – Highlights any significant or notable events that are particularly important for assessing capabilities or exploring mitigation alternatives.

Hazard Probability – Discusses and, if possible, estimates the probability of the hazard occurring or reoccurring in the future. FEMA guidelines require that probability must consider the impacts of long-term weather changes.

Vulnerability Assessment – Includes a table summarizes the vulnerabilities (potential impacts/losses) for residents and different aspects of the County, including community lifelines.

- **Potential Loss Estimates** – When possible, potential loss estimates are quantified.
- **Other Factors Influencing Losses** – Briefly describes and considers other factors that may influence hazard probability and impacts, such as development trends and weather patterns.

Hazard Mitigation Plan Supplement 2 **(Additional Hazard Assessment Information)** includes additional information for each hazard, including an expansion of definitions, supplementary event history and data, and, often, related preparedness information.

Hazard Mitigation Plan Supplement 5 & 6 **(Sub-Plans)** include subplans for participating city, village, and public educational institutions. While this section often includes key or commonly shared findings from cities, villages, and schools, the sub-plans include an expanded event history, probability, vulnerability, capability, and mitigation strategies for each.

i. TORNADOES & HIGH WINDS

Tornadoes are typically linked with severe thunderstorm events. It is sometimes difficult to determine the difference between the impacts of a tornado versus very high winds. This sub-section highlights key tornado-related information and the effects of winds during thunderstorm events. Section II of the *Clark County Hazard Mitigation Plan Supplement* provides additional details. **For tornado and high wind risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to Supplements 5 & 6.**

Defining the Hazard —Tornadoes & High Winds

The National Weather Service definitions of a tornado, funnel cloud, high winds/ thunderstorm winds, and downbursts (straight-line winds):

Tornado - A violently rotating column of air that is touching the ground.

Funnel Cloud - A rapidly rotating column of air that does not touch the ground.

High winds or Thunderstorm Winds – Winds of 58 miles per hour or greater.

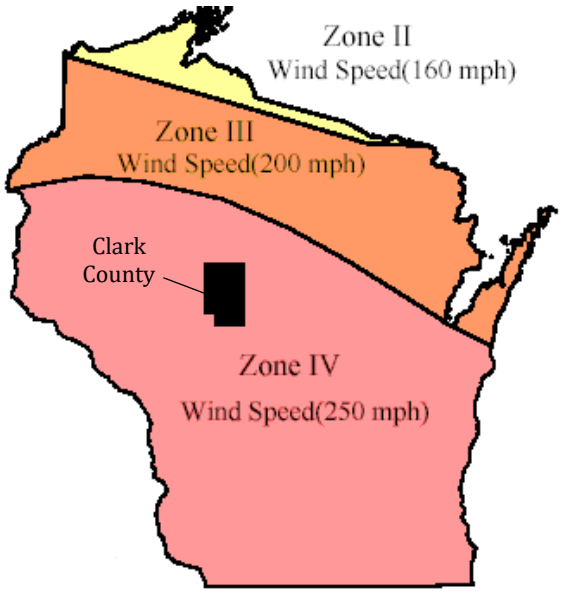
Downbursts (straight-line winds) – A downburst is a strong, violent downdraft, initiated by rapidly descending rain and/or rain-cooled air beneath a thunderstorm.

Hazard Location & Extent

Tornadoes and high winds occur throughout the State of Wisconsin and have no defined hazard area within Clark County. All Clark County jurisdictions are equally at risk of experiencing a tornado or high wind event. The *Mitigation Plan Supplement* describes how tornado and high wind intensities are measured, most notably the Enhanced Fujita Scale.

The United States has been divided into four zones that geographically reflect the number and strength of extreme windstorms. Zone IV has experienced the most and strongest tornado activity with wind speeds of up to 250 mph, and includes all of Clark County (see **Figure 6**). However, this design wind speed map may be outdated. While very rare, Wisconsin has one documented tornado with winds exceeding 250 mph. On July 18, 1996, the F5 Oakfield tornado was estimated to have had **winds of 265 mph**, which should be considered during future safe room planning. Oakfield is located in the eastern part of the State near Fond du Lac; no documented tornado in west central Wisconsin has exceeded 250 mph.

Figure 6. Design Wind Speed Map of Wisconsin



adapted from "Design Wind Speed" map from FEMA's "Taking Shelter from the Storms: Building a Saferoom in Your House"

Event History —Tornadoes & High Winds

As detailed in the *Clark County Hazard Mitigation Plan Supplement,* from 1980 to 2015, Wisconsin experienced 44 significant tornado events, including twelve EF-3, three EF-4, and one EF-5 tornado. Tornados may occur throughout the year, but are most frequent during May-August. Clark County has had a moderately high number of tornadoes with 35 reported tornadoes between 1844 and 2015. No areas of the County were identified as being particularly prone to experiencing tornado or high wind events in the past.

National Climatic Data Center (NCDC) Event Summary

The tables below summarizes tornado and high wind events reported by the National Climatic Data Center (NCDC) in Clark County. Tornadoes have been well documented since 1950, allowing for the review of a larger time horizon (74 years). Since high winds and thunderstorm winds have only been tracked regularly since 1993, the table below represents a shorter time horizon. All other hazards, other than tornadoes, will only represent data from 1993 to December of 2023.

Tornado Event Summary 1/1/1950 - 12/31/2024	
Total Events: 40	Number of Events Per Year: 0.54 (.75/year from 1993-2022)
Total Event Days: 27	Number of Event Days Per Year: 0.36 (abt. 1 event day every 3 years)
Total Injuries: 9	Total Deaths: 2
Total Event Days with Property Damage: 36	
Property Damage (from NCDC): $ 11,360,200 (2 events reported $2.5 million in damage)	
Property Damage (adjusted for inflation): $ 69,317,745	
Funnel Cloud Reports: 16 reports on 11 event days between 1997 – 2010.	

Note: Though this table includes some pre-1990 data, tornadoes were reported less consistently prior to 1993.

High/Strong Wind & Thunderstorm Wind Event Summary 1/1/1993 - 12/31/2024	
Total Events: 191	Number of Events Per Year: 6.16
Total Event Days: 95	Number of Event Days Per Year: 3.06
Total Injuries: 1	Total Deaths: 1
Total Event Days with Property Damage: 164	
Property Damage (from NCDC): $ 1,997,450	
Property Damage (adjusted for inflation): $ 3,285,876	

Significant Clark County Events

The following briefly describes some of the most significant tornado and high wind events impacting Clark County. For insight into additional details and tornado/high wind events, see the *Mitigation Plan Supplement 2.C*.

July 1907 and September 1924 Tornados
These were devastating F4 tornados that were the worst in the County's history. The 1907 tornado resulted in at least six deaths and nine injuries, while destroying many homes and barns. The 1924 tornado resulted in 18 dead and injuring at least 50 people. See the Plan Supplement for additional descriptions of these events.

July 2019 Tornado
On July 19, 2019, a complex of severe thunderstorms moved across north-central Wisconsin. This storm complex produced an EF0 and EF1 tornado in Clark County. The first touched down west of Withee and resulted in a torn barn roof, damaged silo, pole barn damage, and downed 15 to 20 trees. The second, larger tornado occurred north of Withee and resulted in trees blown onto a mobile home and bent or snapped numerous power poles along Center Rd.

September 2019 Tornado
A late season EF1 tornado occurred on September 24, 2019, striking Clark County as well as surrounding counties. The tornado occurred across rural sections of central Clark County, touching down near the Black River southwest of Greenwood. Some farm building damage occurred, and at least three cows were killed at one farm. The Governor declared a state of emergency for Clark County.

December 2021 Tornado and High Winds
This tornado events is worth noting since a December tornado had not been previously reported for Clark County. This storm produced high winds and eight tornados throughout the larger region. Multiple EF2 tornados touched down in Clark County destroying a home, substantially damaging a business, causing power loss, causing other structural damage, and downing many trees in the County Forest.

High Wind Events
An April 2004 high wind event in Thorp with gusts up to 55 mph and not associated with thunderstorms resulted in one death. According to law enforcement officials, a woman was killed during this event when the top of a tree snapped off and fell on her. Thunderstorm wind is responsible for an injury, which was reported in 2005. In this case, the person sustained a minor head injury when a tree fell on a car at a campsite just east of Merrillan.

In terms of high-wind damage, the May 19, 1996, thunderstorm was the most significant in recent decades, with high winds, including gusts up to 90 mph, were the primary cause of the damages. Over $500,000 in property damages throughout the County. Several barns were damaged or destroyed in the Loyal area, while numerous trees were blown down across the county. Barns and mobile homes were damaged in Pine Valley township and in the Greenwood area.

Overall, damage-causing high winds are experienced somewhere in Clark County at least annually on average. The most typical damage is caused by trees falling on power lines, vehicles, and buildings, and wind damage to roofs or smaller structures. For example, the August 2022 high winds snapped and uprooted trees in the Thorp area and flipped a camper.

Hazard Probability – Tornadoes & High Winds

The Clark County Plan Steering Committee rated tornadoes and high winds as the County's highest natural hazard vulnerabilities in terms of potential impacts. Tornadoes and high winds were given a moderate probability of occurrence. Based on the number of reports since 1993, **it is probable that one or more tornados will continue to touch down and be reported for Clark County on a given day about every 2-3 years on average (multiple tornados may occur in a single day). However, based on anecdotal statements of local officials and reports from 2019-2025 (six tornado event days during the period), the frequency/probability has increased to a near annual event. High wind events will occur much more frequently, with about 3 event days each year on average.**

Although the improvement of technology has enabled meteorologists to better identify and predict the conditions that are favorable for severe weather development, there is no precise way to predict the formation, location, and magnitude of a tornado or straight-line wind events. And, there is no predictable pattern that can be used to accurately predict future tornado events. However, the May 2017 Chetek tornado in Barron County suggests that sufficient time is often available for residents to find adequate safe shelter in order to mitigate deaths and injuries.

A recent study, published in January 2023, modeled several potential effects of long-term weather patterns on the frequency, intensity, and location of supercell thunderstorms in the continental United States. It is these supercell thunderstorms that account for nearly all tornados. The models, based on emission scenarios and historical data, indicated that within the Midwest, the evening time would see an increase in supercell storms. While the areas within this plan were not specifically discussed, figures showing change from the historical data to the model indicate that the west central Wisconsin area is likely to see some of the largest increases in these severe events, outside the Southern Mississippi River Valley.

Vulnerability Assessment—Tornadoes & High Winds

The following provides an overview of the primary tornado and high wind vulnerabilities facing Clark County and its communities. While all individual plan participants in Clark County (i.e., villages, cities, educational institutions, electric cooperatives) are equally at risk of experiencing a tornado event, the potential impacts and vulnerabilities increase with development density, population density, type of development, and value of improvements. Vulnerabilities can also differ based on factors such as socio-economic characteristics and existing mitigation actions (e.g., safe rooms, wind-resistant construction).

General Vulnerabilities	
People	• All residents and visitors are at-risk of injury or death from tornado and high wind events, especially those that: (1) are associated with the previously mentioned facilities and (2) lack access to a storm shelter or safe room. • Residents of Mobile Home Parks - Most frequently identified vulnerable population. Most mobile home park residents believed to lack access to safe rooms. Often lower-income and, sometimes, a higher-than-average proportion of seniors. • Residents of Slab-on-Grade Construction • Seniors and residents needing support - Lower-income apartments and facilities/apartments for

	seniors, including CBRFs and nursing homes, and other group homes. Clark County has 3 nursing homes and 25 licensed assisted living facilities concentrated in the urban areas. • Apartments with a high proportion of ESL residents. These populations may also be less familiar with the extent of local hazard risks, warning systems, resources, and appropriate actions. Some local officials noted that language barriers have been less of a challenge in recent years. • Visitors and staff of parks, campgrounds, festivals, and other large gatherings are also a frequently identified vulnerability since most of these facilities lack safe rooms or storm shelters, and out of town visitors may not have access to an alternative. • As reflected in the community profile, Clark County's population (and development) continues to grow, thus increasing overall exposure to tornados and high winds. • Volunteer management and storm clean-up poses its own challenges; injuries and deaths during cleanup have occurred in the State.
Above-Ground Structures	• Since 1950, tornadoes have caused over $69.3 million of reported property damage (adjusted to 2023 values for inflation); some of this damage includes above-ground utilities. • The following general building types are especially vulnerable to tornado and high wind events: manufacture and mobile homes, homes with crawlspaces, buildings with large spans, coverall or fabric buildings most often used for agriculture and storage, slab-on-grade structures, and trailers. • Damaged buildings may pose additional safety concerns due to structural instability, damage to electrical systems, or gas leaks. • Buildings with large spans (e.g., airport hangars, pole barns, gyms, factories) have a higher structural vulnerability. • Nearly all structures are vulnerable to damage. As of 2024, Clark County has over **$2.2 billion in assessed improvements and personal property**, not including tax-exempt buildings, such as city halls, fire stations, churches, and certain utilities. • The 2024 total Value of Improvements by jurisdiction type are as follows. ○ Towns: **$1,463,751,000** ○ Villages: **$133,821,100** ○ Cities: **$614,387,500**
Above-Ground Utilities	• Above-ground power lines, especially in wooded areas, are a frequently identified infrastructure vulnerability. This extends to facilities, services, and oxygen-dependent populations without access to emergency power generators. This vulnerability is further explored in the *Long-Term Power Outage* threat sub-section. The lack of power can become deadly during periods of extreme temperatures.
Mobile Homes	• Mobile homes, especially those that are unanchored, are the most frequently mentioned vulnerability. According to the National Weather Service, between 1995 and 2022, there were 1,702 tornado fatalities in the United States. **Fifty-three percent (53%) of these fatalities occurred in mobile homes**, which constitute less than ten percent of the nation's housing supply. • The County is estimated to have **991 mobile homes in 2023, constituting about 6.2% of the total housing supply**. As of June 2023, Clark County had **13 licensed manufactured/mobile home parks**, though some of these parks may be used for recreational or seasonal purposes. The number of mobile homes as full-time residences and licensed mobile home parks have been slowly decreasing in the County. • It is not known whether many older mobile homes are anchored. Most communities do not require mobile homes to be anchored or tied down unless the mobile homes are newer and fall under more recent State installation codes. • Nearly all mobile home parks do not offer an on-site safe room. Most communities do not require new mobile home parks or slab-on-grade development to construct or designate a safe room, though this may be possible as part of a conditional use permit under zoning or as part of a licensing ordinance. Following the July 2010 flooding and storms, Clark County received FEMA

	mitigation grant dollars for the construction of four new community safe rooms at Clark County Adult Development Services (ADS) in Greenwood and for mobile home parks in the Town of Pine Valley, City of Neillsville, and City of Loyal.
Slab-on-Grade Construction	• Residents in slab-on-grade homes and homes with crawlspaces (elevated and susceptible to lift) have a higher vulnerability than homes with basements. • Plan participants noted that a high proportion of the new construction occurring in the County is slab-on-grade in some areas.
Campgrounds, Cabins, & Resorts	• Homes and cabins in recreational areas and lakefront properties typically lack a basement or access to a storm shelter. Lake visitors are also vulnerable. Town of Foster expressed interest in a safe room near Rock Dam. • The Summer 2010 windstorm that struck Cumberland's municipal campground in nearby Barron County provides an excellent example of this elevated vulnerability. Most public and private campgrounds and resorts do not offer an on-site safe room or have formal emergency plans, though emergency information is typically posted. Block restrooms can offer some protection, but very limited size capacity. County campgrounds lack sirens, though caretakers are equipped with NOAA all hazards radios. • The **County owns and operates eight campgrounds** with no on-site safe rooms as identified in the County Outdoor Recreation Plan—the largest County campgrounds are Russell Memorial (220 sites) and Rock Dam (150 sites). Some communities also have camping at their municipal parks, including Owen, Curtiss, Granton, and Thorp. • No new campgrounds. Increasing number of recreational cabins/garages and short-term rentals. In most cases, campgrounds or resorts are not required to construct or designate a safe room or develop emergency plans, though this may be possible as part of conditional use permitting in zoned municipalities.
Local Economy	• Manufacturing, warehousing, and commercial businesses that are large span structures noted as having a higher vulnerability. • Economic losses can be experienced when a business sustains direct damage from a tornado or high wind event or when supporting infrastructure (e.g., utilities, services) or supply chains are not available for extended periods. • A business closure may be temporary, but could have large impacts on the local economy and related services, while some smaller or struggling businesses may fail.
Natural, Historic, & Cultural Resources	• All above ground historic or cultural structures are vulnerable to tornado and high wind events. These structures have a high social value to the local community, but no unique vulnerabilities or concerns were identified. • There are no natural areas or environmental characteristics within the County that are uniquely less or more vulnerable to tornadoes or high winds.
Community Lifelines	
Safety & Security	• All above ground structures, including government buildings, EOCs, fire halls, and police departments are vulnerable. Many such facilities lack emergency power generators. Not all communities have continuity plans for these services, though mutual aid for emergency services is relatively strong.
Food, Water, Shelter	• All above-ground structures are vulnerable. Grain and milk production are significant contributors to the County's economy and play a very important role in the food supply chain.
Health & Medical	• All above-ground structures are vulnerable. • Hospitals and larger facilities have emergency plans and generators. • The County's two hospitals in Stanley and Neillsville were identified as being a significant concern due to their potentially vulnerable population, emergency response functions, and importance to the community. • Senior care facilities and group homes are frequently mentioned as having a higher vulnerability.

	Most of these structures serve a vulnerable population and are single-story, slab-on-grade for ADA accessibility. **Clark County has 3 nursing homes and 25 licensed assisted living facilities.** Some emergency responders also noted the need for evacuation planning and bus transportation resources for such facilities.
Energy	• Above-ground utilities are especially vulnerable in wooded areas due to falling trees or limbs. • Increasing interest in developing solar and wind "farms" in the County. Vulnerability of such facilities to high winds (and other hazards) not been explored. • See *Long-Term Power Outage* section.
Communications	• Tornados and high winds can destroy above-ground communications infrastructure, including emergency communications towers. Also see the Capability Assessment in **Section IV**, which discusses the status of current emergency communications infrastructure and systems. • The tornado assessment in **Section III.C** discusses and maps the community-owned warning sirens for tornado and severe weather warnings. The sub-plans in **Section VII.A**. describe the siren status for each city and village participating in this plan update.
Transportation	• The City of Neillsville has a small airport with hangars, structures, and aircraft that can be particularly vulnerable to tornadoes and high winds; it was not confirmed if all aircraft kept on site are tied down when not in use. • Traffic control has been an issue during some past events with persons wanting to view damages even with some trees and power lines still down.
Hazardous Materials	• All above-ground structures are vulnerable, but no specific concerns noted.
Educational Institutions	• Public primary and secondary schools are the most frequently identified facilities as having a high vulnerability due to the presence of school-age children and concentrations of students and staff. Indoor- and outdoor-event visitors also vulnerable. Often multiple buildings at a single campus. All above-ground structures are vulnerable (serve children and can host large events), especially gyms or theaters if not hardened to withstand high winds. • There are **9 public school districts with school facilities** in Clark County, in addition to the small **Chippewa Valley Technical College campus** in the City of Neillsville. • Clark County numerous **smaller private schools, most associated with the Plain Community**, and typically lacking larger span structures such as gyms. • The following public educational institutions chose to be full participants in this mitigation plan update and are anticipated to adopt the plan: the Abbotsford, Colby, Granton Area, and Neillsville school districts. A sub-plan for each of is included in **Section VII.B.**
Vulnerability to Future Assets	
Population Growth & Development	• All existing and future populations and development in the County are equally at risk of experiencing a tornado or high wind event. • As reflected in **Section II.C.** of the Community Profile, the County continues to grow in terms of population and new development, thus increasing overall exposure to tornados and high winds. • A high proportion of recent residential and commercial development is slab-on-grade construction without basements to serve as a safe room. This trend is expected to continue. • While mobile home development has been decreasing, there is continued, strong interest in outdoor recreational tourism (e.g., campgrounds and recreational cabins). • The County has a large Plain Community population as discussed in Section II.C. The Amish, with their avoidance of electrical power, lack access to weather forecasts and severe weather warning systems. • The County has a significant immigrant population, especially in the northeastern part of the County, for which English is a second language. This population may be less aware of the natural hazard threats, warning systems, response protocols, and suggested preparedness actions. However, the area is now home to multi-generations of many of these households and this vulnerability is likely decreasing with time overall.

Other Assets	• During the mitigation planning process, participants and stakeholders were asked to identify any planned or anticipated future assets that may be particularly or uniquely vulnerable to tornado or high wind events. No such future assets were identified.

Mobile homes, in particular, are vulnerable to tornado and high wind events. **Figure 7** on the following page shows the location of active mobile home parks in Clark County; not all park locations have been mapped. Many of these parks are located in the incorporated communities and within the range of sirens for weather warnings, but not all. Most are believed to not have convenient, quick access to safe rooms or other storm shelter. A number of stakeholders noted a need for continued public education on sirens and warning systems (e.g., they are not meant to be heard when inside).

Projected Loss Estimates

Table 6 provides tornado and high-wind loss estimates for Clark County. The County has experienced some very devastating tornados, though such events have been relatively infrequent. Since 1950, the County has experienced over $69.3 million in tornado damages when adjusted for inflation. Using FEMA standards, the 9 injuries and 2 deaths from tornado events between 1950-2024 resulted in an additional $16,392,000 in total tornado losses (an average of $409,800 per tornado event). Though more frequent, high wind losses for the County have been much lower with little or no damages reported for most of the 95 event days from 1993-2024. One death and one injury were reported for these high wind events for an additional $7,188,000 in high wind losses (or $75,663 per reported event day); the annualized losses from high wind deaths and injuries exceed those from property and crop losses.

Table 6. Clark County Tornado & High Wind Loss Estimates

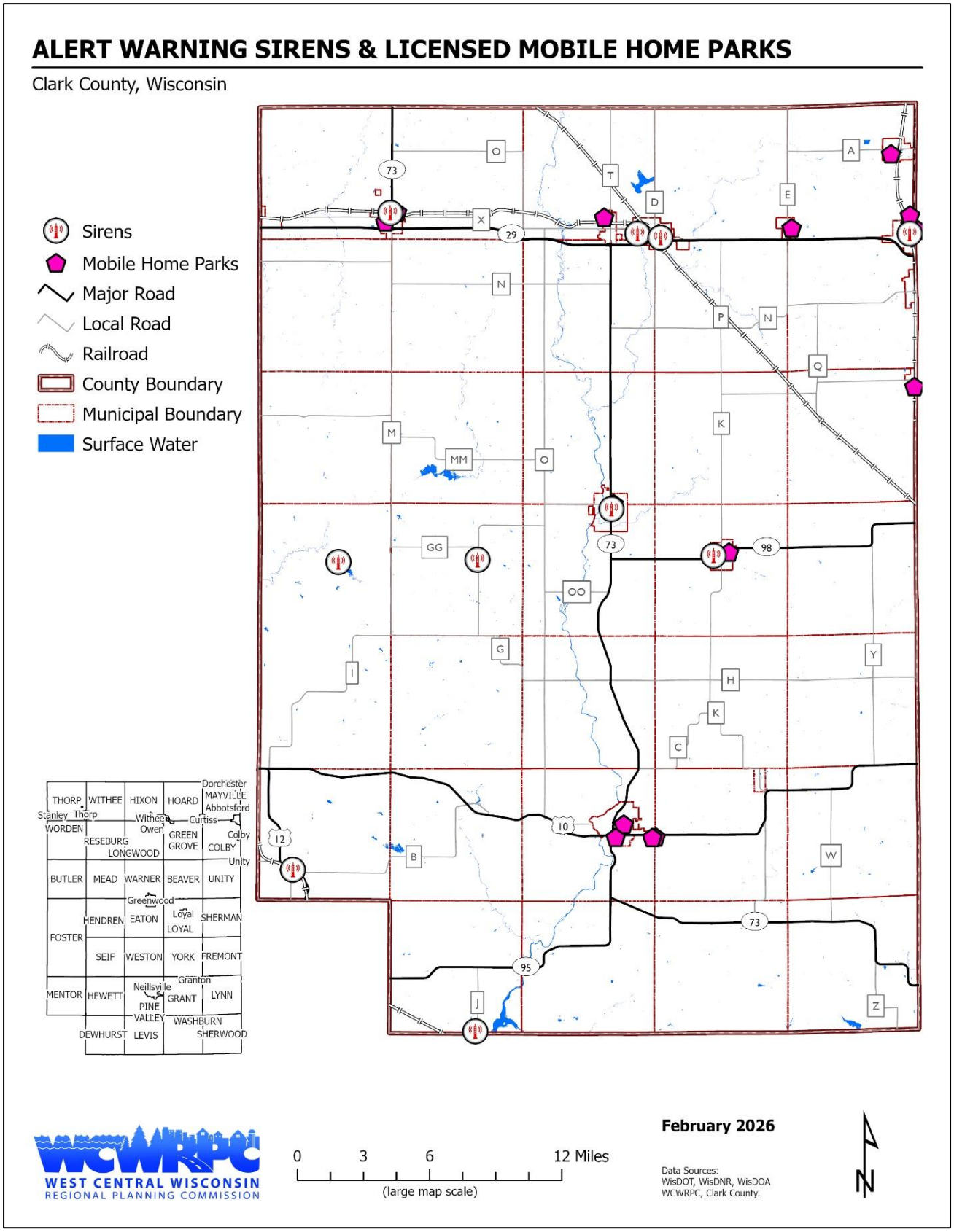
Tornado Loss Estimates			
Avg. Damage per Tornado (1950-2024)	**Annual Probability**	**Estimated Future Annual Loss (property & crop)**	**Estimated Future Annual Loss (injury, death, & property)**
$1,732,944 (40 events)	0.54	$935,790	$1,157,082
Thunderstorm High Wind Loss Estimates			
Avg. Damage per T-Storm Wind (1993-2024)	**Annual Probability**	**Estimated Future Annual Loss (property & crop)**	**Estimated Future Annual Loss (injury, death, & property)**
$34,588 (95 event days)	3.06	$105,839	$337,368

Source: National Climatic Data Center (NCDC) and West Central Wisconsin Regional Planning Commission (WCWRPC).

The methodology used to develop the tornado and high wind loss estimates in the previous table is based on the approach described in the *State of Wisconsin THIRA & SPR.*[9] The number of reported events, property damage, event probability, and past losses are all based on the NCDC storm event data previously summarized, including inflation for damages. On average, each injury was given a monetary value of $288,000 per injury, while deaths were given a monetary value of $6.9 million per death based on FEMA guidance for benefit-cost calculations.

[9] State of Wisconsin Homeland Security Council THIRA & SPR, updated January 2017.

Figure 7. Alert Warning Sirens and Licensed Mobile Home Communities



There are some important limitations to the above numbers:

- The estimates in Table 6 are only based on those events reported to the NCDC during those time periods. Events and data prior to 1993 were not consistently reported, especially for minor damages and injuries. And, as previously noted, the damages from many events were greatly under-reported and some significant events not reported at all.
- On the flip side, the damages, injuries, and deaths reported for some earlier events in the NCDC database may have included impacts from outside the County.
- High winds can also occur as part of a tornado event but are often reported as part of the tornado. For example, the July 1980 derecho is primarily known locally for the straight-line wind damage, though the damages are reported with the tornado events due to the multiple tornados spawned by that storm system.

FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's NRI provides an alternative source of estimated annual losses (EALs), which yields significantly higher annual loss totals when compared to the previous estimates:

Risk Factor	Tornado	Strong Wind
EAL Rate – Population	1 per 702.97k	1 per 1.42m
EAL Rate – Buildings	$1 per $9.58k	$1 per $43.69k
EAL Rate – Agriculture	$1 per $64.71k	$1 per $100.45k
Total EAL	$1,533,574	$497,287
Exposure	$411.31 billion	$411.31 billion
Events per year	0.5	2.6
Historic loss ratio	Relatively Low	Relatively Low
Overall Loss Score	63.9 (Relatively Low)	65.1 (Relatively Moderate)

According to the NRI data, tornadoes have the highest estimated annual losses of any natural hazard event ($1.5 million), followed by cold waves ($683,279), and then strong winds ($497,287). Compared to the loss estimates on the previous page, the NRI data has slightly higher estimated annual losses.

Other Factors Influencing Future Losses

1. Population Growth & New Development. As noted previously, Clark County is continuing to grow, which increases the exposure to tornado and high wind events.
2. Long-Term Changes in Weather. The annual probability of tornado and high wind events will likely increase due to long-term weather patterns, but we are unable to confidently quantify the extent of this increase at this time. While initial studies suggest that changes in weather patterns may result in an increase in tornado and high wind events on a national level, it is not clear how the future probability of such events will change locally. See **Section III.B.** for additional discussion on the related effects of such changes in weather patterns.
3. Preparedness & Mitigation. Potential losses can be reduced through mitigation actions, such as the warning systems, use of safe rooms, anchoring of mobile homes and personal property, burying of overhead utilities, and public education initiatives.

ii. THUNDERSTORMS, LIGHTNING, AND HAIL

For this plan, thunderstorms include lightning and hail, and are intricately linked with some of the other hazards, such as tornadoes and flooding. Due to the similarities in impacts, **thunderstorm high winds are discussed as part of the previous *Tornadoes & High Winds* sub-section** (III.C.i.) and are not repeated here. **Flooding as a result of heavy rains is analyzed as part of the *Flooding* sub-section** (III.C.v.). **For thunderstorm, lighting, and hail risks and vulnerabilities specific or unique to the participating villages, cities, and educational institutions please refer to Supplements 5 & 6.**

Defining the Hazard – Thunderstorms, Lightning, & Hail

Thunderstorms are severe and violent forms of convection produced when warm, moist air is overrun by dry, cool air. As the warm air rises, thunderheads (cumuli-nimbus clouds) form which cause the strong winds, lightning, thunder, hail and rain associated with these storms.

Heavy Rain definitions can vary based on factors such as duration, intensity, and location. For purposes of this plan, a heavy rain event is a 100-year event.

Lightning can strike anywhere. Lightning is formed from the build-up of an electrical charge in a cloud. When this charge is big enough, the air ionizes and a discharge occurs with another cloud, the ground, or the best conducting object. The resulting electric charge reaches temperatures higher than 50,000°F. This rapid heating and subsequent cooling cause the air to expand and contract, which results in thunder.

Hail is the accumulation of ice crystals due to warm, moist air rising rapidly into the freezing temperatures of the upper atmosphere. When frozen droplets accumulate enough weight, they fall as precipitation. Hail or sleet occurs when these frozen ice balls do not fully melt upon descent, and they can reach the size of softballs.

An expanded definition is located in *Mitigation Plan Supplement 2.D.*

Hazard Location & Extent

There are no geographic boundaries or locations within Clark County uniquely affected by or from thunderstorm, heavy rain, lightning, or hail events; all Clark County jurisdictions are equally at risk of experiencing these types of severe weather.

Heavy rain intensities for 100-year rainfall events for Clark County were previously identified in the definitions. The *Mitigation Plan Supplement* describes how lightning strike and hail intensities are measured.

NOAA tracks and reports severe thunderstorms using watches and warnings:

Severe Thunderstorm Watch	Severe thunderstorms are possible in and near the watch area. Stay informed and be ready to act if a severe thunderstorm warning is issued. The watch area is typically large, covering numerous counties or even states.
Severe Thunderstorm Warning	Severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property. Take shelter in a substantial building. Get out of mobile homes that can blow over in high winds. Warnings typically encompass a much smaller area (around the size of a city or small county) that may be impacted by a large hail or damaging wind identified by an NWS forecaster on radar or by a trained spotter/law enforcement who is watching the storm.

Event History – Thunderstorm, Lightning, & Hail

Since 1982, Clark County has experienced a low number of reported lightning events (4). In comparison, Clark County has been a hotspot for hail events (116). *Mitigation Plan* Supplement 2.D. includes maps showing the distribution of lightning and hail events statewide since 1982.

National Climatic Data Center (NCDC) Summary

The table below provides a summary of the thunderstorm events that have been reported to the National Climatic Data Center for Clark County since 1993. From 1993 to 2024, Clark County experienced 336 severe thunderstorm, lightening, and hail events of varying magnitude, for an average of approximately eight to nine events reported each year. The NCDC database is not inclusive of all damage estimates from hazards in the County. Damages to buildings and crops, as well as general debris clean-up costs, are often under-reported.

Thunderstorm, Heavy Rain, Lightning, & Hail Event Summary 1/1/1993 - 12/31/2024			
Total Events:	336	Number of Events Per Year:	10.84
Total Event Days:	152	Number of Event Days Per Year:	4.90
Total Injuries:	3	Total Deaths:	0
Total Event Days with Property Damage:	190		
Property Damage (from NCDC):	$ 2,336,500		
Property Damage (adjusted for inflation):	$ 3,952,544		

- 336 events were reported on 152 event days, reflecting that many of the events reported are for the same storm cells recorded for different parts of the County.
- The 336 events include (*reported damages are 2024 dollars when adjusted for inflation.)*:
  - Nineteen heavy rain events on thirteen event days with $3,000 in reported crop damage
  - 132 hail events on 77 days with $313,687 in reported property damage, $420,125 in reported crop damage, and no injuries or deaths.
  - 3 lightning events on 3 different event days with 0 deaths and 2 injuries, $166,076 in property damage, and no reported crop damage.

- 182 thunderstorm wind events on 88 event days with $2,899,024 in reported property damage, $159,316 in reported crop damage, 1 injury and no deaths.

Significant Clark County Events

The *Tornado & High Winds* section previously highlighted the most significant **thunderstorm wind events** in recent history. Flooding as a result of heavy rain is discussed in the *Flooding* section. Two of the injuries reported in the NCDC database for Clark County were the result of lighting. The incident occurred in the Town of Willard in August 2002; two persons on a camping trip were injured when lighting struck a tree near their tent. The two were sleeping when the lighting hit and one of them had to be revived by use of CPR.

In terms of damage, the May 19, 1996, thunderstorm was the most significant in recent decades, with high winds, including gusts up to 90 mph, were the primary cause of the damages. Over $500,000 in property damages throughout the County. Several barns were damaged or destroyed in the Loyal area, while numerous trees were blown down across the county. Barns and mobile homes were damaged in Pine Valley township and in the Greenwood area.

Hazard Probability—Thunderstorms, Lightning, & Hail

The Plan Steering Committee rated thunderstorms, lightning, and hail events as having a moderate-to-high probability of occurrence in Clark County and a moderate vulnerability (impact). The *Tornado & High Winds* section discusses the probability of high wind events, which were rated by the Plan Steering Committee as having a similar probability of occurrence but a higher vulnerability.

Based on the thunderstorm events since 1993 and the National Risk Index (NRI), it is probable that Clark County will experience:

- **About 5 thunderstorm event days per year, with strong wind events (about 3 per year) causing the most damage.**
- **About 2.5 hail event days per year, with serious hail damage being relatively rare.**

Due to the lack of NDC data for lightning events, damage or injuries, a probability estimate for lightning events is not included. However, every thunderstorm produces lightning, so the thunderstorm probability above also applies to lightning. The NRI suggests Clark County experiences 31.2 lightning events per year, making it the most frequent hazard facing the County; it is suspected that multiple reports can be attributed to a single thunderstorm. According to the NOAA, the odds of a person being struck by lightning in a given year are one in 1.2 million and almost 90% of victims live.

Based on stakeholder and local official input throughout the region, the NCDC data underestimates the frequency of heavy rain events, so the probability for these events is not estimated here. Instead, it is more important to consider the probability and vulnerability of flooding induced by heavy rain events, which is discussed in *Flooding* threat section. The *Tornadoes & High Winds* and *Flooding* sections note that the probability of thunderstorm and heavy rain events, with accompanying lightning and hail, will likely increase in the future due to long-term weather patterns as discussed in Section III.B.

Vulnerability Assessment—Thunderstorms, Lightning, & Hail

General Vulnerabilities	
People	• Those attending festivals, fairgrounds, and outdoor recreation events are more vulnerable to experience a lighting vulnerability. On average 25-30 people die each year from lightning strikes in the United States. Unlike a tornado event, lightning does not cause mass casualties, usually claiming one or two victims at a time. Lightning most often strikes people who engage in outdoor recreational activities or work outside. However, one-third of lighting victims are indoors. • The County has persons without housing who may lack sufficient shelter during lightning and hail events.
Above-Ground Structures	• Tall structures and towers – lightning usually strikes the tallest thing on the landscape. While Clark County does not have any skyscrapers, communication towers, water towers, and above-ground electrical infrastructure are all good lightning targets, including emergency communication towers and sirens. • Buildings, especially siding, windows, and roofs, are vulnerable to hail storms.
Campgrounds	• Limited shelter in the event of a thunderstorm or hailstorm. Similar to tornado/high winds overall.
Local Economy	• Power outages may disrupt or shutdown electronic business transactions / communications.
Natural, Historic, & Cultural Resources	• Forests – tall trees, especially on hillsides, are good lightning targets. • Lightning strikes can ignite older, wood structures. • Heavy rains and hail may cause damage to older structures and historic sites.
Community Lifelines	
Safety & Security	• Many of these facilities do not have storm shelters or emergency power generation.
Food, Water, Shelter	• Farms - the National Board of Fire Underwriters reports that lighting is the top cause of farm fires. Lighting is also responsible for more than 80 percent of all livestock losses due to accidents and millions of dollars in damage to farm buildings and equipment annually. In Wisconsin, insurance records show that one out of every fifty farms are struck by lightning or has a fire that may be caused by lightning each year. • Lightning strikes and related power surges also pose threats to utilities, lift stations, communications equipment, and airport runway lights. • Hail can cause defoliation of crops and result in financial losses for farmers. People and livestock can be injured, thought deaths are rare. • Lightning can trigger wildfires in agricultural areas. See *Wildfire* section.
Health & Medical	• Vulnerability to potential loss of power mitigated through availability of on-site generators at hospitals
Energy	• Lightning strikes can cause power outages. • Hail exceeding 1” in diameter has the potential to damage solar panels / arrays.
Communications	• Lightning strikes can cause power outages. • Lightning strikes can cause damage to telecommunication equipment.
Transportation	• Hail can impact travel conditions and shatter windshields, causing accidents or delays.
Hazardous Materials	• None known.
Educational Institutions	• Lightning is a concern during outdoor gatherings, such as sporting events and parades.
Vulnerability to Future Assets	
Population Growth & Development	• Additional structures will increase the property damage impacts of hail events. • Additional development increases the impact of power outages on the community. • Taller and/or metallic structures are more susceptible to lightning strikes.
Other Assets	• During the mitigation planning process, participants and stakeholders were asked to identify any planned or anticipated future assets that may be particularly or uniquely vulnerable to thunderstorms and hail. No such future assets were identified.

Potential Loss Estimates

FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's National Risk Index (NRI) suggests that Clark County's losses to lightning and hail are relatively high, and provides the following expected annual losses (EALs) for the county:

Risk Factor	Lightning	Hail
EAL Rate – Population	1 per 4.80m	1 per 45.10m
EAL Rate – Buildings	$1 per $618.37k	$1 per $199.09k
EAL Rate – Agriculture	--	$1 per $15.35k
Total EAL	$98,392	$85,042
Exposure	$410.85 billion	$411.31 billion
Events per year	31.2	3
Historic loss ratio	Relatively Moderate	Relatively Low
Overall Loss Score	53.2 (Relatively Low)	49.7 (Relatively Low)

The above table suggests that Clark County is projected to experience annual lightning losses 1.16 times greater than hail losses. Based on $2.2 billion in 2024 assessed improvements, annual hail damage to Clark County's buildings would be over $11,000 each year once tax-exempt structures are included. The NRI data also shows that the risk of injury to Clark County's residents from lightning is much higher than that of hail, and a single lightning death would significantly increase the projected total lightning losses.



As discussed in the community profile, Clark County is continuing to grow and develop. This creates an increasing exposure to the number of residents and properties that could be at risk from future thunderstorm, hail, and lightning events.

iii. WINTER STORMS AND EXTREME COLD
(including blizzards and ice storms)

This sub-section highlights key winter storm and extreme cold-related information and the effects of these events. Supplement 2.E. of the *Clark County Hazard Mitigation Plan Supplement* provides additional details. **For winter storm and extreme cold risks and vulnerabilities specific or unique to the participating villages, cities, and educational institutions, please refer to Supplements 5 & 6.**

Defining the Hazard – Winter Storms & Extreme Cold

Heavy Snowfall - The accumulation of six or more inches of snow in a 12-hour period, or eight or more inches in a 24-hour period.

Winter Storm - The occurrence of heavy snowfall accompanied by significant blowing snow, low wind chills, sleet, or freezing rain.

Blizzard - The occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.

Ice Storm - An occurrence where rain falls from a warm and moist upper layer(s) of the atmosphere to colder and dryer layer(s) at or near the ground, freezes upon contact with the ground, and accumulates on exposed surfaces.

Freezing Drizzle/Rain – The effect of drizzle or rain freezing upon impact on objects that have a temperature of 32º Fahrenheit or below.

Snow Squall - An intense, short-lived burst of heavy snowfall that leads to quick reduction in visibilities and is often accompanied by gusty winds. This hazard is primarily a transportation-related concern; the combination of quick reductions in visibilities and sudden slick conditions on roadways can lead to high-speed collisions and pile-ups.

Extreme Cold - Temperatures lower than historical averages that create a dangerous environment for people, animals, and critical infrastructure or services.

Wind Chill - The apparent temperature that describes the combined effect of wind and air temperatures on exposed skin.

Hazard Location & Extent

There are no geographic boundaries or locations within Clark County uniquely affected by winter storms or extreme cold events. These events can occur anywhere in Clark County and such events often occur at a regional scale involving most or all Clark County communities as well as neighboring counties or even states when they occur.

Winter weather events are significant due to their scope and prolonged effects. Heavy snow, freezing temperatures, and ice can burst pipes, fell power lines, create dangerous travel conditions, and onset frostbite and/or hypothermia. Winter storm events and extreme cold can last for days as temperatures remain frigid. These events impact large contiguous areas, which limits the ability to seek emergency response or resources from nearby areas.

Figure 8 identifies the potential impacts of varying intensities of **winter storm events** on an area as they increase in severity.

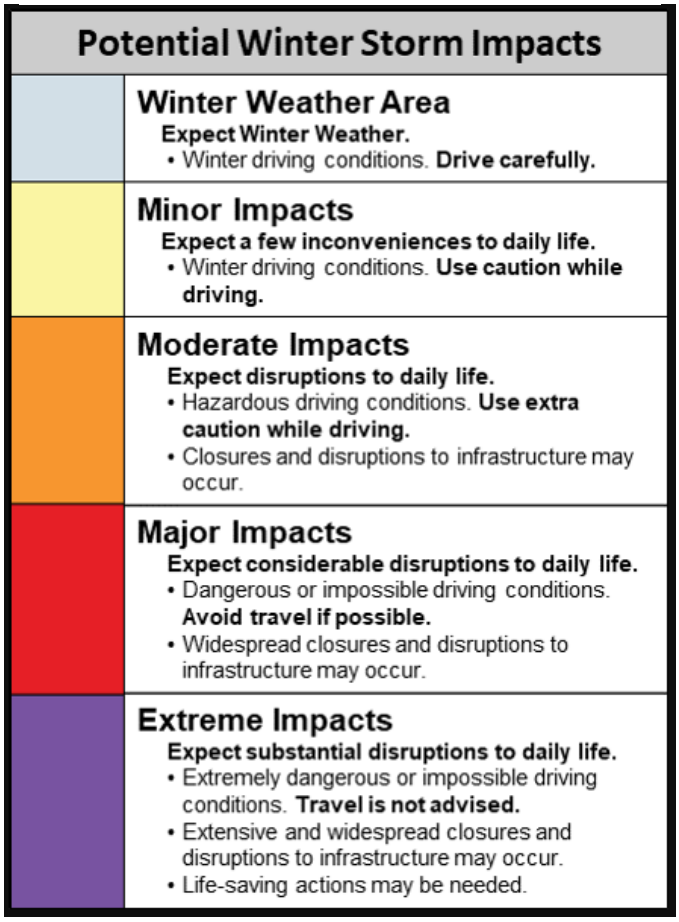
NOAA's National Centers for Environmental Information (NCEI) has produced a **Regional Snowfall Index** (RSI) that is used to rank snowstorm impacts, similar to the EF scale for tornadoes:

Category	RSI Value	Description
1	1-3	Notable
2	3-6	Significant
3	6-10	Major
4	10-18	Crippling
5	18+	Extreme

The RSI includes population and considers societal impacts and allows for the description and comparison of historical snowfall events. As will be later discussed, RSI Category 5 events have occurred in the region.

The *Mitigation Plan Supplement 2.E.* describes how ice accumulation and wind chills are measured.

Figure 8. Winter Storm Impact Scale



Event History – Winter Storms & Extreme Cold

Regional trends on local winter storms and extreme cold events are detailed in Supplement 2.E. of the *Hazard Mitigation Plan Supplement.* These winter-season events are typically regional in nature and are not limited to a localized area or Clark County. However, levels of snowfall or ice accumulation can vary significantly over relatively short distances. Much of the snowfall in Wisconsin occurs in small amounts of between one and three inches per occurrence.

National Climatic Data Center (NCDC) Event Summary

The table below summarizes winter weather events reported by the National Climatic Data Center (NCDC) in Clark County from 1993 to 2024.

Winter Weather Event Summary			
Total Events:	112	Number of Events Per Year:	3.61
Total Event Days:	111	Number of Event Days Per Year:	3.58
Total Injuries:	5	Total Deaths:	2
Total Event Days with Property Damage:	6		
Property Damage (from NCDC):	$ 121,000		
Property Damage (adjusted for inflation):	$ 171,294		

From 1993-2024, Clark County has experienced 111 winter storm event days or about 3-4 event days per year. These events were further characterized by 3 blizzards, 17 heavy snowfall events, 67 winter storm/winter weather events (mix of snow, ice, wind), 9 cold/wind chill events, 10 extreme wind chill or cold, and 5 ice storm/freezing rain events. Most events occurred between November and April, with a few events in April and October.

Significant Clark County Events

According to the Midwest Regional Climate Center, the annual snowfall for Clark County (reported at Neillsville) from 1996-2025 has been between 19 to 88 inches. In 2001, the County was reported having an average snowfall of 19 inches while in 2019 it reported 87.4 inches. Below is a description of some of the worst snow storms in the State of Wisconsin since 2010 to present that potentially included Clark County; more historical events are described in the *Hazard Mitigation Supplement.*

- **Dec 10-12, 2010** – Nearly statewide – Winter Storm/blizzard – Large area of 6 to 23 inches. Maximum amounts of 16 to 23 inches in west-central to central Wisconsin. The 23 inches was measured in southwest Polk County. In the Dunn County area 18 to 22 inches fell. Northwest to north winds gusted to 30 to 50 mph with some whiteouts reported in exposed areas. Rain-snow-sleet mix southeast of a Janesville to Port Washington line limited accumulations to 1 to 5 inches in that part of the state. There were also reports of thundersnow. I-94 was closed during this storm.
- **March 22-23, 2011** – Northern and central portion of the State – This late season winter storm resulted from a strong area of low pressure interacting with a cold air mass in place across the upper Midwest. Moderate to heavy snow fell late the 22nd, continuing into much of the day on the 23rd, bringing 5-10” of snow to the northern half of the state. Thunderstorms developing in Iowa moved northeast into colder air, resulting in locally heavy snow with numerous reports of thunder and lightning. This resulted in higher totals across northeast parts of the state where 12-18 inches fell. Sleet and freezing rain mixed in for central parts of the state with some heavy ice accumulations. Gusty easterly winds produced near blizzard conditions for northeast parts of the state and also helped to bring down a 2,000-foot media broadcast tower near Fairchild in combination with heavy ice accumulations. Green Bay recorded a single-day storm total of 17.8 inches, the biggest snowstorm in over 120 years and the 3rd largest recorded snowstorm.

- **Winter 2014-2015 Polar Vortex** - In winter 2014-2015, Wisconsin experienced a polar vortex. That happens when the cold air cell that is usually centralized in the Arctic splits into smaller cells and those cells travel farther south, cooling the northern hemisphere continents more than normal and warming the Arctic. Statewide, it was the fifth coldest December (2013) through February stretch on record with fourteen locations in the state setting new record low average temperatures. Unfortunately, the record cold temperatures also coincided with a propane shortage throughout the Midwest. Many residences in the rural parts of the state rely on propane for heat. When the shortage hit, many people had to move to shelters or stay with friends or relatives. Staying in other places was an option for some, but when home temperatures drop, permanent damage can occur when water pipes freeze and burst. Because of the shortage, propane prices soared; and those without standing contracts spent a lot more than they had planned on. Extremely low temperatures and lack of snow cover resulted in frost depths of up to 10 feet in the region and caused immense damage to infrastructure for many cities and villages. According to nearby Amery Public Works in Polk County, when one pipe was cut into in May, the line was still frozen. A number of communities in Clark County (e.g., Thorp, Loyal, Neillsville) experienced considerable damage and service disruptions from water main and lateral freeze-ups.
- **April 2018 Heavy Snows & Blizzard** – Two storm systems produced several rounds of snowfall across northern Wisconsin on April 2-3, dropping 5-7 inches in west-central Wisconsin. This was soon followed by a blizzard with sleet, snow, and high winds that pummeled northeast and north-central Wisconsin on April 13-15, 2018. Snow totals in west-central Wisconsin ranged from 8-15 inches, breaking snowfall total records for the month of April. Some areas of the region also experienced small hail and sleet accumulations of up to 2 inches with wind gusts of 30 mph.
- **January 2019 Extreme Cold** – Winter 2018-2019 would not only bring record-breaking snowfalls, but in late January a surge of Arctic air moved into the region dropping temperatures and wind chills to levels not seen since Winter 1995-1996. Temperatures in the 20s and 30s below zero were experienced in the County. The coldest measured wind chill of -59F in west central Wisconsin was at the Menomonie airport. A number of warming shelters were activated in the County and the County's Aging and Disability Resource Center received many inquiries regarding the health of clients from family members and others. United Way was also getting inquiries for assistance, but this information was not necessarily passed along to 2-1-1 or local resources. As a result of this event, some County officials noted a need for more engagement of non-community partners and better use/awareness of 2-1-1, including the potential review and update of related MOUs.
- **February 2019 Snow Storms** – Five different winter storm/heavy snow events during this month would pummel west-central Wisconsin and break records for snow accumulation. Each of these storm events would average 5-12 inches of snow over much of the region. By February 12th, the region's record for the snowiest February had already been broken. By the end of February 201, it would be the snowiest month on record all-time for Eau Claire with 53.7 total inches, shattering the previous monthly record of 28.2 inches from 1936. Winter 2018-2019 would also go on to set the record for the snowiest winter season with 98.8 inches total in Eau Claire.
- **March 2025 Winter Storms** – In March 2025, the County experienced multiple winter storm events, with blowing snow (near blizzard conditions) early in the month, about ten inches of snow fall on March 19th, and an ice storm on March 29 and 30 that downed trees and impacted travel.

- **March 2026 Snow Storm** – This winter storm resulted in Clark County receiving up to 25" of snowfall with high winds causing the drifting of some roads. Motorists on Interstate 94 between Black River Falls and Osseo were stranded for about 5 hours with the National Guard going vehicle-to-vehicle distributing food and water.

Hazard Probability – Winter Storm & Extreme Cold

The Plan update Steering Committee ranked heavy snow storms, ice storms, blizzards, and extreme cold as moderately high overall in terms of combined risk (probability) and vulnerability. During the plan update, social services and health providers were generally more concerned with extreme cold than local officials. The 2025 NCWHERC Health Vulnerability Assessment identifies extreme cold, blizzards, ice storms, and snowfall among the region's top hazard events from a public health perspective. Local officials were also generally more concerned with extreme cold than extreme heat, especially should a power outage occur.

The reoccurrence of winter storm events for Clark County is expected to be consistent with recent trends, with three to four severe winter storm events, on average, occurring each year. Snowy, slushy, or icy conditions on roadways from less severe events would be much more frequent. Should Wisconsin's weather patterns continue to change as discussed previously, Clark County could experience warmer, shorter, and wetter winters overall, which could mean fewer extreme cold events, but with increased potential for heavy snow and ice storms.

As discussed previously, not all locally severe winter weather events are reported to the NCDC, so the above probabilities provide a range for event probability to consider these unreported events. Although the improvement of technology has enabled meteorologists to better identify and predict the conditions that are favorable for winter storm development, there is no precise way to predict the formation, location, and magnitude of future events over the long-term. As will be shown later in this section, the National Risk Index (NRI) reports a significantly higher annualized frequency for some of the above events; it is believed that the primary difference is due to the NCDC data being limited to severe storm events, while the NRI data may be including additional reported events regardless of intensity.

The above probabilities are for severe or extreme events; less severe winter-related events occur much more frequently as documented by the previous Highway Department/Wisconsin DOT data, but these events can still be very dangerous for drivers, pedestrians, etc. As discussed previously in Section III.C., Wisconsin and Clark County are predicted to experience warmer, wetter winters. This climate trend and its related implications were discussed by the Steering Committee and other stakeholders during the Plan update. **It was speculated that while extreme cold events may decrease in frequency over time due to climate change, the potential for heavy snow and ice storm events (and related power outages) may increase**. The historic snowfall records of the 2022-2023 winter season, followed by the mild temperatures and low snowfall amounts of November-December 2023, are potential indications that these climate trends are already occurring. But it was also noted by some plan update participants that weather patterns are at times very erratic making it difficult, if not impossible, to predict future annual probabilities for specific event types.

Vulnerability Assessment – Winter Storms & Extreme Cold

General Vulnerabilities	
People	• All residents and visitors are at-risk of injury or death from winter storms and extreme cold events, especially those that: (1) are associated with the previously mentioned facilities and (2) lack access to properly insulated and heated homes. Heating costs can be a hardship for many households. • Prolonged exposure to the cold can result in hypothermia, frostbite, or death. • Snow accumulation on roads may cause delays in delivery of medical supplies and / or eliminate access to medical facilities and treatment centers. • Death may occur from over-exertion when clearing or shoveling snow. • The County has persons without housing who are exposed to extreme weather events, which can lead to illness, injury, and death. Compared to more urban counties, the numbers of chronic homeless in the County are significantly lower but do exist; some are living in vehicles. • Seniors - Prolonged exposure to extreme cold temperatures can result in hypothermia, frostbite, and death. Dangerous travel conditions may limit or prevent access to goods, services, needed treatments (e.g., dialysis), needed medicines, and other medical facilities. Slipping on ice can cause serious injury or death. With a growing number of seniors in the County, this vulnerability will continue to grow. • Lower Income Individuals - Excessive cold spells drive up energy expenses, which could be a financial challenge for low-income households and seniors on fixed incomes. Residents of mobile home parks are often economically disadvantaged; see previous mobile home discussion.
Above-Ground Utilities & Emergency Communications Infrastructure	• Ice and frost can accumulate on, damage, and sever overhead power lines and above ground communications lines and towers. Ice and heavy snow can also topple trees and break branches, which can take down power lines. • Above-ground power lines, especially in wooded areas, were the most frequently identified infrastructure vulnerability due to the potential damage from ice and falling tree limbs, especially during high winds. This vulnerability is further explored in the *Long-Term Power Outage* threat sub-section.
Underground Utilities	• Underground utility lines, including water and sanitary sewer lines, can freeze and / or burst. These are especially vulnerable where there are very cold temperatures or inadequate insulting snow cover.
Large or Clear Span Structures	• Buildings with large spans (e.g., airport hangars, pole barns, gyms, factories) have a higher structural vulnerability during heavy snowfall events. • Roof damage may occur on any roof due to ice damming. However, these events are isolated and typically go unreported, making them difficult to track and quantify. • Overall, there is a very low vulnerability to move structures in Clark County dur to winter storms, though roofs of some larger span structures and pole buildings have collapsed under heavy snow loads in the past, such as in December 2010 and Winter 2019. Heavy, wet snow caused many roofs to collapse and structural failures across the region. For example, the County Highway Shop experienced some roof failure in March 2019 due to the west, heavy snow load, which contributed to interior flooding.
Mobile Homes	• Mobile homes or temporary structures that may lack adequate insulation or heating systems, making them more vulnerable to extreme cold temperatures. Frozen or burst pipes due to prolonged exposure to extreme temperatures. Potentially leading to water damage or water supply issues. • Section II.C. and the tornado/high winds assessment in Section III.C. document the number of mobile homes and distribution of mobile home parks. • The number of mobile homes as full-time residences and licensed mobile home parks have been decreasing.

Local Economy	• Winter storm events make commercial activity difficult due to travel restrictions.
Natural, Historic, & Cultural Resources	• None known.
Community Lifelines	
Safety & Security	• Facilities lacking emergency power generators are vulnerable to power outages caused from down power lines. • Emergency response resources could be strained, including medical services, fire departments, and law enforcement, due to increased incidents, accidents, and challenges in access and mobility. • Many government buildings, EOCs, fire halls, and police departments lack emergency power generators. Not all communities have continuity plans for these services, though mutual aid for emergency services is relatively strong.
Food, Water, Shelter	• Resident and homeless populations may be vulnerable to exposure / cold temperatures due to power outages. No homeless or permanent shelter options and no local VOADs/non-profit groups to assist with "non-disaster" sheltering. • Sewer system backups can occur during extreme cold events due to freezing. Blockages and overflows in the municipal sewer system can impact homes, businesses and public areas; posing serious health hazards and potentially costly repairs and cleanups. • Outdated or insufficiently buried watermains can freeze and rupture causing water supply issues. Posing health and safety risks to citizens. 2014 Polar Vortex caused some breaks of water lines and laterals in some communities. • Crops and animals are vulnerable to cold temperatures. Fruit crops are particularly vulnerable from early or late freezes. • Unexpected early fall/winter and late spring/summer cold weather events can impact crop yields. Winter crops, such as alfalfa, are vulnerable to winter kill during periods of extreme cold without sufficient snow on the ground to help act as an insulator. In 2002-2003, some counties in the region lost 50 percent or more of the hay crop, which drove up costs for producers requiring supplemental feed purchases for livestock. Some amount of winter kill is fairly frequent and can be expected almost annually; more substantial winter kill events can be expected to occur one or two seasons each decade on average (about a 10% to 20% chance per year) based on recent trends. • Grain and milk production are significant contributors to the County's economy and play a very important role in the food supply chain. Freezing and winter kill can be especially hard on fruit crops and alfalfa.
Health & Medical	• Hazardous road conditions can impair the function of these critical facilities if workers are unable to reach their place of work. • Senior care facilities and group homes have a high vulnerability. Most of these structures serve a vulnerable population and would be severely impacted during a power outage and extreme cold event. Some, but not all, have generators and/or fuel agreements. Most are believed to now have emergency plans addressing such circumstances. • The County's two hospitals in Stanley and Neillsville were identified as being a significant concern due to their potentially vulnerable population, emergency response functions, and importance to the community. • Hospitals and larger facilities have emergency plans and generators.
Energy	• Ice and heavy snow can topple trees and take down power lines and communications infrastructure. See *Long-Term Power Outage* section.
Communications	• Ice and heavy snow can topple trees and take down power lines and communications infrastructure.
Transportation	• Roadways, bridges, and transportation systems may be affected by icy conditions, snow accumulation, or reduced visibility, resulting in hazardous driving conditions, accidents, and restricted mobility. Ice is the greatest concern; it is suspected that icy conditions caused a three-vehicle crash with one fatality and one serious injury.

	• Not only can hazardous roads conditions and closures due to ice, snow pack, and drifting snow cause injuries, but can also disrupt a range of services, hinder emergency responses/law enforcement, require school closures, and temporarily interrupt shipping. For example, County Aging and Disability Resource Center (ADRC) services (i.e., nutrition sites, meals on wheels) were suspended for thirteen days in Winter 2019 due to heavy snow and extreme cold; two ADRC vans were also damaged when heavy snows slid off of a nearby building roof. • Roads in shaded, wooded areas can be especially icy and hazardous. • Sudden freezing and thawing events can deteriorate roadways. Winter maintenance costs of roadways can be very expensive and burdensome. • Though infrequent, ice dams occasionally contribute to flooding problems, especially along the Black River south of Neillsville. The extent of past damage to structures along the Black River which can be specifically attributed to ice damming is not known, though any impacts have been relatively isolated and sporadic. Culverts and other stormwater systems can be prone to ice-damming resulting in localized flooding, which is further discussed in the *Flooding* threat sub-section. • County Highway Department maintains 300 lane miles of county highways and 225 miles of State/Federal highway. The Department will grade berms to help prevent drifting in some locations and temporary snow fencing is used in a few key areas. Farmer participation in WDOT corn row program is limited and these is no formal live snow-fencing initiative. • Closure of Federal/State highways a challenge given access points. Work with WDOT, State Patrol, and others on related planning and resources (e.g., people, barricades, signage). • Public expectations regarding road conditions and plowing can be unrealistic and not achievable. More education needed.
Hazardous Materials	• No specific concerns noted.
Educational Institutions	• During severe winter and extreme cold events, most educational institutions will be cancelled or moved to online due to a decreased amount of mobility. • Typically there are multiple buildings at any single campus. All above-ground structures are vulnerable, especially gyms or theaters. • Public primary and secondary schools are most frequently identified as having a high vulnerability due to the presence of school-age children and concentrations of students and staff. Indoor- and outdoor-event visitors are also vulnerable. • See subplans in **Section VII.B.** for any unique concerns for participating institutions.
Vulnerability to Future Assets	
Population Growth & Development	• As reflected in Section II.C., the County continues to grow in population and new development, thus increasing overall exposure to winter storms • The number of seniors in the County is increasing, so the vulnerabilities to this population and community lifelines serving this population are expected to increase.
Other Assets	• During the mitigation planning process, participants and stakeholders were asked to identify any planned or anticipated future assets that may be particularly or uniquely vulnerable to Winter Storm events; no unique concerns were noted.

Projected Loss Estimates

Overall, there is a low vulnerability to structures in Clark County due to winter storms. Some occasional roof damage due to ice damming or bursting of inadequately buried water lines can be expected, but such damage is almost always isolated, not officially reported, and/or remedied by the homeowner with an insurance claim. It is unfeasible to maintain a database accurately detailing the structural condition of all assessed improvements in Clark County to determine which structures may be more vulnerable to the impacts of future winter storm events. And no NCDC winter weather damages were reported on

which to reliably project future winter weather loss estimates for severe winter storm events without a more intensive study.

FEMA National Risk Index (NRI) Estimated Annual Losses

As a substitute, the National Risk Index provides the following expected annual losses (EALs) for Clark County and suggests that winter weather, ice storm, and cold wave events in the County have similar loss exposures:

Risk Factor	Winter Weather	Ice Storm	Cold Wave
EAL Rate – Population	1 per 8.77m	1 per 7.82m	1 per 821.77k
EAL Rate – Buildings	$1 per $1.13m	$1 per $1.62m	$1 per $24.52m
EAL Rate – Agriculture	$1 per $89.22k	--	$1 per $2.39k
Total EAL	$59,070	$57,043	$683,279
Exposure	$411.31 billion	$410.85 billion	$411.31 billion
Events per year	5.6	0.3	1.1
Historic loss ratio	Relatively Low	Relatively Low	Very Low
Overall Loss Score	55.3 (Relatively Moderate)	50.6 (Relatively Low)	90.3 (Relatively High)

The above loss estimates further suggest that agriculture is the County largest winter-related vulnerability financially, though ice storm events poses a substantial risk to residents. Based on Clark County's 2020 population of 34,659 and the above EAL rate, one County resident will be seriously injured by an ice storm event about once every 225 years.

The continuing changes in land-use and development patterns can influence the County's potential for future exposure to winter storms. As discussed in Section II.C., Clark County is continuing to grow and develop. This creates an increasing exposure to the number of residents and properties that could be at risk from future winter storm or extreme cold events.



iv. FLOODING (including dam failure, riverine, & overland flooding)

This section is organized differently than the previous natural hazard assessments given that the flooding assessment followed by a brief analysis of Clark County's dams. The *Plan Supplement 2.G* provides additional details. **For flooding risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in Plan Supplements 5 & 6.**

Defining the Hazard – Flooding

Flooding is defined as a general condition of partial or complete inundation of normally dry land from the overflow of inland waters, or the unusual and rapid accumulation or runoff of surface waters from any source. Often, the amount of damage from flooding is directly related to land use. If the ground is saturated, stripped of vegetation, or paved, the amount of runoff increases and contributes to flooding. Additionally, debris carried by the flood can damage improvements and infrastructure, or can obstruct the flow of water and further add to flooding.

For Clark County, flooding can be further subdivided into three primary types: (1) stormwater or overland flooding, (2) lake or riverine flooding, and (3) flooding resulting from dam failure, which is discussed later on in this sub-section.

Stormwater Flooding (Overland) and Flash Flooding (Overbank or Overland) - The type of flooding which occurs primarily from surface runoff as a result of intense rainfall is referred to as stormwater flooding or overland flooding. These flooding events tend to strike quickly and end swiftly. If 6" of rain falls on 2,000 square feet of roof and concrete (about the size of a typical roof, driveway, and garage), 1,000 square feet of stormwater will runoff from that single home.

Lake or Riverine Flooding (Overbank) - Major floods in Wisconsin have, for the most part, been confined either to specific streams or to locations which receive intense rainfall in a short period of time. Flooding which occurs in the spring due to snow melt and/or a prolonged period of heavy rain is characterized by a slow buildup of flow and velocity in rivers, streams, or lakes over more than six hours and often over a period of days. This buildup continues until the river, stream, or lake overflows its banks for as long as a week or two, then slowly recedes. Generally, the timing and location of this type of flooding is fairly predictable and allows ample time for evacuation of people and property.

Floodplain – Associated with a surface water (overbank flooding), a floodplain is land that has been or may be covered by floodwater during a flood event and includes the floodway and flood fringe areas. Within this plan, the use of the term "floodplain" is referring to the 100-year floodplain as officially delineated under FEMA's National Flood Insurance Program (NFIP) unless otherwise specified. *Mitigation Plan Supplement 2.G* explores the flood-related definitions in greater detail.

Hazard Location & Extent

Overbank and overland flooding occur throughout parts of Clark County. Areas within the 100-year floodplain are most likely to experience riverine or overbank flooding, while areas prone to overland or stormwater flooding are influenced by a variety of factors (e.g., topography, high water table, stormwater

system capacity, land use). During the plan update process, communities and stakeholders have expressed increasing concerns with overland, flash flooding, which can occur throughout the County and especially in areas of hilly terrain and/or with higher groundwater tables.

The NFIP classifies flooding through the use of recurrence intervals:

Table 7. NFIP Flood Recurrence Intervals

Flood Recurrence Interval	Chance of occurrence during any given year
5-year	20%
10-year	10%
50-year	2%
100-year	1%
500-year	.20%

The federal standard for floodplain management under the NFIP is the "100-year floodplain." This area is chosen using historical data such that in any given year there is a 1% chance of a 'base flood' (also known as "100-year flood" or "regulatory flood"). A base flood is one that covers or exceeds the 100-year floodplain.

NFIP-designated floodplain areas are shown on maps later within this subsection. The 100-year floodplain should be considered as Clark County's high flood-hazard risk areas. The 100-year floodplains are shown as the "A" or "AE" zones on NFIP's Flood Insurance Rate Maps (FIRMs). Nationwide, 26 percent of the 100-year floodplains experience or exceed a 100-year flood event within a typical 30-year mortgage period. The 500-year floodplains (the shaded "X" zones on the FIRM maps) are the medium-risk flood-hazard areas for which insurance should be considered but fall outside the regulated 100-year floodplain. The remaining unshaded "X" zones on the FIRM maps should be considered the low-risk flood-hazard areas but may still be prone to stormwater or flash flooding.

The current Flood Insurance Rate Maps (FIRMs) for Clark County were made effective on July 6, 2010, and are available in a digital format (D-FIRMs).

Clark **County National Flood Insurance Program & Flood Mapping Status**	
Initial Flood Hazard Boundary Map:	12/27/74
Date Community First Joined NFIP (Reg-Emer)	08/15/90
Initial Flood Insurance Rate Map (FIRM) Identified:	08/15/90
Current Effective FIRM Date:	07/06/10
NFIP Participation Status (and reason if not participating):	Participant in good standing
Floodplain Regulations w/ NFIP standards:	Adopted most recent WDNR model in 2024
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	County Zoning Administrator

Inaccuracies with the FIRMs (Zone A) have been a significant problems for floodplain zoning in Clark County. The updated FIRM maps from 2010 were not based on more recent LIDAR topographic data,

which could have improved map accuracy. Most of the County's floodplain also lacks engineered floodplain boundaries (i.e., Zone "AE"), which offers a greater level of accuracy. Letters of Map Amendment (LOMA) based on recent LIDAR data is not being used.

While these 100-year floodplains are most likely to experience overbank flooding, it is important to note that the geographic delineation of floodplain areas is estimated based on various data inputs, which may include topography, hydrology, climatology, and historic records, and that flood inundation can occur in areas not mapped as flood hazard areas Additional high-hazard flood areas can exist that are not shown on the FIRMs; other areas prone to flooding are discussed later in this sub-section and in the city/village subplans. New and changing floodplains and flood-prone areas can also occur with changes in land cover, development, and long-term weather patterns. Municipalities can take the initiative to have new flood risks added to the FIRM maps as a Letter Of Map Change (LOMC) or otherwise consider them during their planning and regulatory processes.

Event History – Flooding

Regional flooding trends are detailed in the *Hazard Mitigation Supplement*, which notes:

- Wisconsin has experienced a significant flooding event at least once every decade since 1880.
- Flood events tend to cause the most widespread damage of all Wisconsin's natural hazards. Since 1992, flood damages from major events in Wisconsin have exceeded $2.3 trillion.
- There have been very few dam failures resulting in major damage or loss of life in Wisconsin. In June 2008, the Lake Delton Dam broke which resulted in mudslides which washed out a number of homes. Closer to home in 2002, a small privately owned dam in Osceola (Polk County) washed out and caused significant damage to a mobile home park; hazard mitigation grant funding was later used to acquire these homes to prevent future flood losses.

National Climatic Data Center (NCDC) Events

The table below summarizes flooding events reported by the National Climatic Data Center (NCDC) in Clark County from 1993 to 2024. Data for flood events is not available prior to 1993.

Flood, Flash Flood & Heavy Rain Events Summary *(1/1/1993 to 12/31/2024)*			
Total Events:	56	Number of Events Per Year:	1.81
Total Event Days:	29	Number of Event Days Per Year:	0.94
Total Injuries:	0	Total Deaths:	3
Total Event Days with Property Damage:	24		
Property Damage (from NCDC):	$ 5,298,000		
Property Damage (adjusted for inflation):	$ 7,488,614		

13 of the 56 reported events from 1993 to 2024 were flash flooding events. While no injuries associated with these events were reported there were three deaths. In June 2012 three people were killed in two separate accidents when their vehicles fell into a 12 to 15 foot deep washout area. The washout occurred

after rainfall amounts of 1.5 to 2 inches in a short amount of time caused Scott Creek to quickly rise. From damage photos, it appears the creek stayed within its banks, but the large volume of water moving through the creek washed out County Road M around a culvert designed for the creek to flow through. The people were killed as a result of injuries sustained in the crashes as the water had already receded by the time the accidents occurred. No recent history of dam breaks with significant impacts in Clark County were identified during the planning effort.

National Flood Insurance Program (NFIP) Claims

As of December 31, 2025, there were 17 active National Flood Insurance Program (NFIP) flood insurance policies in Clark County:

Community	# of Policies	Total Coverage	Total Premium + Federal Policy Fee
Clark Co. - unincorporated towns	17	$4,056,000	$14,914
City of Loyal	4	$2,227,000	$15,996
City of Neillsville	1	$350,000	$1,003
City of Owen	1	$575,000	$3,093
City of Thorp	2	$931,000	$6,115
Totals	25	$8,139,000	$41,121

This is a decrease of 31 policies since August 2020. Continued local enforcement of floodplain zoning and stormwater management regulations, which reduces the number of floodprone structures, may also be influencing NFIP participation.

According to FEMA NFIP redacted claims data through February 2026, there have been 10 NFIP claims for Clark County with 6 claims paid totaling $105,546.37 in building damages and 8 claims paid totaling $112,539.53 in content damages.

Repetitive loss properties (RLPs) are those properties participating in the National Flood Insurance Program (NFIP) for which two or more claims of $1,000 or more in a 10-year period have been paid. This list is regularly compiled by FEMA and made available to the Wisconsin Division of Emergency Management. Based on available data, there appears to be five RLPs located in Clark County (1 in the City of Loyal, 4 in the City of Neillsville):

- One property in the City of Loyal had multiple claims paid with the most recent in 1978, thought the total "payout" appears to be less than $10,000.
- A commercial property within the City of Neillsville has had four NFIP claims (178, 1980, 1986, 1993).
- The remaining three properties are located in the City of Neillsville, two had each had two past claims while one has had three claims.

Significant Clark County Events

Up until the last few decades, river flooding has been the greatest flooding-related concern in Clark County. Located where Brick Creek runs into the Popple River, the Owen area has a long history of river flooding. Floods covered the lower parts of the City of Owen in 1914 and 1938. Dams on Brick Creek, and a large flood mitigation project in 1997 which created an overflow channel on the south side

of Owen, has done much to reduce the flooding of yesteryear. Even so, spring flooding continues to be commonplace along the Popple River, resulting in National Flood Insurance Claims for properties in 1980 and 2002.

Other than the Owen area, the Black River and its tributaries (e.g., O'Neil Creek, Rock Creek) have historically been the most prone to river (overbank) flooding in Clark County. The 1911 and 1938 floods were likely the largest in the County's documented history. A number of dam breaks occurred during the October 1911 flood which destroyed the majority of downtown Black River Falls. Flooding occurred in 1938 when over 6 inches of rain fell between September 10-16, 1938. The bridge over the Black River on Neillsville's west side (County Highway "B" today) was underwater, though it stood over 22 feet above the river bed.

The last major riverine flooding in Clark County occurred along the Black River in 1973 causing road and crop damage. The City of Owen and towns of Foster, Hewett, Seif, Hendren, Mead, Thorp, Grant, Sherman, and Unity all experienced road damages in excess of $40,000. Funds were also made available to farmers for flood damages to crops.

Historical accounts tend to highlight the larger riverine floods where large amounts of crops are destroyed, dams are washed out, homes or farms damaged, and death to livestock and people have occurred. However, many lesser flash floods have also occurred causing localized damage, along with nearly annual riverine flooding of bottomlands and some agricultural areas.

Since 1973, riverine and lake flooding has been sporadic and isolated, and mostly associated with O'Neill Creek within the City of Neillsville and ice damming on the Black River south of the City of Neillsville. Data is not readily available which provides insight into the damages associated with this ice damming. For those areas prone to riverine or lake flooding, precautions have been implemented to mitigate flood damage (e.g., floodplain zoning, dam controls).

However, overland and flash flooding has been increasing when natural or man-made stormwater systems (e.g., small creeks, culverts, stormwater utilities) are unable to handle heavy rains events, especially in low-lying areas and/or when the ground is already saturated. Such flash flooding has occurred throughout the County with much of the damage occurring to roads, culverts, etc. in rural, unincorporated areas. Some residential subdivisions have also had runoff problems, though more attention is now being given to site design and stormwater control by local government and builders. As a result of this flood damage, numerous roads in the County were raised, large culverts installed, shoulders improved, and/or drainage ditches enlarged over the past two decades.

Hazard Mitigation Supplement 2.G. details significant flooding events in Clark County, which include the following more recent events since 2010:

- Beginning on September 22, 2010, three to six inches of rain fell across central and northeast Wisconsin resulting in flash flooding. Within Clark County, some road and infrastructure damage occurred, especially in the northeastern part of the county. A number of schools were closed due to flooded roads.
- On June 21, 2012, heavy rains and flash flooding washed out about 50 feet of County Highway "M"

and created a deep ditch. It also created a tragic and deadly situation when two vehicles wrecked at the site resulting in three deaths. There was no advanced sign of deterioration of the road or culvert, and the location did not have a history of flooding problems. This incident is a reminder that flooding in Clark County has more recently been the result of heavy rains, rather than spring snow melt, and that every property has a flood risk.

- On August and September 2014, two heavy rain events caused flash flooding in Clark County. The August event caused flooding and road/culvert damage in the Granton and Lynn area; U.S. Highway 10 was partially underwater. A month later, flooding of streets occurred in Abbotsford and Unity, including water across State Highway 13.

- On September 6, 2015, heavy rains caused flooding in west-central parts of the Clark County. Flood waters from the Black River covered County Highway G just west of Greenwood. Waters flowing through a drainage ditch undercut Chickadee Road near Gorman Avenue southwest of Willard. County Highway M was closed north of County Highway I when a culvert was washed out; this is the second time in three years that this section of County M has been washed out. County Highway B was undermined by water west of Humbird. The flood waters also prompted the closing of the County's ATV and horse trails. The flood waters damaged the dam at Emerson Lake in Humbird with repairs estimated to cost almost a quarter of a million dollars. Highway damage was estimated at $536,200.


CTH "M" after heavy rains prior to recent culvert improvements

- On September 21, 2016, heavy rains resulted in flash flooding across much of western and southwestern Wisconsin. Vernon and Crawford counties were especially hit hard, include two deaths, a train derailment (with diesel spill), and many roads and structures damaged or destroyed; nearly $15 million in damages were reported for these two communities.

  Clark County would also be part of this disaster declaration with widespread flooding occurring across much of the County and numerous roads impassable. Emergency officials had to respond to two incidents where vehicles became stuck in the flood waters. One person had to be rescued from the waters but no injuries were reported. Runoff from heavy rain pushed the Black River out of its banks near Neillsville; the river crested around three feet above the flood stage at 21.07 feet. Flooding from the South Branch of O'Neill Creek covered County Highway Y south of Chili. Standing water also covered State Highway 73 in Christie. In all, around 65 locations across Clark County had water over the road or culverts washed out and fifteen homes were damaged by the flooding.

- Multiple thunderstorms on June 18, 2018, resulted in runoff that pushed a number of small creeks and the Black River out of their banks and over nearby roads in the Loyal and Christie area, including

County Highway H. Later in September 2018, heavy rains again caused road flooding in the Humbird and Abbottsford areas.

- Rain and a heavy snow melt in April 2019 pushed the Black River out of its banks in Neillsville. The river crested around a half foot above the flood stage at 18.42 feet on April 18th. Later in August 2019, County Highway G was closed around Willard because of water over the road following a heavy rainfall event.

Areas Prone to Flooding

While most of the above events would be considered flash flooding or overland/stormwater flooding, the Black River and its tributary O'Neill Creek have continued to be the primary riverine (or overbank) flooding concerns. Over the past decade, riverine flooding in Clark County have focused on O'Neill Creek within the City of Neillsville and the Black River south of Neillsville, in particular in the towns of Levis and Dewhurst. Ice damming in this area is an annual occurrence, but becomes more severe and results in flooding about once every ten years.



Ice jams can cause flooding

By Peter Spicer

Ice moving from the Black River into Lake Arbutus often causes flooding and ice chunks being pushed onto Lake Arbutus properties this time of the year.

Ice flows from the Black River into Lake Arbutus, where it has nowhere to go, collects in the lake and either is pushed onto properties or later melts and causes flooding, said Clark County Conservationist Matt Zoschke.

Lake and pond water is usually cooler than Black River water, said Zoschke, who explained once the ice travels into lakes and ponds, the ice doesn't melt and can cause flooding once it does melt.

Ice jams are a yearly occurrence and are an ongoing challenge at Lake Arbutus, said Zoschke.

"There isn't much that can be done," said Zoschke, who admitted, "it's a real hazard."

Clark County Emergency Management Director Michelle Hartness stated the Emergency Management Department helped evacuate residents from a Lake Arbutus home several years ago but has not had any issues this year so far.

Hartness encourages Lake Arbutus residents to watch for flooding and, if necessary, evacuate homes and move to higher ground.

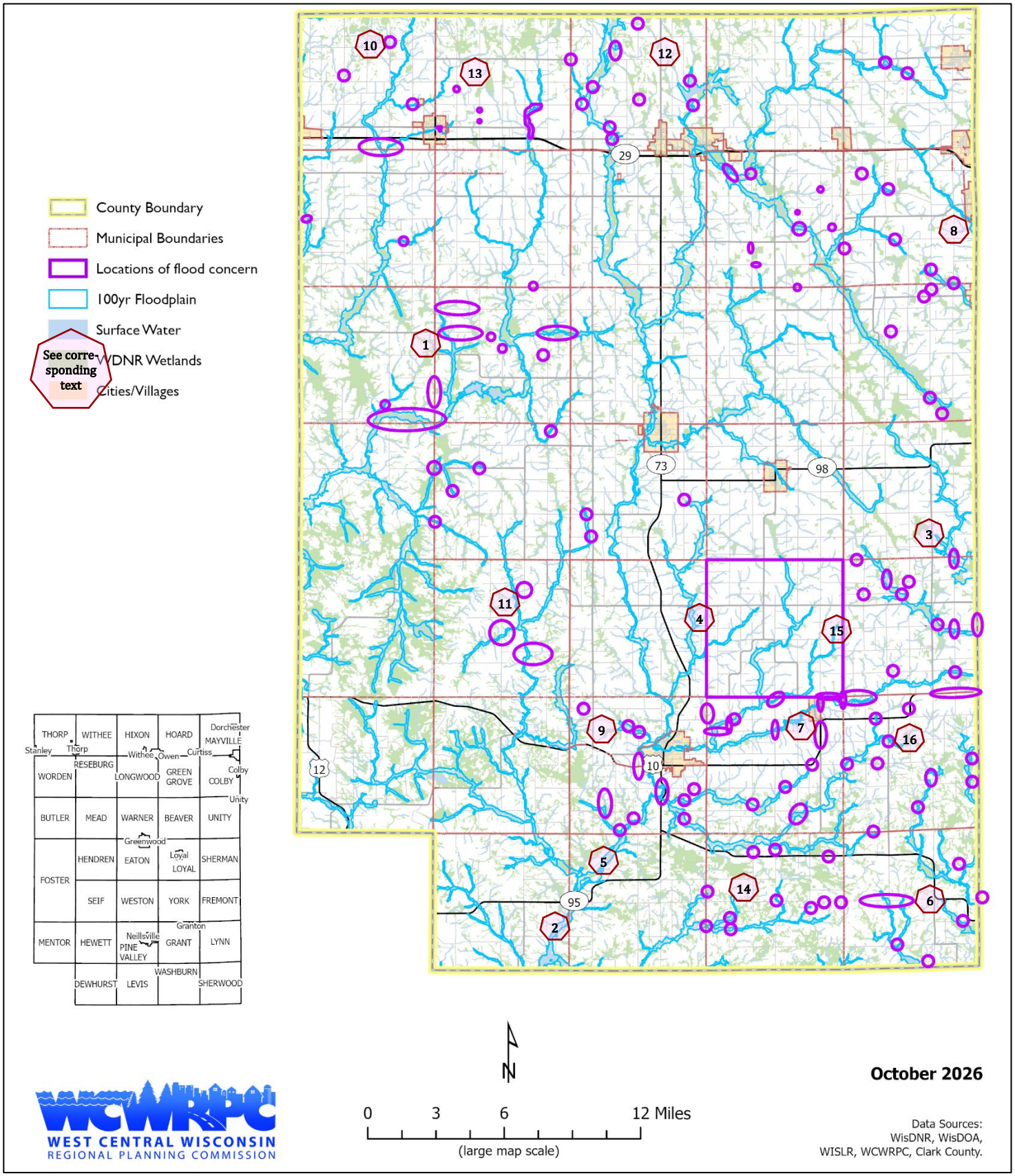
An ice jam recently took place on the Black River near Riviera Avenue off the Lake Arbutus Sports Bar campground. Ice jams can result in Lake Arbutus flooding. (Contributed photo)

Clark County Press, March 24, 2010, p. 1

The last major flooding due to ice damming occurred in 2005, when twenty to thirty structures were impacted along approximately four miles of the river. Damage was relatively small, since many of these structures are seasonal and without basements. Other impacts included loss of access, shoreline erosion, and the loss of other unanchored property (e.g., picnic tables, LP tanks). These vulnerabilities are predicted to increase as more development occurs and as more seasonal structures are converted to year-round residences. While additional flood studies have been completed for the area, it is not possible to accurate map the flood area for a "100-year ice damming" event. Though no options have been identified to prevent the ice damming, its impacts to life and property can be best mitigated through education, property protection measures, flood insurance, and evacuation planning.

Figure 9 shows those areas prone to flooding in the unincorporated towns as identified through local meetings, a survey to town boards, and key informant interviews with county officials, including from previous County Mitigation Plans. Flooding concerns of villages and cities are discussed later in the individual subplans in Supplement 5.

Figure 9. Areas Prone to Flooding (Unincorporated Towns Only)



The following descriptions of floodprone areas correspond to the flooding "hotspots" on Figure 9. Most of the areas circled in red are roads and culverts that have been prone to flash flooding or flood damage in the past due to their proximity to nearby rivers or streams. As the Town of Grant in a previous survey pointed out, these are the "worst ones for flooding" and additional areas in the towns are undoubtedly at risk.

1

During heavy rains and large snow melts, CTH "M" near the South Fork of the Eau Claire River, CTH "MM" near Black Creek, and other local roads to the north of this area have frequent flooding problems in areas of low road height. Flooding over some roads in this area often occurs several times a year. Changing land use and agricultural practices upstream (e.g., more drain tiling) may be exacerbating flooding problems.

The CTH "M" bridge built in the 1960s where it is crossed by the South Fork of the Eau Claire River was originally designed to allow for flooding over the bridge approaches and was a top flood-related concern in County mitigation plans prior to 2020. A large culvert washout on Highway "M" in 2012 resulted in vehicle accidents with three fatalities. This remote location is difficult to monitor and various actions were considered. The Highway "M" bridge has now been replaced, which has hopefully addressed past flooding concerns but should continue to be monitored.

The Town of Mead identified a number of other floodprone areas, in particular. West portions of Starks Road and Kington Road may both have undersized culverts, and bridge construction may be needed. The eastern portion of Kington Road and nearby Sterling Avenue in proximity to Norwegian Creek may have inadequate culverts or bridges to handle flood events.

2

The Hatfield and Lake Arbutus area is prone to stormwater flooding, basement flooding, and large puddles in roads and bank erosion along the lake. Flooding from ice dams is one of the most frequently mentioned flooding problems in the County, though nearby residents appear to be largely aware of the threat. Flooding problems in the Hatfield area are also experienced in Jackson County. Typically, the hydroelectric project keeps water levels high, and lake levels are often about 4" higher than nearby roads.

3

Bobwhite Road essentially travels through part of the Yellow River riverbed and is at times impassible, which hinders travel and delays emergency response for some nearby residences.

4

Panther Creek Road travels through part of the Cawley Creek riverbed and is at times impassible, which hinders travel and can delay emergency response for some nearby residences.

5

The lower Black River and parts of some tributaries in the towns of Pine Valley and Levis, both north and south of State Highway 95, are prone to riverine flooding, in particular due to ice damming. This includes a portion of State Highway 73 immediately south of Neillsville that floods about once a decade due to ice damming on the Black River and a tributary stream. To date, the impacts to nearby structures and improvements have not been widespread, but vulnerabilities and risks remain. The Town of Levis was home to the only Repetitive Loss

Property[10] identified for unincorporated Clark County due to NFIP claims in 1986 and 1993, though the structure appears to no longer exist based on orthophotography. A rapid snowmelt, combined with ice damming, could put the State Highway 95 bridge at risk of damage. This area in particular should continue to be monitored and considered for potential future flood mitigation projects, such as the acquisition and demolition of floodprone structures should there be landowner interest.

6 The Town of Sherwood reports multiple areas (circled on map) where water goes over the road during heavy rains and where potential culvert re-sizing is needed. Also marked is the dam on Sherwood Lake for which an engineering and hydraulic evaluation has been completed, but regulatory protections of the dam shadow have not yet been adopted.

7 The Town of Grant identified many floodprone areas (too many to identify on the map) in part due to the topography of the town which has a ridge in the center. Re-sizing of culverts and bridges may be needed. During Summer 2014, flooding due to heavy rains temporarily closed U.S. Highway 10 south of Granton. Past problems at one location on USH 10 east of Granton may have been recently remedied by an increased culvert size.

8 The Town of Unity reported five spots which are prone to flooding (circled on map). The three spots in the northern portion of the Town may require the installation of box culverts where road beds are washed away with 5+ inches of rain in a short period. The two spots in the southern portion of the Town along the Popple River pose hazards to travelers due to slower-moving riverine flooding, but a remedy is not known at this time.

9 The Town of Pine Valley and County Highway Department identified areas of riverine flooding due to heavy rains, spring snow melt, and ice jams along the Black River as well as similar flooding problems on Owen Road and Partner Road (see map). Some additional ditching and lifting of these two roads may be required to address the flooding issue. Additional areas are located on the map where culvert replacement or bridge improvements may be required due to stormwater flooding, such as along Opelt and Maple Roads.

10 The Town of Thorp identified numerous areas in Sections 10, 11, 16, 26, and 35 on the map which may need larger culverts to mitigate stormwater flooding of adjacent roads when five or more inches of rain occurs. The Town also reported that numerous waterways and ditches need to be cleaned out so water can flow. The Town also recommends a hydraulic engineering analysis for Sections 34 and 35, perhaps as part of the same analysis which may be pursued to address "hotspot" #1 discussed previously.

11 The Town of Seif reported that there are some general flooding areas along Wedges Creek, Pony Creek, and Feeder Creek. In particular, three places were identified where flooding problems impact roadways as identified on the floodprone areas map: (1) on Fisher Avenue just south of Heintown Road, (2) Bachelors Avenue where it crosses Pony Creek, and (3) water from Wedge Creek over the bridge at Chili Road.

[10] A Repetitive Loss Property (RLP) has 2 or more NFIP claims of $1,000 or more in a 10-year period.

12 The Town of Hixon identified numerous areas that have been subject to road flooding, washouts, and damage during have rains. In addition, the area located on Pine Road below the dam consists of a single culvert to the west and three boilers that have been in place for 60+ years to the east; this road is narrow with steep banks and has the potential for damage during a heavy rain event.

13 The Town of Withee reported that they "we're seeing a larger volume of water on the South Fork, especially south of the Bridge on Pine Road, down along Fisher Avenue, and Willow Road." The Town suggested that this was possibly due to a large amount of agricultural drain tiling and ditching of wetlands as well as the use of pumps to drain wetlands. Town officials stated that the Town of Withee has 40 percent of Clark County's wetland violations and recommended much more monitoring and outreach to local farmers was needed, especially within the Mennonite community.

14 The Town of Washburn identified a number of areas prone to flooding. Specifically noted was a mobile home located in a floodplain near Highway 73 to may be a flooding vulnerability. One location shown on Pray Avenue has been recently mitigated through the installation of two larger (6') culverts that appears to have greatly reduced flooding.

15 When asked about floodprone areas, Town of York officials responded, "all town roads" and "anywhere where there is water crossing roads because bridge there is a bridge or culverts could handle heavy rains. Immediately to the east, the Town of Fremont also identified many locations, in particular: Sandhill Avenue north of Heath Road, Fairhaven Avenue by the bridge to Tree Road, the Heath Road-Catlin Avenue intersection, Hiline Avenue south of the Panther Creek, Pine Creek Road east of Sandhill Avenue, and the Bobwhite Road-Hiline Avenue intersection.

16 A number of locations in the Town of Lynn were identified as floodprone, including across U.S. Highway 10 at the creek in Lynn. A half-lane of water covers USH 10 near Chili Corners multiple times per year.

Figure 9 and the review of past events demonstrate that stormwater and flash flooding are more frequent concerns to Clark County, with damage to roads, culverts, bridge abutments, and other such infrastructure being the most common and expensive. Some of the floodprone roads identified in Figure 9 become impassible during flash flood events, not only posing a hazard to travelers, but resulting in delays for emergency vehicles.

Riverine and lake flooding over the past 30 years in unincorporated Clark County is typically an isolated event, limited to individual sites, open spaces, and agricultural lands, rather than affecting numerous homes or large developed areas. The possible exception to this is areas along the Black River south of Neillsville that have had problems in the past due to ice damming. However, as more development pressure is placed on floodplains, natural drainage systems and land practices are changed, wetlands are lost, and heavy rains increase in frequency and intensity, this trend could also change.

Not shown on Figure 9, but of special concern to the Clark County Forestry and Parks Department, is the damage to the sand/dirt forest roads in the County Forest which are especially vulnerable to



2010 flood damage to a County trail and bridge

stormwater flooding. The damage is often made worse from high use of these roads by logging trucks, hunters, and ATV-users. Stormwater erosion from these roads is entering adjacent water bodies, contributing to water quality problems; and the county is incurring large maintenance costs which greatly exceed the State's maintenance contribution. Access by emergency vehicles can be difficult, if not impossible, if four-wheel drive is not available; and these roads can be very unsafe for travelers. About a decade ago, an ATV-user hit a washed-out section of a forest road and the ATV flipped on top of the rider in an adjacent stream. Luckily, Wisconsin DNR personnel were following the ATV and managed to pull the rider out of the water and prevented a potential drowning. During the planning process, the Forestry Department identified an estimated 45 miles of forest roads that are prone to frequent stormwater washouts.

It should be noted that many flood prone and high hazard floodplain areas are now in public parks, recreational uses, or wildlife lands and are not of significant concern. This not only reduces potential vulnerabilities by preventing floodplain development, but has reduced risk further downstream by providing flood storage areas which reduces the frequency or magnitude of flood events.

Agricultural Flooding

Approximately 42 percent of reported damages from Wisconsin floods between 1993 and 2000 were from crop losses. Flooding can have additional agricultural impacts as well. Since many floodplains are used for forage, the loss of these crops (e.g. alfalfa) may require farmers to supplement feed for livestock. Due to the low value of forage and high insurance costs, most farmers do not have multi-peril crop insurance for forage crops. The remaining forage in flooded areas can be lower in quality, reducing milk production and complicating or reducing pregnancies and births. Feed and water quality problems which result in sick animals also increase veterinary costs. Agricultural flooding impacts can also be long-term and more difficult to quantify. The harvesting of crops in wet areas can compact soils, further reducing crop yields for years to come.

While crop damage due to flooding has been experienced in some areas, statistics regarding crop losses in the past or future vulnerability due to flooding are not readily available. An exception is the June 1993 flooding for which crop losses were estimated at $570,000, with floodwaters destroying 775 acres of corn, 500 acres of soybeans, 450 of kidney beans, and 200 acres of oats and forage crops. Potential agricultural losses can vary depending on the type of crops planted, though it is common practice to often use such floodprone areas for hay, forestry, or pasture.

Hazard Probability – Flooding

The Plan Steering Committee rated the probability of both riverine (overbank) flooding and overland (stormwater) flooding as being low-to-moderate, with the vulnerability (potential losses) being moderate or substantial. Flooding in Clark County will continue to be a significant risk for some residents, infrastructure, and improvements. A smaller overland or stormwater flood event can be expected to occur annually in some areas, with multiple events in a single year not uncommon. Such flash flooding can be expected to primarily result in basement flooding, washing out of road infrastructure, and contributing to soil and bank erosion. Those areas most prone to the typical annual riverine flooding associated with snow melt are well known and potential damages have been largely mitigated.

It is likely that Clark County will continue to experience a substantial, damage-causing flood event every 3 to 4 years on average. Some localized flooding and stormwater ponding with limited impacts can be expected annually or even more frequently after heavy rain events. Some of these events may be localized in nature, only impacting a portion of the County. Flash flooding due to heavy rains will be the most frequent cause of flood damage in the County and can occur any time of the year. **Riverine overbank flooding and larger flash flooding events resulting in serious damage to structures and infrastructure can be anticipated about once every 10 to 12 years, most frequently in the spring months.** Riverine and spring snow-melt flooding of some croplands is an annual event in some locations and this is anticipated to continue in the future. Flooding on seepage lakes is very difficult to predict due to the cyclical nature of the groundwater levels and droughts.

Flash flooding due to heavy rains will be the most frequent cause of flood damage in the County and can occur at any time of the year. The increasing frequency of heavy rain events, plus warmer, wetter winters, is anticipated to increase the flooding probability over time; this is consistent with longer-term flood event trends. Those areas most prone to the typical annual riverine flooding associated with snow melt are well known and potential damages have been largely mitigated. *Clark County Hazard Mitigation Supplement 2.G,* along with city and village subplans, addresses localized variance in flood frequency.

Vulnerability Assessment – Flooding

Note: Except for roads and highways, and occasional infiltration of wastewater systems in some communities, no significant flood history of community lifeline facilities was noted.

General Vulnerabilities	
People	• Individuals in flooded areas may drown or be cut off from critical life-saving services. See flood assessment in main text that identifies residential properties potentially located within 100-year floodplain as well as city/village subplans.
Underground Structures/Basements	• Prolonged exposure to flood conditions can result in structural defects or other property damage. • No specific concerns noted, but at greater risk of taking on water during flood events.
Mobile Homes	• Unanchored homes are at risk of being swept away during flood events. • No mobile home parks were identified as being located within a 100-year floodplain.
Campgrounds, Cabins, & Resorts	• Typically located near a water source, these sites are at an increased risk of being inundated with water during a flood event.
Local Economy	• Property damage from flood events may cause business closures. • No specific concerns from riverine flooding noted, though some communities have reported stormwater flooding problems that can impact access or cause damage.
Natural, Historic, & Cultural Resources	• Resources located along waterways have a higher risk of damage during flood events. • No specific concerns noted.
Community Lifelines	
Safety & Security	• Personnel are exposed to life-threatening conditions when serving individuals caught in flooded areas.
Food, Water, Shelter	• Croplands, livestock, and farm facilities within floodplain or stormwater drainage areas can be lost or damaged due to riverine or overland flooding, though the County's farmers are generally aware of the floodprone areas and associated risks on their properties and rented lands. Cropland practices, drain tiling, etc., have the potential to exacerbate runoff, resulting in flooding down-gradient. Further, heavy rain events can result in runoff from feedlots and manure storage facilities and impact surface water quality. • Livestock can be lost to flood waters. • After a flood event, it is important that the public understands that private wells may be contaminated and testing is strongly encouraged. Sewer systems can also back up in flooding resulting in public health concerns.
Health & Medical	• Flooded roads may limit access to essential medical services.
Energy	• Hydroelectric dams are exposed to increased pressures during flood events. • Dam failures can be the cause of flood events and may impact additional facilities downstream. See dam analysis at the end of the flood assessment within Section III.C.
Communications	• None noted.
Transportation	• The washout of roads, culverts, bridge abutments, etc., have been the primary storm-related damage in recent decades. Traveling on flooded roadways or unexpectedly encountering a wash-out culvert/shoulder poses the highest risk of injury or death. • Travelers in the region have died in recent decades when attempting to cross flooded areas or when encountering an unmarked road washout at night.
Hazardous Materials	• Flooding in areas with hazardous materials may allow unencapsulated materials to flow downstream or leach into the groundwater. • No specific concerns noted.
Educational Institutions	• See subplans in **Section VII.B.** for any specific flooding concerns for participating institutions.
Vulnerability to Future Assets	

Population Growth & Development	• Shoreland zoning and other restrictions prohibit development in floodways or require flood mitigation activities. • Populations located in low lying areas or near water bodies are more vulnerable than those in higher elevations or outside the floodplain. • Developed areas with large areas of impervious surfaces, heavier soils, and hardscape are more prone to stormwater or flash flooding or the flooding of nearby areas. Such flooding can also infiltrate or overwhelm municipal sanitary or storm sewer systems.
Other Assets	• During heavy rains, some communities have problems with stormwater entering the wastewater system through manholes, lift stations, or basements. These problems will increase as additional impervious surface is added through development. • Of the community lifeline facilities listed as mapped in Section III.D., very few were identified as potentially being located within the 100-year floodplain (and some may be elevated above the floodplain): o Wastewater facilities for Greenwood, Thorp, Colby, Owen, and Neillsville. o Neillsville water booster station along River Road. *The above flood vulnerabilities do not include the potential losses due to dam failure, which are discussed at the end of this flooding hazard assessment. For most dams, the potential vulnerabilities would be similar to those of the associated 100-year floodplain downstream of the dam.*

Projected Loss Estimates (Potential Structures in the 100-Year Floodplain)

The amount of impervious surfaces near lakes and rivers has grown significantly in recent decades. Generally, stricter enforcement of floodplain zoning, shoreland ordinances, and a decrease in available shoreland properties has limited new floodplain development.

Through the use of current D-FIRM maps and G.I.S. parcel data, those principal structures potentially located within a 100-year floodplain were identified by the Clark County GIS staff. When supplemented by the previously discussed flood history and floodprone areas map, this analysis identifies potential floodprone structures to help guide the development and prioritization of flood mitigation strategies. A full description of the flood assessment methodology and related data challenges is included in *Clark County Hazard Mitigation Supplement 2.G.*

Figure 10 identifies the 100-year floodplains within Clark County along with the location of all principal structures located partially or wholly within the 100-year floodplains. Principal structures are those buildings located on a parcel within which the main use of the parcel takes place; when distinguishable, out-buildings or accessory structures within the 100-year floodplains are not included. Figure 10 is followed by **Table 8**, which provides a synopsis of those potentially floodprone principal structures by municipality. The assessed use and estimated value of improvements is based on 2025 tax data for those parcels associated with each of the principal structures identified in Figure 10.

In 2025, there were an estimated 309 parcels in Clark County with one or more principal structures potentially being located within the 100-year floodplain. Of these parcels, 83% are residential constituting 80% of the total assessed improvements possibly located in the floodplain. Over one-third of the principal structures are located in the towns of Foster, Hewett, and Levis. Commercial and Manufacturing parcels are concentrated in the cities; assessment estimates for the industrial parcels was not available. Eighteen tax-exempt parcels with structures located in the cities are also potentially located in the floodplain.

Figure 10. Clark County Floodplains & Potential Structures in Floodplain

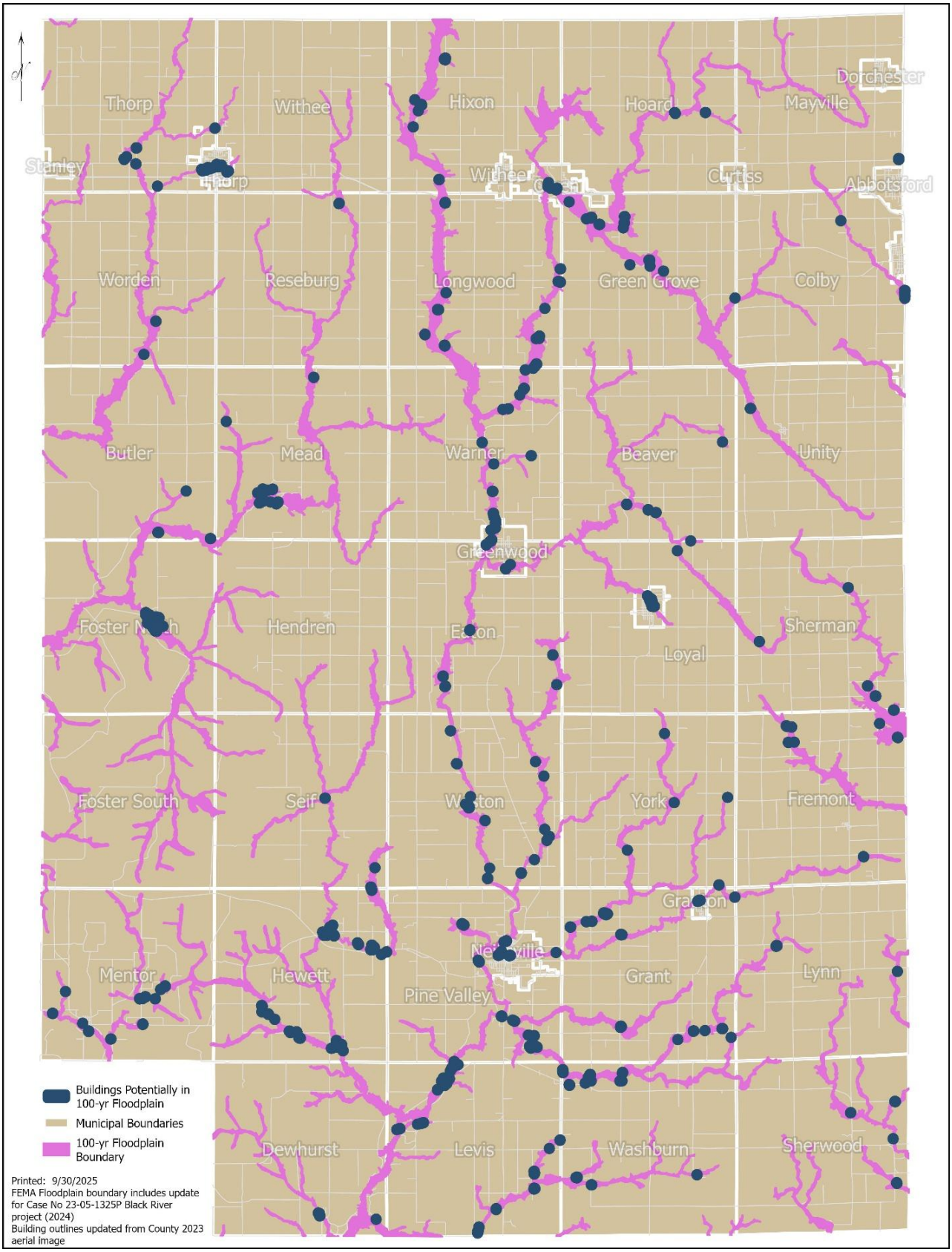


Table 8. Principal Structures potentially in 100-Year Floodplain—2025

	Residential		Commercial		Manufacturing		Other/Farm		Exempt	Totals	
	# of parcels	Impr Value	# of parcels	Impr Value	# of parcels	Impr Value	# of parcels	Impr Value	# of parcels	# of parcels	Impr Value
CITY OF GREENWOOD	7	$1,602,300							1	8	$1,602,300
CITY OF LOYAL	2	$40,500	9	$5,822,000					4	15	$5,862,500
CITY OF NEILLSVILLE	1	$44,400	2	$76,000	1				1	5	$120,400
CITY OF OWEN			1	$419,200	1				4	6	$419,200
CITY OF THORP	8	$1,588,700	6	$976,900					3	17	$2,565,600
City Sub-Totals	**18**	**3275900**	**18**	**7294100**	**2**	**0**			**13**	**51**	**$10,570,000**
										0	$0
VILLAGE OF GRANTON	3	$244,300								3	$244,300
Village Sub-Totals	**3**	**$244,300**								**3**	**$244,300**
TOWN OF BEAVER	5	$817,300								5	$817,300
TOWN OF BUTLER	2	$27,100								2	$27,100
TOWN OF COLBY	2	$316,700	1	$194,900					1	4	$511,600
TOWN OF DEWHURST	5	$1,263,700								5	$1,263,700
TOWN OF EATON	3	$502,100					1	$190,100		4	$692,200
TOWN OF FOSTER	35	$8,257,200							1	36	$8,257,200
TOWN OF FREMONT	7	$1,060,200								7	$1,060,200
TOWN OF GRANT	12	$1,213,200								12	$1,213,200
TOWN OF GREEN GROVE	6	$862,600								6	$862,600
TOWN OF HEWETT	36	$5,340,700								36	$5,340,700
TOWN OF HIXON							2	$236,900		2	$236,900
TOWN OF HOARD	2	$110,000								2	$110,000
TOWN OF LEVIS	30	$2,033,100					1	$18,900	2	33	$2,052,000
TOWN OF LONGWOOD	7	$585,700							1	8	$585,700
TOWN OF LOYAL	1	$95,000								1	$95,000
TOWN OF LYNN										0	$0
TOWN OF MAYVILLE	1	$9,200								1	$9,200
TOWN OF MEAD	15	$2,023,100								15	$2,023,100
TOWN OF MENTOR	12	$732,600								12	$732,600
TOWN OF PINE VALLEY	10	$672,200					3	$362,700		13	$1,034,900
TOWN OF RESEBURG	1	$76,000								1	$76,000
TOWN OF SEIF	1	$258,400					1	$10,600		2	$269,000
TOWN OF SHERMAN	3	$489,300					1	$132,600		4	$621,900
TOWN OF SHERWOOD	4	$196,000								4	$196,000
TOWN OF THORP	6	$1,390,600								6	$1,390,600
TOWN OF WARNER	6	$483,600								6	$483,600
TOWN OF WASHBURN	11	$809,000					1	$3,900		12	$812,900
TOWN OF WESTON	9	$616,700					2	$9,800		11	$626,500
TOWN OF WORDEN	2	$59,500								2	$59,500
TOWN OF YORK							1	$1,100		1	$1,100
Multi-Town Parcels	2	$193,600								2	$193,600
Town Sub-Totals	**236**	**$30,494,400**	**1**	**$194,900**			**13**	**$966,600**		**255**	**$31,655,900**
Grand Total	**257**	**$34,014,600**	**19**	**$7,489,000**	**2**	**$ -**	**13**	**$966,600**	**18**	**309**	**$42,470,200**

It must be noted that the structures identified in Figure 10 and in Table 8 may not have had flooding problems in the past. To the contrary, the majority of these properties likely have no history of flooding and may not be vulnerable to flooding in the future. Data for individual structures is not currently available (e.g., number of stories, existence of basements, individual building values, building elevation), so we are unable to confirm if a specific building is elevated above (or below) the base flood elevation, nor can we estimate potential flood damage by individual structure. In some cases, due to topography

at the building site or construction methods, the structure may actually be elevated higher than the adjacent 100-year floodplain.

Further, as discussed in the *Supplement 2.G.* for properties with multiple buildings and ancillary structures, the exact use and nature of each structure within the floodplain is not known and tax assessment data is only available at the full parcel level, not for specific structures. And in some cases, an ancillary structure (e.g., barn, shed, boathouse) is located in the floodplain but is not reflected in Figure 10 or Table 8 since the principal structure on that parcel was located outside the delineated floodplain.

FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's NRI provides the following estimated annual losses (EALs) for Clark County.

Risk Factor	Riverine Flooding
EAL Rate – Population	1 per 16.95m
EAL Rate – Buildings	$1 per $41.58k
EAL Rate – Agriculture	$1 per $29.16k
Total EAL	$259,546
Exposure	$3.37 billion
Events per year	0.8
Historic loss ratio	Relatively Low
Overall Loss Score	41.5 (Relatively Low)

Based on $2.2 billion in assessed improvements, annual riverine flooding damage to Clark County's buildings alone would be close to $53,198 each year using NRI's estimated annual losses, not including tax-exempt structures.

Other Factors Influencing Future Losses

Three primary factors are key to projecting future flood vulnerabilities:

1) **Changes in Precipitation** – **The increasing frequency of heavy rainfall events was the most frequently noted flood-related concern during the plan update.** Section III.B. previously discussed long-term changes in weather patterns for the region, including more precipitation during the winter months and more frequent heavy rainfall events. The projected 36% increase in 2" rainfall events per decade would likewise increase flooding potential and may result in additional areas being considered 100-year floodplains in the future. Most culverts and many stormwater management systems were not designed to handle the heaviest rainfall events, especially if water levels are already high. However, with a projected increase in summer drought conditions, surface water levels would likely be lower overall. No detailed modeling on the full impacts of such longer-term weather pattern changes on Clark County surface waters has been performed.

2) **Changes in Flood Storage** – Overall, the floodplains and wetlands of Clark County are well protected. Encroachment of wetlands and new development often require the creation of new flood storage areas. Instead, the loss of flood storage will primarily be the accumulated loss or disruption of smaller stormwater storage areas, natural infiltration systems, and natural drainage systems. Clark County is experiencing growth. Every hardscape that is created (e.g., buildings, roads, parking lots),

results in a change in potential stormwater or flood storage. This factor can be mitigated through stormwater management planning and mechanisms such as rain gardens, natural swales, rain barrels, pervious surfaces, and the creation and maintenance of flood storage areas. As suggested in Section III.B., stormwater models, standards, and storage/conveyance systems are typically based on older precipitation-frequency data (e.g., Atlas 14, Technical Paper 40) and are not designed to accommodate more recent precipitation trends and storm events. Updated modeling, such as Atlas 15, may also impact NFIP FIRM (floodplain) maps.

3) **Floodplain Development** – While demand for shoreland living is high, new floodplain development is well regulated and rarely allowed. Very little new floodplain development is occurring, so the number of structures in Table 8 should not significantly increase over time unless the physical extent of the 100-year floodplain grows. The overall vulnerability of floodplain development is expected to increase as the market value of these structures increases and some older, seasonal structures are renovated as year-round retirement homes.

In short, floodplain development vulnerabilities are projected to increase in the future not from new development within the floodplain, but rather from increasing precipitation (and runoff), the increasing market value of existing structures, and the improvement of existing structures. No significant floodplain development is currently planned. Instead, the increasing flood vulnerability in Clark County will likely be from overland stormwater flooding as a result of additional heavy rainfall events and changes in natural stormwater storage and drainage patterns as new development occurs.

Clark County Dam Assessment

Defining the Hazard

Dam Failure – According to the FEMA Federal Guidelines for Dam Safety, dam failure is defined as:

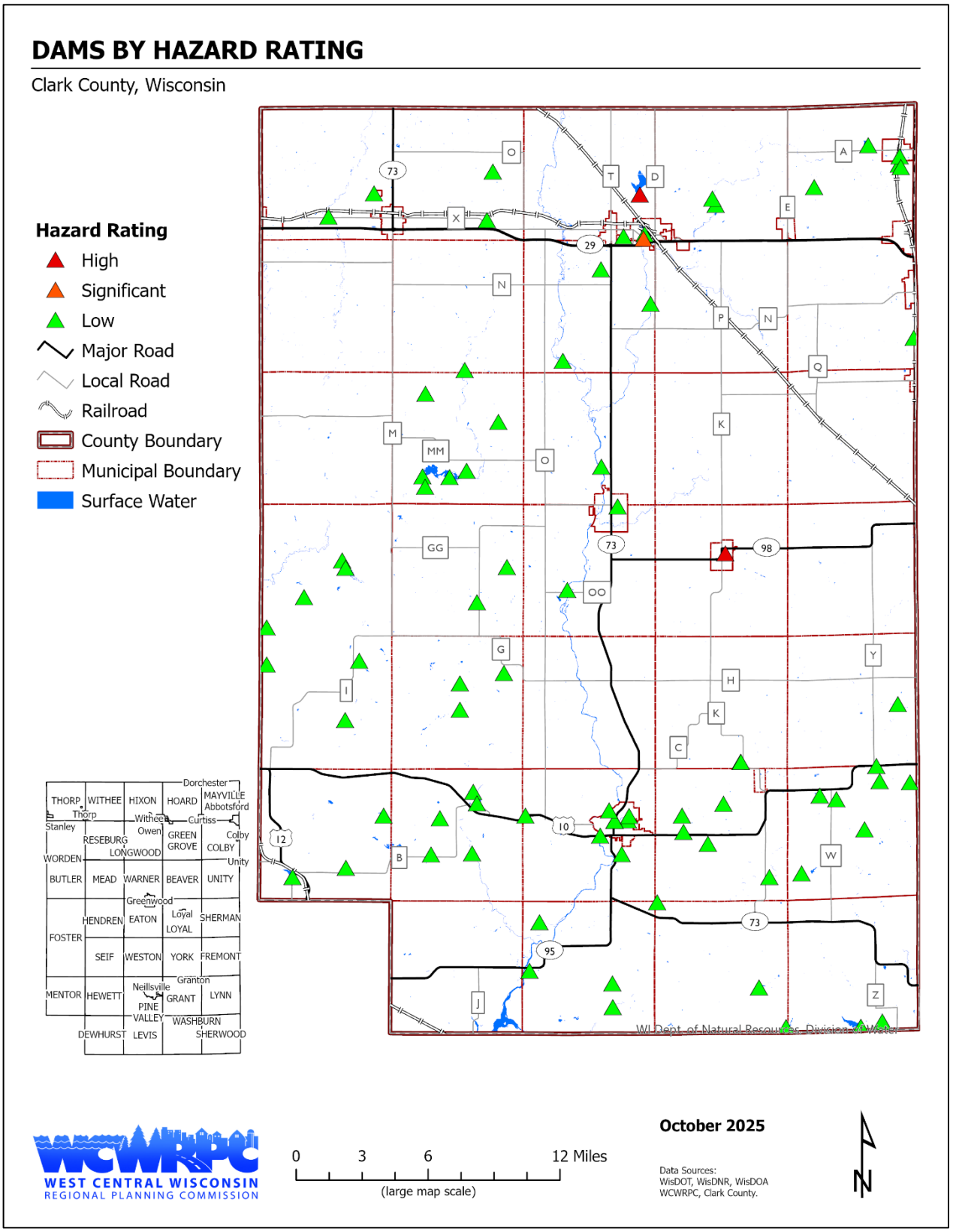
> "Catastrophic type of failure characterized by the sudden, rapid, and uncontrolled release of impounded water or the likelihood of such an uncontrolled release. It is recognized that there are lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a dam's primary function of impounding water is properly considered a failure. These lesser degrees of failure can progressively lead to or heighten the risk of a catastrophic failure. They are, however, normally amenable to corrective action. (FEMA 148)."

Hazard Location & Extent

There are 83 dams listed in the WDNR dam database for Clark County. The dams of Clark County are shown in **Figure 11**, along with their Wisconsin Department of Natural Resources hazard ratings. More details on each specific dam can be found in the *Clark County Hazard Mitigation Supplement 2.G.*

Clark County has seventeen (17) large dams. Sixteen (16) of these large dams are rated or estimated to be low hazard due to lack of vulnerabilities downstream while 1 of the large dams has a high-hazard rating. There are no dams in the County with a significant-hazard rating. Of the sixty six (66) small or size unknown dams, sixty four (64) have a low hazard rating while, one (1) has a high hazard rating and one (1) has a significant hazard rating.

Figure 11. Clark County Dams by Hazard Rating



As noted earlier, flooding can also occur as a result of dam failure. Hazard potential and estimated hazard ratings are assigned by the Wisconsin Department of Natural Resources based on the potential for loss of life or property damage should the dam fail. The dam hazard ratings are defined by FEMA as follows:

Low Hazard Dams assigned the low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property. Large low-hazard dams are inspected every ten years by the Wisconsin DNR Dam Safety Engineer, and the spillway must be sized to accommodate a 100-year event.

Significant Hazard Dams assigned the significant-hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant-hazard dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure. Large significant-hazard dams must be inspected every five years (5th year private engineer; 10th year WDNR Dam Safety Engineer), and the spillway must be sized to accommodate a 500-year event.

High Hazard Dams assigned the high-hazard potential classification are those where failure or mis-operation will probably cause loss of human life. Large, high-hazard dams must be inspected every two years (2nd, 4th, 6th, 8th years private engineer; 10th year WDNR Dam Safety Engineer), and the spillway must be sized to accommodate a 1,000-year event.

The three (3) dams of high or significant hazard rating in the County include:

- Bear Creek/American Legion dam in the City of Loyal (high rating); owned by City of Loyal
- Owen Park dam in the City of Owen (high rating); owned by City of Owen
- Sportsman Lake/Poplar River #1 dam in the Town of Hixon (significant rating); owned by Clark County

No structural or emergency planning concerns regarding these dams were noted during the planning process, though some flooding/bank erosion of the street downstream of the Bear Creek Dam has occurred. Communication regarding between dam operators has improved so that dam operations downstream (e.g., Owen, Hatfield) are notified when gates on dams upstream (e.g., Sportsman Lake) are opened to release water.

Event History – Dam Failure

There have been very few dam failures in Wisconsin that resulted in major damage or loss of life. And many of Wisconsin's approximately 3,800 dams are small logging or milling dams built prior to 1900 and have little or no associated vulnerabilities. Between 1990 and 1995, more than 75 dam failures were documented in Wisconsin, including the failure resulting in very significant damage in Black River Falls as part of the previously discussed 1993 flooding event. And from 2000 to 2023, Wisconsin had 34

recorded dam failures, which is second highest in the United States. Several of these incidents resulted in injuries and serious property damage, but no loss of life.

There have been some occurrences of dam failure in the past in Clark County, though these events are rare. In June of 1980, the Popple River #1 dam spilled over and flooded parts of the City of Owen. Before repairs were made to correct future flooding problems, heavy September rains created another flooding condition. A woman died when her car went off the road into the ditch filled with water from flash flooding in the Owen area. It is hoped that improvements made to the dam and associated flood-prevention infrastructure have remedied this problem; no significant flooding due to dam failure has occurred at the Popple River #1 dam in the interim.

On June 20, 1993, the emergency spillway of Rock Dam in the Town of Foster failed as a result of prolonged rain. Unofficial reports show about 16 inches of precipitation fell in the area during the early part of June. The velocity and quantity of water from the break created about a 25-foot deep washout across Bernyce Lane. About 200 feet of centerline length of the road was affected. This was the third breach of the impoundment near the dam since 1955.

In February 2014, the spillway dam failed at Sherwood Dam in southeast Clark County, allowing water to escape into Hay Creek, a tributary of the East Fork of the Black River that feeds the lake. And more recently, September 2017 flooding washed-out and breached an embankment at Snyder Lake Dam on Wedge's Creek in the Town of Hewitt and contributed to scouring downstream. Both dams are owned by Clark County.

Event Probability – Dam Failure

Overall, **the potential of dam failure in Clark County is considered very low**. The Steering Committee rated the probability of a dam failure as very low, with a low-to-moderate vulnerability if a failure should occur.

Clark County and its municipalities continue to work with the Wisconsin Department of Natural Resources to ensure proper maintenance of the dam facilities in the County and to mitigate the potential vulnerabilities should failure occur. **If the dams within Clark County continue to be well maintained, flooding related to dam failure should not occur and is not expected.** In fact, most of the smaller, privately owned dams would cause very minimal or no damage downstream if a failure occurs. The larger dams with significant- or high-hazard ratings were built to strict engineering standards, have related emergency plans, and are closely monitored.

Event Vulnerability – Dam Failure

The primary vulnerability from a dam failure is development downstream within the hydraulic shadow of the dam. The level of development within each dam shadow is reflected by the dam's hazard rating as previously discussed. A dam's hazard rating can also be reduced through repairs/improvements, updating dam failure analysis or emergency planning, or enacting dam shadow zoning to discourage development within the failure area.

As noted previously, Clark County has two (2) high-hazard dams. *Hazard Mitigation Supplement 2.G.* includes brief assessments of the following high hazard dams and other dams of concern for Clark

County, including those dams that are publicly owned, requiring action, or have significant dam shadows in Clark County, but located outside the County:

- Bear Creek
- Owen Park
- Poplar River #1 (aka Brick Creek)
- Hatfield Dam (in Jackson County)

The Supplement also notes that repairs are needed for the large, low-hazard Humbird Dam.

A G.I.S. analysis of the dam shadows was not completed as part of this mitigation plan. The 2020 Mitigation Plan recommended continuing to evaluate existing development in the shadows and comparing the mapped dam failure areas to the 100-year floodplain boundaries. The County has dam shadows mapped for the following dams, which are regulated through the County floodplain zoning ordinance:

1. Wedges Creek (Snyder) Dam
2. Rock Dam
3. Sherwood Dam
4. Popular River #1 (Sportsman Lake) Dam
5. Mead Lake Dam
6. Humbird Dam
7. Dorchester Dam

Additional information regarding dam planning, mitigation, and response can be found in *Hazard Mitigation Supplement 2.G.*

v. EXTREME HEAT

This sub-section highlights extreme heat information and the effects of these events. Supplement 2.F. of the *Clark County Hazard Mitigation Plan Supplement* provides additional details. **For extreme heat risks and vulnerabilities specific or unique to the participating villages, cities, and educational institutions, please refer to the subplans in Supplements 5 & 6.**

Defining the Hazard - Extreme Heat

In contrast to other natural hazard events, the occurrence and impacts of extreme heat are often more difficult to recognize. **Extreme heat** is the combination of very high temperatures and exceptionally humid conditions. The probability of exceeding 89°F in any given year is high, but temperatures are not the only determinant of the impacts of heat. Other factors include humidity, duration, and timing of each extreme heat event. The *Hazard Mitigation Supplement* details the National Weather Service heat-related announcements and advisory warnings.

Hazard Location & Extent

There are no geographic boundaries of locations within Clark County uniquely affected by extreme heat events. All Clark County jurisdictions are equally at risk of experiencing an extreme heat event. The *Mitigation Plan Supplement 2.F.* describes how heat events (potential intensities) are measured using the National Weather Service (NWS) heat index.

Event History – Extreme Heat

Regional trends on local extreme heat events are detailed in the *Clark County Hazard Mitigation Supplement 2.F.* Heat is the number one weather-related killer in the United States and Wisconsin. From 1979 to 1999, excessive heat exposure caused 8,015 deaths in the United States. During this period, more people died from extreme heat than from hurricanes, lightning, tornados, floods, and earthquakes combined.

National Climatic Data Center (NCDC) Event Summary

The table below summarizes extreme heat events reported by the National Climatic Data Center (NCDC) in Clark County from 1993 to 2024. During this period, Clark County experienced eight extreme heat events, though the 1999 and 2001 events could be considered part of a single heat wave lasting multiple days.

Clark County Extreme Heat Events – 1993-2024

Date	Type	Deaths	Injuries	Property or Crop Damage
7/4/1999	Heat	0	0	No damages reported
7/24/1999	Heat	0	0	
7/30/1999	Heat	0	0	
7/31/2001	Heat	0	0	
8/1/2001	Heat	0	0	
7/17/2011	Excessive Heat	0	0	
7/2/2012	Heat	0	0	

source: National Climatic Data Center (NCDC), 2024.

As shown in the table, the NCDC database records did not identify any deaths or injuries from excessive heat events within Clark County, though deaths and injuries often go unreported to the database.

The NCDC data does not reflect recent community and stakeholder perceptions and experiences when it comes to extreme heat events. While still a relatively lower risk compared to the other natural hazards of significant risk, extreme heat was frequently mentioned as a growing concern during plan update meetings and stakeholder interviews. This is consistent with the National Risk Index estimate of 0.7 extreme heats for Clark County per year, which is much more frequent than the NCDC data suggests.

Hazard Probability - Extreme Heat

The Plan Steering Committee rated extreme heat as being of some concern with a below-moderate probability and vulnerability for Clark County. This is consistent with the 2025 NWERC Health Vulnerability Assessment ranking, though social services and public health providers were generally more concerned with extreme heat than local officials during the planning process. Based on the NCDC data, FEMA's National Risk Index, and the weather-pattern changes discussed in Section III.B., it is estimated that **Clark County (and the greater region) will experience an extreme heat event once every 2 to 3 years on average, with a single event potentially lasting multiple days.** However, the frequency of these events is anticipated to increase, and this probability estimate should continue to be re-assessed as part of future mitigation plan updates.

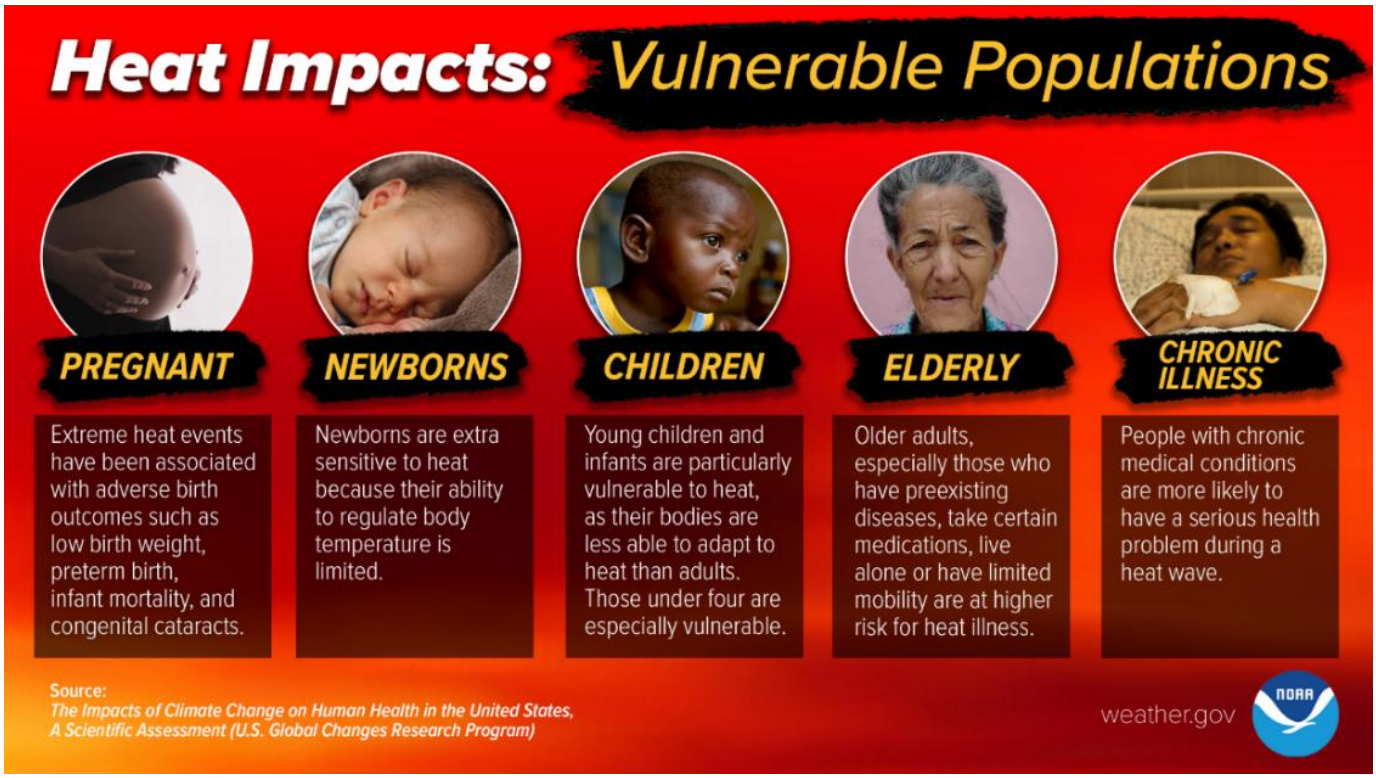
Vulnerability Assessment - Extreme Heat

General Vulnerabilities	
People	• Prolonged exposure to high temperatures can result in dehydration, heat stroke, and death. • Persons without housing may lack access to air conditioning or shelter. • Prolonged periods of high temperatures increase energy consumption/costs placing financial strain on lower-income households. • Seniors, persons on certain medications, pregnant women, children, and outdoor workers are more vulnerable to extreme heat. • Populations residing in older structures and mobile homes may lack sufficient air conditioning/HVAC systems or insulation. • Some rural homeless, including persons living in vehicles.

Mobile Homes	• Mobile homes can become very hot if there is a lack of sufficient air conditioning.
Campgrounds, Cabins, & Resorts	• Facilities may lack sufficient cooling stations.
Local Economy	• No significant impacts identified.
Infrastructure	• Certain types of infrastructure can be impacted directly or indirectly by extreme heat. Direct impacts can include disruption of biological processes at wastewater treatment facilities, the "softening" or buckling of roadways, increased mechanical failure, water supply shortages (during times of drought), or the sagging of electrical transmission lines.
Natural, Historic, & Cultural Resources	• Long periods of extreme heat can stress vegetation and wildlife.
Community Lifelines	
Safety & Security	• Personnel face increased health risks while operating under high temperatures.
Food, Water, Shelter	• In July 2012, Green Bay-area dairy farmers were reporting up to a 33 percent reduction in milk production due to heat; and it can take months before animals recover.[11] Extreme heat can also have along-term livestock reproductive and herd size management issues. Within confined livestock buildings, health can also result in deaths, especially should power be lost, which has occurred in the region when a generator failed. Extreme heat and drought can also result in the build-up of toxic gases within grain silos to lethal levels or result in fires or explosions. • No homeless or permanent shelter options and no local VOADs/non-profit groups to assist with "non-disaster" sheltering during extreme heat events.
Health & Medical	• Increased demand on services during periods of extreme heat due to dehydration, heat stroke, and other related health risks.
Energy	• Increased demand on services can result in "brown outs" or other power outages. • Most communities lack cooling shelters with emergency power generators.
Communications	• None known.
Transportation	• Prolonged exposure to extreme heat can cause buckling in pavement. • Rail lines are built with sufficient flexibility to accommodate the stresses related to most extreme heat, though buckling immediately in advance of fast-moving trains can occur. During extreme heat events, train speeds may be reduced and additional track patrols may be ordered.
Hazardous Materials	• Certain chemicals, gases, and other hazardous materials can be impacted by extreme heat results in a release, fire, or explosion. Care must be used to properly store these materials during extreme heat events.
Educational Institutions	• Students participating in sporting events/practice or marching band have an elevated risk of heat-related illnesses.
Vulnerability to Future Assets	
Population Growth & Development	• Exposure / impact from extreme heat is consistent throughout the County but will grow as the County's population increases and with the growing senior population. • Additional development will increase demand on energy and water supply during extreme heat events. • Additional development may increase the "heat island" effect if it increases the amount of paved surfacing and removes green space / canopy.

Overall, Clark County has one of the lowest Heat Vulnerability Index scores in the State according to the Wisconsin Department of Health Services. This score considers population density, health factors, the local environment, and other socio-economic factors.

[11] http://www.wbay.com/story/19037284/2012/07/16/milk-production-takes-a-dip-with-extreme-heat



Projected Loss Estimates

FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's NRI provides a source of estimated annual losses (EALs) for Clark County with a heat wave hazard.

Risk Factor	Heat Wave
EAL Rate – Population	1 per 2.74m
EAL Rate – Buildings	$1 per $19.65m
EAL Rate – Agriculture	$1 per $26.59k
Total EAL	$164,616
Exposure	$411.31 billion
Events per year	0.7
Historic loss ratio	Relatively Low
Overall Loss Score	65.1 (Relatively Low)

Out of eleven hazard types for Clark County, heat wave is the fourth highest in expected annual losses with a value of $164,616, primarily due to the estimated losses to agriculture. Based on Clark County's 2020 population of 34,659 and the above EAL rate, one County resident will be seriously injured by extreme heat about once every 79 years.

Other Factors Influencing Future Losses

1. Population growth and new development. As the population increases and ages, it is only natural that the exposure to extreme heat events will also increase. As previously noted, urban areas can experience an urban heat island effect, which would increase as more development and hardscape (e.g. buildings, concrete sidewalks and parking lots, asphalt roads and driveways) occur. A significant urban heat island effect is not anticipated to occur in Clark County.
2. Long-Term Weather Pattern Changes. As noted previously, the probability of extreme heat events is projected to increase.
3. Preparedness & Mitigation. Section III.B. discusses some potential adaptation strategies to mitigate extreme heat. Stakeholders during the plan update also recognized the potential of extreme heat events occurring during a period of power outage, which is discussed further in the *Long-Term Power Outage* section.
4. Access to Cooling Centers or Emergency Shelters. During the Plan update, there was increased interest in identifying cooling centers or emergency shelters with emergency power generators compared to previous mitigation plans, though this concern was not equally shared among all communities. Most communities lack such centers or, in other cases, local officials were unaware if a shelter has been designated. Most of these places lack an emergency generator.

vi. DROUGHT



This sub-section highlights key drought-related information and the effects of these events. Supplement 2.H. of the *Clark County Hazard Mitigation Plan Supplement* provides additional details. **For drought risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in Supplements 5 & 6.**

Defining the Hazard - Drought

A **drought** is an extended period of unusually dry weather which may be accompanied by extreme heat (temperatures which are ten or more degrees above the normal high temperature for the period). Drought conditions may vary from below normal precipitation for a few weeks to a severe lack of normal precipitation for multiple months.

There are two basic types of drought in Wisconsin—agricultural and hydraulic. **Agricultural drought** is a dry period of sufficient length and intensity that markedly reduces crop yields. **Hydraulic drought** is a dry period of sufficient length and intensity to affect lake and stream levels and the height of the groundwater table. These two types of drought may, but do not necessarily, occur at the same time. Soil types greatly influence agricultural drought risk. Some sandier, well-drained soils experience drought-like effects almost annually and can experience the lowest yields when a true drought is declared.

Hazard Location & Extent

Droughts can occur in all areas throughout Clark County, including areas with high and low average precipitation. **Figure 12** and the table below show that the soils of Clark County have some drought vulnerability, **though no soils are severely vulnerable**:

Drought Rating	% of Soils	Soil-Drought Characteristics
Slightly vulnerable	16.7%	typically low-lying areas with near-surface water
Somewhat vulnerable	4.5%	annual precipitation generally adequate for plant growth)
Moderately vulnerable	55.9%	some water stress in an average year
Drought vulnerable	22.4%	drought generally occurs every year
Severely vulnerable	0%	plants must be very drought tolerant even in normal years
Not rated	0.5%	e.g., lakes, rivers

Comparing this map with the ***Wildfire*** section maps will yield similarities since drought-prone, sandier soils in the County have more coniferous vegetation and there is less soil moisture for plants during times of drought.

Figure 12. Drought Vulnerable Soils – Clark County

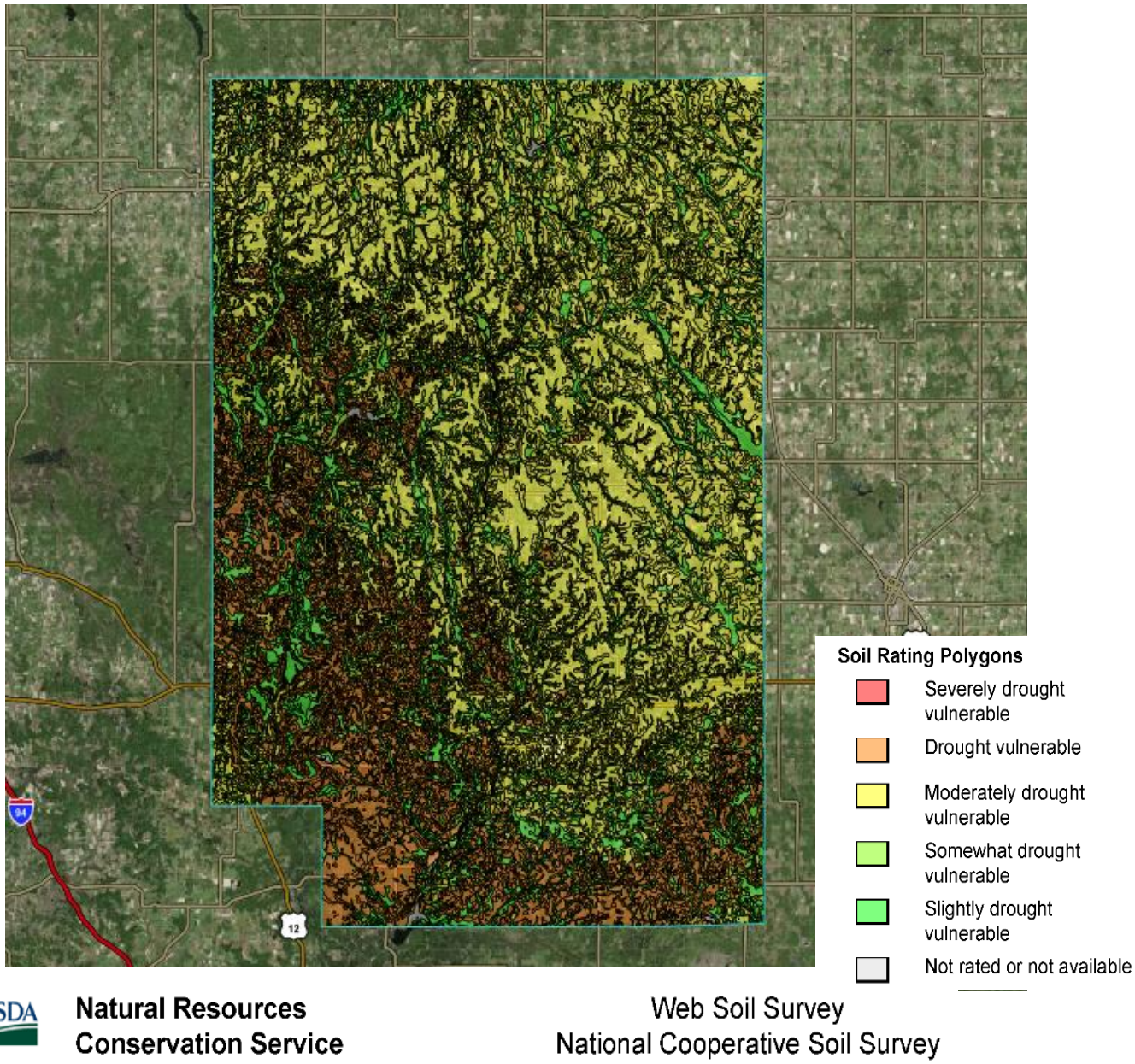
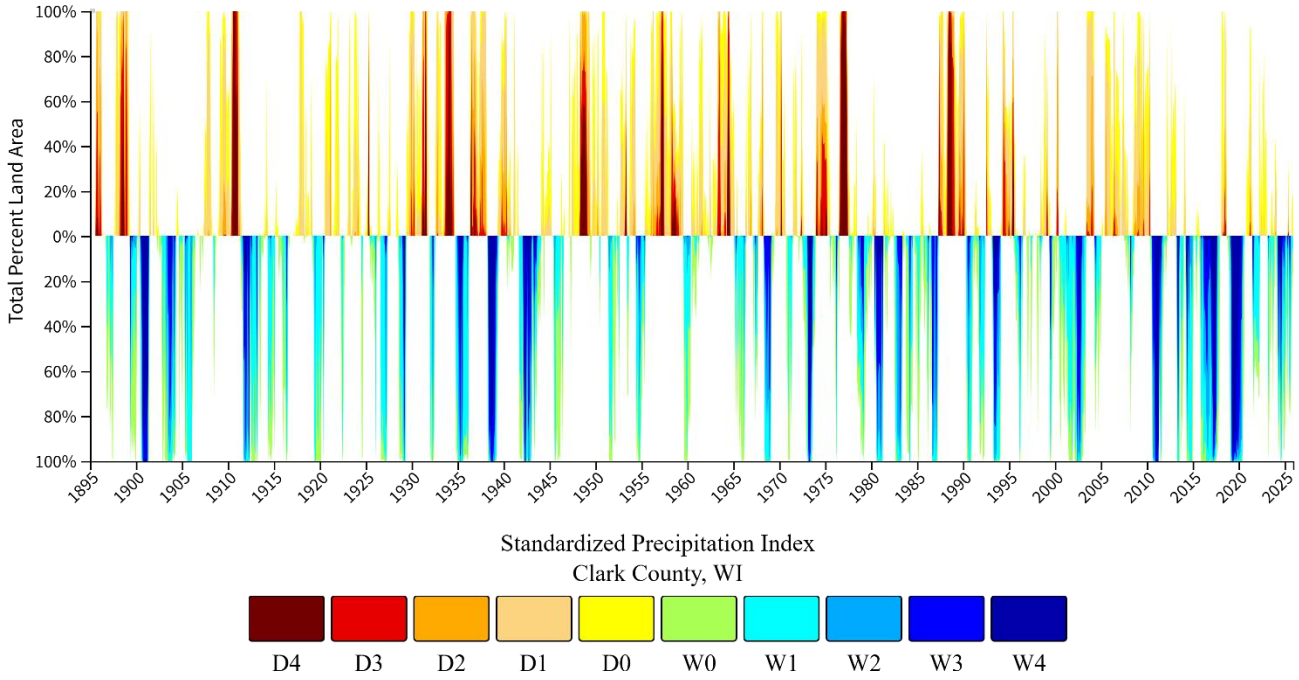


Figure 13 below shows the drought trends for Clark County utilizing the **Palmer Drought Severity Index (PDSI). The PDSI** utilizes several factors (i.e., temperature, soil moisture, and precipitation) to calculate the magnitude of the drought conditions. More information regarding the index and the related impacts can be found in the *Clark County Hazard Supplement 2.H*.

Figure 13. Clark County Drought Severity Index (1895-2024)



D4	Exceptional Drought Conditions	W4	Exceptional Wet Conditions
D3	Extreme Drought Conditions	W3	Extreme Wet Conditions
D2	Severe Drought Conditions	W2	Severe Wet Conditions
D1	Moderate Drought Conditions	W1	Moderate Wet Conditions
D0	Abnormally Dry Conditions	W0	Abnormally Wet Conditions

Event History - Drought

Supplement 2.H. of the *Clark County Hazard Mitigation Supplement* provides details on regional and local drought events, including the drought event from the Summer of 2023.

Clark County Events

The following briefly describes some drought events impacting Clark County.

- As shown in **Figure 31**, recorded years of severe drought for Clark County have occurred with exceptional drought conditions reported in 1910, 1934, 1976, 1977, 1988 and others.
- The North American Drought of 1988 was one of the most severe ever recorded in Wisconsin and much

of the Midwest; it was the last major drought event in the County. It was characterized not only by below-normal precipitation, but also by persistent dry air and above-normal temperatures.

- Until 2000, drought conditions had been impacting corn and soybean yields to some degree in the County about once every five to six years. However, beginning about 2003, northern Wisconsin experienced ongoing drought conditions, with serious impacts to agricultural producers and hydraulic levels of surface and ground waters. As a result, the Governor issued State of Emergency drought declarations, which included Clark County, during five of the ten years between 2000 and 2010.
- In June 2010 severe drought conditions developed across the far northern parts of the county early in the month and continued until late in the month when beneficial rains increased the soil moisture.
- In August 2012 severe drought conditions developed across the southern sections of Clark County because of a persistent lack of precipitation. Effects of the drought include damaged crops, pastures that stopped growing, river flows that were less than 20 percent of normal on the Black River, falling groundwater levels and high to extreme fire dangers resulting in burning bans. The entire state of Wisconsin remained in a state of emergency due to the drought. Severe drought conditions persisted in September and October but in November 201, precipitation amounts across the County were enough to improve the soil moisture conditions and end the severe drought classification.
- In September 2013, severe drought conditions developed across the southwest corner of Clark County early in September and by the end of the month, covered the southwest half of the County. Precipitation deficits of 6 to 8 inches since the beginning of July, combined with above normal temperatures over the last half of August into September, led to the development of the drought. The severe drought was downgraded to moderate by the middle of October 2013.
- Since 2014, no widespread drought has occurred.

The table below shows the State and Federal Drought Emergency Declarations involving Clark County for which financial assistance was provided:

Crop Year	Declaration Type
1976	Federal Drought Area Declaration under the Disaster Relief Act
2003	State Drought Emergency Declaration
2005	State Drought Emergency Declaration
2006	State Drought Emergency Declaration
2007	State/USDA Drought Disaster Declaration
2009	State Drought Emergency Declaration
2010	USDA – Drought & Late Freeze Declaration
2012	State Drought Emergency Declaration

Hazard Probability - Drought

The Plan Steering Committee rated drought probability as being of some (below moderate) concern in Clark County, with some-to-moderate vulnerability. **Based on the severe drought years since 1970, a severe, countywide or regional drought year can be anticipated once every 5-7 years on average, with events often occurring in subsequent years. Some areas of the County with sandier soils can be expected to experience an agricultural drought on an annual or near annual basis.**

As discussed in Section III.B., research from the Wisconsin Initiative on Climate Change Impacts[12] (WICCI) shows that annual precipitation in Clark County has been increasing since 1950, though most of these increases have been occurring during the winter months. Concurrently, Clark County's average annual temperatures have increased by around 4ºF since 1950. WICCI has projected that Clark County's weather will continue to become much wetter overall, but potentially the same or slightly drier during the summer months, with significantly higher temperatures. As such, the probability and severity of future droughts may increase, but there is insufficient data available at this time to be definitive.

Vulnerability Assessment - Drought

General Vulnerabilities	
People	• A prolonged drought can be especially hard on small farmers that are many times already finding it challenging to make ends meet.
Agriculture (Crops)	• Drought in Wisconsin has the greatest impact on agriculture and agriculture plays a critical role in the County's economy, as previously stated in Section II.C. • Since the severity of drought can vary, determining its financial impacts on crop and livestock operations is difficult. • The Drought assessment in Section III.C. provides example crop losses. Even in low drought conditions crop yields can dramatically decrease crops and become more susceptible to pests and disease. More substantial events can decimate croplands and result in total loss. • The loss of vegetation due to drought can exacerbate flash flooding, even from an average rainfall. • Many crop farmers have used irrigation for sandy soils to help mitigate drought; see water supply discussion below.
Agriculture (Livestock)	• Livestock, especially those kept in close quarters, can experience decreased milk production or even death. • Typically, farmers will supplement feed before allowing a drop in milk production due to drought. These additional feed purchases can be devastating, depending on the drought severity and length. • Drought conditions can also result in the build-up of nitrates in feed and silage to levels that are toxic to cattle. • Extreme heat and drought can also result in the build-up of toxic gases within grain silos to lethal levels or result in fires or explosions.
Water Supply	• Drought causes water shortages, drying up private wells and ponds, and increasing the demand for irrigation, putting strain on water supplies and raising concerns about future availability. • Ponds previously used by farmers may dry up, causing farmers to drill new wells and pump groundwater for their stock. • High-capacity wells have the potential to impact groundwater and nearby surface waters, especially during drought periods. As of March 2026, Wisconsin DNR database identified 169 active high-capacity wells within Clark County. Demand for water is increasing – between 1979 and 2005, it was estimated that water use in Clark County more than doubled from 6.2 million gallons per day to 15.8 million gallons per day.[13] Industry and agricultural irrigation are identified as the primary reasons for this increase. • Water use bans during dry periods are still occasionally instituted in some cities and villages with municipal water systems.

[12] Wisconsin Initiative on Climate Change Impacts website: www.wicci.wisc.edu

[13] USGS and UW-Stevens Point-Wisconsin Center for Land Use Education.

Ground Water & Surface Water	• Drought lowers groundwater and surface water levels, affecting private wells and ponds, impacting habitat and recreational value, and potentially concentrating contaminants and nutrients in surface waters. • Decreased surface water makes shoreline areas more vulnerable to erosion, water temperatures can change, and contaminants and nutrients become concentrated; contributing to toxicity, eutrophication, and fish kills.
Forest & Vegetation	• Drought stresses forest vegetation, making it more vulnerable to pests and diseases, while increasing the risk of wildfires due to extreme dryness. Further risk is discussed in the Wildfire section.
Community Lifelines	
Safety & Security	• Drought conditions increase the likelihood of wildfires; leaving the resources strained for fire suppression and emergency response. • When extreme heat events and drought conditions occur at the same time, rural fire departments assisting farmers to keep livestock cool could increase response time and put additional stress on an already over-taxed water system. • Water scarcity during droughts can impact firefighting capabilities and limit the availability of water for other emergency response activities.
Food, Water, Shelter	• Drought can lead to crop failures and reduced agricultural production, resulting in food scarcity, increased food prices, and potential food insecurity. • Water scarcity during droughts can impact drinking water supplies, necessitating conservation measures and alternative sources for safe and sufficient water. Overall, groundwater is generally abundant and this was not identified during the plan update as a significant concern in the County at this time.
Health & Medical	• Drought-related conditions, such as heatwaves and poor air quality from wildfires, can have adverse health effects on vulnerable populations, including respiratory issues, heat-related illnesses, and exacerbation of chronic conditions.
Energy	• No related drought concerns within the County noted.
Communications	• No drought specific concerns noted.
Transportation	• Drought conditions can lead to soil instability, increasing the risk of road and highway damage.
Hazardous Materials	• No drought specific concerns noted.
Educational Institutions	• No drought specific concerns noted.
Vulnerability to Future Assets	
Population Growth & Development	• While no specific concerns noted at this time, growth increases the demand on groundwater supplies while development has the potential to impact the infiltration and replenishment of groundwater.

The *Clark County Hazard Mitigation Supplement 2.H.* details other potential drought vulnerabilities, specifically the potential impact of drought on groundwater and wells, especially in areas where irrigation is more common.

Projected Loss Estimates

Overview of Potential Agricultural Losses

Drought can impact parts or all of Clark County's agricultural base. The agricultural overview in Section II. discussed and quantified the importance of agriculture to Clark County's economy and the potential market value of the crops at risk.

In general, for Wisconsin, droughts have the greatest impact on agriculture. Even small droughts of limited duration can significantly reduce crop growth and yields, while making crops more susceptible to pests and diseases. More substantial events can decimate croplands and result in total loss. Droughts also greatly increase the risk of forest fires and wildfires because of extreme dryness. The loss of vegetation due to drought can result in flooding, even from an average rainfall.

The vulnerability to agricultural drought is high for Clark County, with a 2017 market value of crops sold at $72.4 million and livestock sold at $331.7 million. Crop yields can dramatically decrease; and livestock, especially those kept in close quarters, can experience decreased milk production or even death. Since the severity of drought can vary, determining its financial impacts on crop and livestock operations is difficult.

It is very unlikely that any single hazard would endanger all livestock or crops, though large proportions could be at-risk from a prolonged, severe drought or the introduction of a new a pest or disease. With milk production constituting a very large percentage of the total market value, yet being concentrated in an increasingly smaller number of farms, threats to this industry are particularly important in Clark County.

Large-scale impacts to crops or livestock from a natural hazard can also have devastating impacts on the local economy, related industries (e.g., food processing), and related service providers. The state of the agricultural economy is tenuous for the local farmer, and a hazard event may result in farmers making fewer purchases or getting out of the business altogether. Local, small-town economies are already going through significant transitions with the decreasing number of farms. Additional farm losses would further impact local businesses (e.g., implement dealers, feed stores, granaries, food processing, banks, and general goods). To compensate for additional farm losses, the costs for such services may also be increased, or the local businesses may close, further burdening the remaining farmers in the area.

Table 9 provides an example of how a statewide drought impacted crop yields by comparing crop production for the 2012-14 drought year against the average production for all other years from 2010 to 2019. During the drought (and related winter kill), soybean yields were 12% lower (5.6 fewer bushels per acre) and grain corn yields were 14% lower (19.9 fewer bushels/acres) in 2013 than the average for 2010-2019, excluding 2012-14.

Table 9. Clark County Soybeans & Grain Corn Yields

Year	Corn (grain)	Soybeans
	bushels per acre average	
2019	123.1	
2018	112.3	38.9
2017	144.9	44.8
2016	154.7	50.5
2015	140.5	49.1
2014	133.6	39.4
2013	120.7	40.1
2012	136.9	39.8
2011	145.5	48.5
2010	162.9	46.7

drought years

source: USDA-NASS, Agricultural Statistics Database, <http://www.nass.usda.gov>.

In 2022, there were 58,007 acres of soybeans and 72,540 acres of grain corn harvested in Clark County. Assuming an average of $11.50 per bushel for soybeans, a 20-bushel loss per acre would be equivalent to a $230 loss per acre or about $13.3 million in total soybean losses. If we assumed an average of $4.00 per bushel for grain corn, a 52-bushel loss per acre would be equivalent to a $208 loss per acre or about $15 million in total grain corn losses. Such losses are a significant financial hardship.

Yields can vary greatly by location, with corn yields ranging as high as 200 bushels per acre in some areas to less than 100 bushels per acre in others during drought years. The lowest yields are located in the sandier and lighter soils of the County. During past drought years, hay yields were also below average, driving up hay prices for livestock operators.

Typically, farmers will supplement feed before allowing a drop in milk production due to drought. Additional feed purchases could also vary based on drought severity and length, but $1,500 of additional feed per mature cow is not unrealistic ($1,500 x 149,000 head of cattle = $223.5 million) resulting in many millions in required supplemental feed for Clark County farmers under a severe, single-season drought event.

Drought conditions can also result in the build-up of nitrates in feed and silage to levels that are toxic to cattle. In recent years, there have been a small number of cattle deaths in the region due to nitrate toxicity. Extreme heat and drought can also result in the build-up of toxic gases within grain silos to lethal levels or result in fires or explosions. Extreme heat within large, confined livestock buildings has

also been a concern in the past resulting in livestock deaths within the region, though no large-scale, animal mass casualty events due to extreme heat have been reported in Clark County.

The far majority of local farmers understands and practices good management to reduce the vulnerabilities associated with drought conditions, but some knowingly take chances. Most farmers carry some type of crop insurance, especially in drought-prone areas, and crop insurance use has been on the rise. Most farmers also participate in Farm Service Agency programs, which require multi-peril crop insurance and protect losses at average county yields. But such insurance is very expensive, and participation will often increase as the price received for the commodity increases. It is typically not cost-effective to insure low-value crops, such as alfalfa. For many smaller specialty growers and community-supported agricultural operations, it is extremely cost prohibitive to carry crop insurance.



FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's NRI provides a source of estimated annual drought losses (EALs) for Clark County:

Risk Factor	Drought
EAL Rate – Population	--
EAL Rate – Buildings	--
EAL Rate – Agriculture	$1 per $6.58m
Total EAL	$70
Exposure	$3.7 million
Events per year	0.7
Historic loss ratio	Very Low
Overall Loss Score	18.2 (Very Low)

The NRI table suggests drought impacts in Clark County will largely be limited to agricultural crop losses. The data suggests that a drought event is low (.7 events/year). Overall, the NRI rates the County's drought vulnerability as very low.

vii. WILDFIRE

This section, as well as additional data within Supplement 2.I. of the *Clark County Hazard Mitigation Supplement*, relies heavily on analysis tools provided by the Northeast-Midwest State Foresters Alliance and a report generated utilizing these tools on February 3, 2026. The report provides data and maps that identify various factors that contribute to risk, intensity, and impact of wildfires in Clark County. While this section summarizes several of the findings within the report, the full report provides additional depth and detail. The tools provided by the Alliance are updated as factors change and the most current data may be valued over this plan, should a conflict arise. Additional information and resources can be found at https://northeastmidwestwildfirerisk.com/. **For wildfire risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in *Mitigation Plan Supplements 5 & 6*.**

Defining the Hazard—Wildfire



A **wildfire**, in the context of this plan, is an uncontrollable, unwanted fire in the natural environment spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may fill the area for miles around. Wildfires can be human-caused through arson, campfires, prescribed burns, or carelessness, or can be caused by natural events such as lightning. An expanded definition is located in *Mitigation Plan Supplement 2.I.*

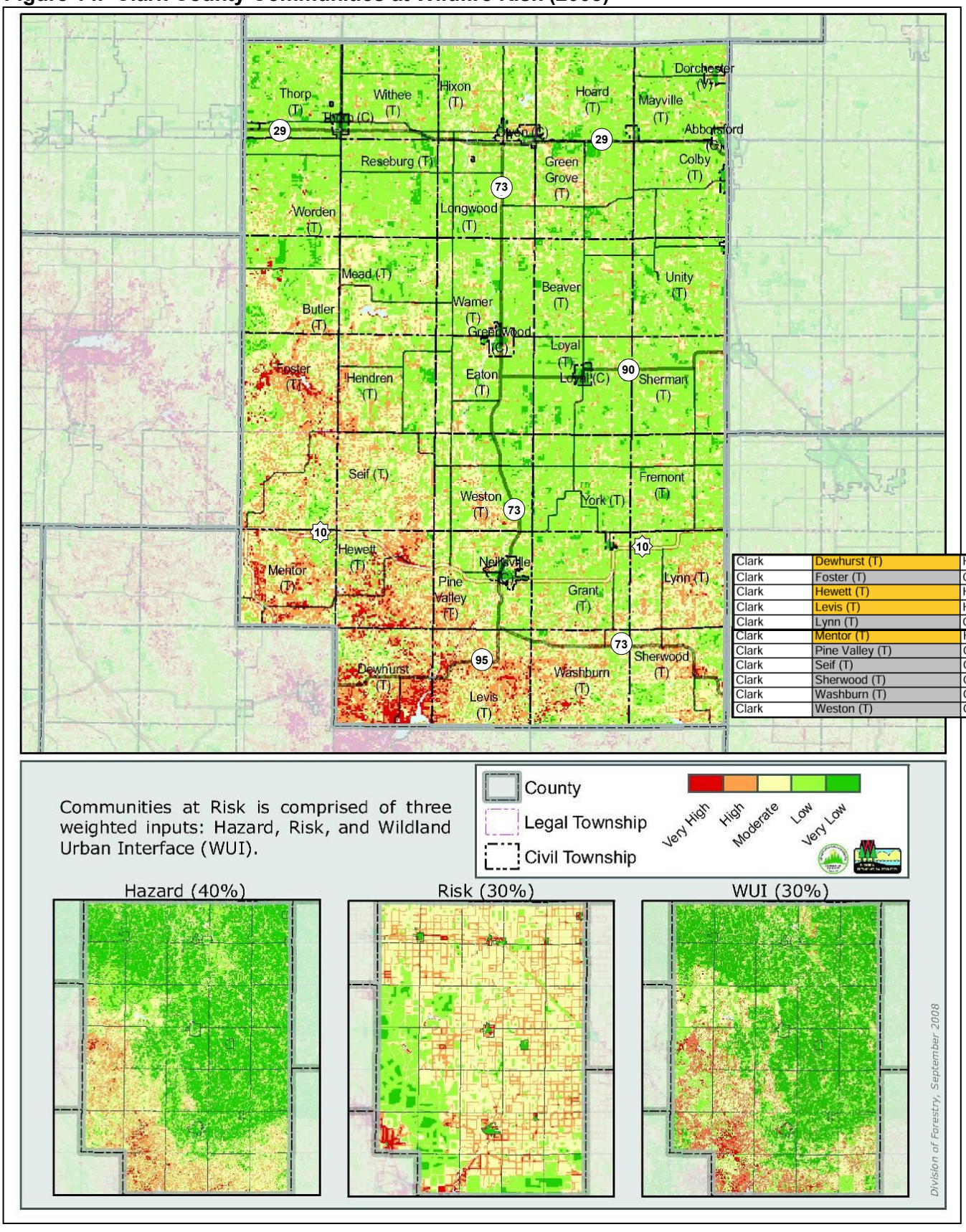
Hazard Location

As described in Section II.B., approximately 30% of Clark County is forested and 1% is shrub and grasslands. Just under half of the County is cultivated crops or pasture/hay. The *Mitigation Plan Supplement* dives more deeply into how these risks vary by vegetative cover and surface fuel types as well as other risk factors.

The Wisconsin Department of Natural Resources (WDNR) identified twelve communities in Clark County with an elevated wildfire risk.[14] While four communities have a high risk there are no communities identified as having a very high risk. The list of these communities was generated by a WDNR analysis completed in 2008, which considered the hazard (vegetation type), the risk (wildfire history), and the wildland-urban interface (development within forested areas). This 2008 analysis, summarized by **Figure 14**, is a bit older, but still provides important insights into how the wildfire risks vary across Clark County.

[14] https://dnr.wisconsin.gov/sites/default/files/topic/ForestFire/communitiesAtRiskWildfire.pdf

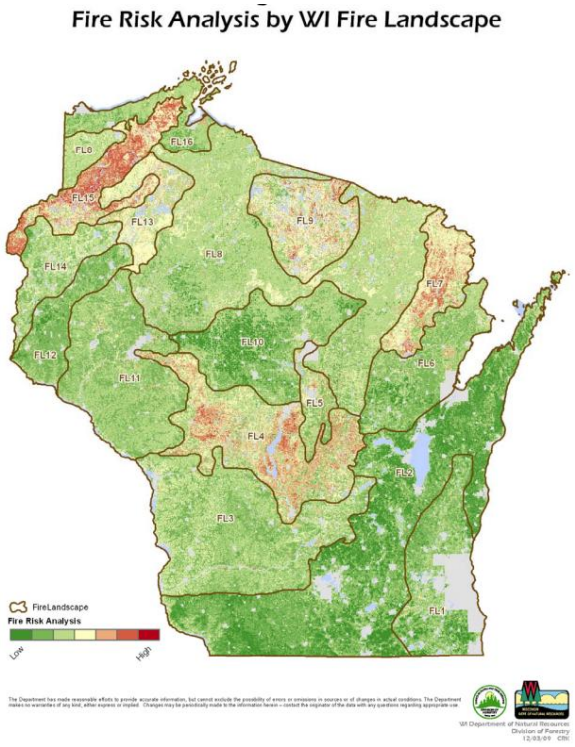
Figure 14. Clark County Communities at Wildfire Risk (2008)



Hazard Extent (Potential Intensities)

Wildfires are capable of occurring and impacting large areas. Areas with dense pine and oak vegetation are more likely to experience wildfires. In March 2010 the Wisconsin Department of Natural Resources – Division of Forestry, completed a Wildland Fire Management Program Assessment that included identification of sixteen distinct fire landscapes throughout the State with associated management recommendations.[15] The landscapes were determined based on five features:

- Vegetation
- Ecological Subsections
- Soils
- Land Parcel Improvements
- Forest Patch Size



The risk areas identified in Figure 14 are consistent with the fire landscapes identified by the Wisconsin DNR in their *Wildland Fire Management Program Assessment* completed in March 2010. This assessment divided the State into 16 fire landscapes based on vegetation, ecology, soils, development, and forest sizes. The zones were then used to help guide and prioritize resources and mitigation efforts. Clark County falls into two fire landscapes:

Central Wisconsin Sands – The south-southwest 1/3 of Clark County is within the Central Wisconsin Sands fire landscape. **This area is the one of the highest fire risk landscapes in the Wisconsin** and is characterized by extensive areas of jack and red pine, with dry, sandy, and organic soils. There is great history of, and potential for, a 10,000 acre project class fire in this area. In fact, since 1975, there have been four fires greater than 2,500 acres in this area. This is a primary mitigation area and community wildfire protection planning, Firewise outreach, targeted media messaging, and other mitigation efforts are to be supported. School fire prevention programs must be conducted in grades K-3 every three years.

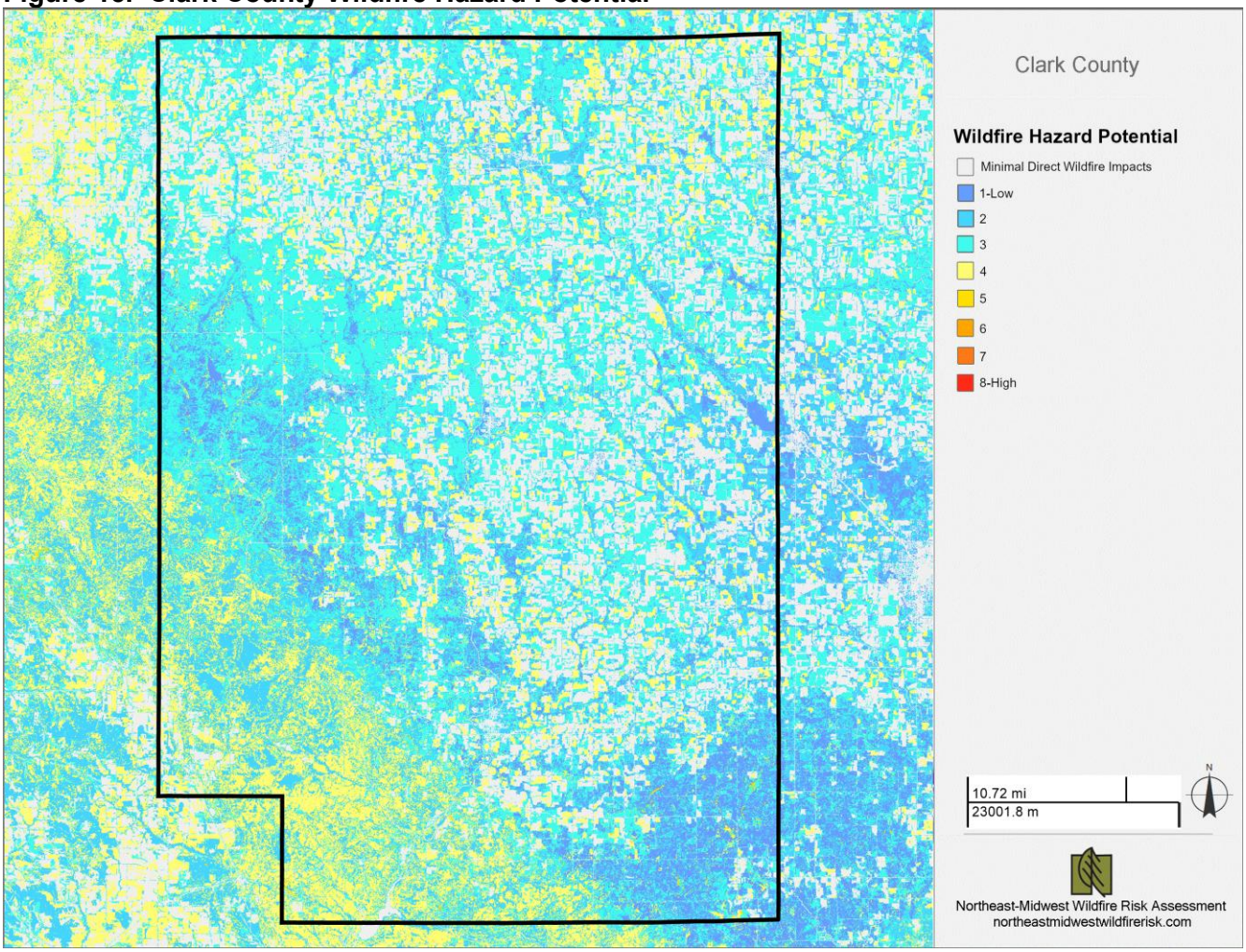
Central Ag and Hardwoods – The remaining 2/3 of Clark County is within the Central Ag and Hardwoods fire landscape. Forested land in this area is highly fragmented by agricultural land, breaking vast tracts of flammable landscape. Forest fires in this area are likely to remain under 500 acres; the risk is relatively low and mitigation is only recommended for specific situations. However, as mentioned previously, there is a risk of grassland fires in some areas.

[15] https://dnr.wisconsin.gov/sites/default/files/topic/ForestFire/fireAssessment_wildlandFireMgmtFinalReport.pdf

Wildfire Hazard Potential – Difficulty to Control

The wildfire hazard potential (WHP) dataset represents an index that quantifies the relative potential for wildfire that may be difficult to control. WHP can be used as a measure to help prioritize where fuel treatments may be needed.

Figure 15. Clark County Wildfire Hazard Potential



Key takeaways from **Figure 15** include the following:

- There is a consistent trend of wildfires becoming more difficult to control when moving from southwest to northeast. This trend aligns with the overall land cover and accessibility.
- The overall potential for a large wildfire in the County that is difficult to control is low. Only 1,076 acres in the County are rated 5 with no areas rated 6-8.
- Approximately 27% of the County's lands are rated as having minimal direct wildfire impacts and 24% is rated 1 or 2. 48% of the land area is rated as 3 or 4 for wildfire hazard potential.

Event History – Wildfire

Wildfires are not uncommon for Wisconsin and can occur at any time of the day and during any month of the year, though the peak fire season in Wisconsin is typically from March through November; and the season length and peak months varies from year-to-year. Land use, vegetation, amount of combustible materials present, and weather conditions (e.g., wind, low humidity, lack of precipitation) are the chief factors determining the number of fires and acres burned. Forest fires are more likely when vegetation is dry from a winter with little snow cover, followed by a spring and summer with sparse rainfall.

Clark County Events

Forest fire is not a new threat to Clark County, though based on limited research, the County has not experienced extensive historical forest fires burnings hundreds of square miles such as those in the 1800s and early 1900s that raged across nearby Barron, Chippewa, and Polk counties. For instance, the 1898 article to the right describes an "immense sea of flames" which burned over 600 square miles of pine lands in northern Wisconsin and Minnesota[16]. While losses were greatest in nearby Polk and Barron counties, the fires brought destruction and death to the Cornell, Cadott, and Boyd areas. Later, in 1906, the City of Stanley was partially destroyed by forest fire, but there were no officially reported forest fire losses for Clark County that year. A few years later, in July 1910, a forest fire fifty miles long and forty miles wide raged near Chippewa Falls resulting in at least three deaths and leaving 300 people homeless.

As the pine forests were logged and agriculture came to dominate much of region, the forest fire risk also changed. The potential for a large forest fire was chiefly limited to forested areas less suitable for agriculture and in the resort and seasonal housing areas typically associated with recreational surface waters.

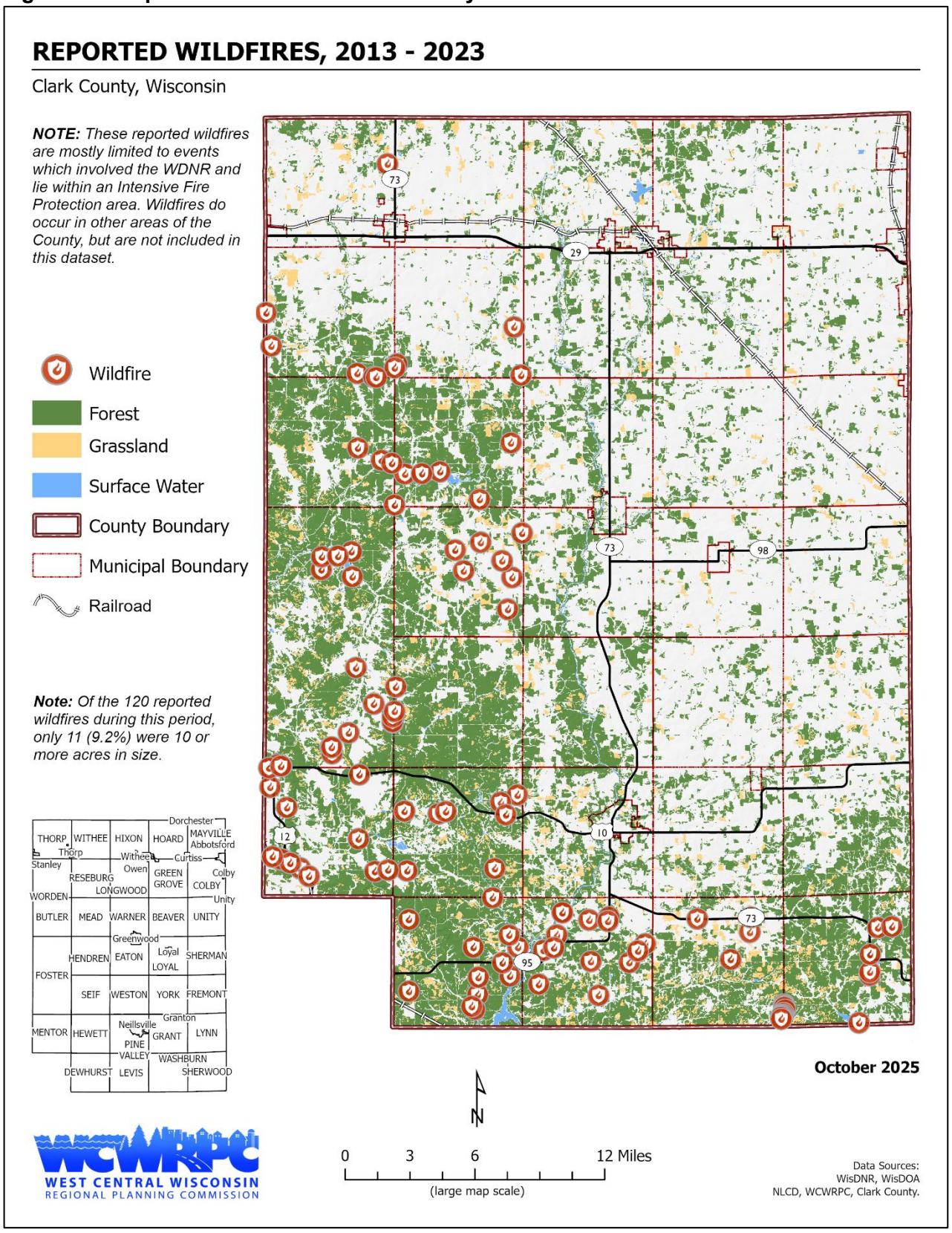
Figure 16 shows the approximate location of the 120 reported wildfires in Clark County between 2013 and 2023 which are identified in the WDNR database. However, caution should be used when interpreting this data. These wildfire reports are mostly limited to events which involved the WDNR and lie within an intensive protection area, which constitutes about 40 percent of the County; wildfires do occur in the remaining cooperative protection areas but are not typically reported. The result of this data when mapped is an appearance that wildfires only occur in the southern and western parts of Clark County, which is not true.

Seventy percent of the reports occurred in the towns of Dewhurst (12 reports), Foster (17 reports), Levis (14 reports), Mentor (14 reports), Sherwood (11 reports), and Washburn (16 reports). Of the 120 wildfires reported during this period, 105 (88%) were less than five acres in size. Six fires were reported as having 20 or more acres burned. The largest fire recorded for the time period was estimated to have burned 105 acres in May 2018 in the Town of Foster.

Wildfires were reported in every month except for December and January. Only one fire was reported for the month of February. By far, the largest number of wildfires occurred in the month of April with 40 fires (33% percent of all reported fires). March was the next highest month in terms of wildfire frequency with 20 percent of the reported fires.

[16] The Daily Gazette. Janesville, WI. Number 148 and 149. 9/4/1894 & 9/5/1894.

Figure 16. Reported Wildfires in Clark County – 2013 to 2023



Railroads as an ignition source was reported as less of a concern lately. A series of arson fires ignited by a single individuals over multiple years has been experienced in Clark County Forest; the perpetrator was apprehended and such fires have not occurred since.

Over the last forty years, there has not been a Presidential Disaster Declaration for a wildfire in Clark County and research for preparation of this Plan did not discover any recent serious injuries or deaths related to a large wildfire event. There have been no recent "project class" wildfires in Clark County with an Incident Command Center and 8+ hour burns. However, we can look west to Eau Claire County to see that such events can be very deadly. On April 24, 1982, Wisconsin Department of Natural Resources tractor plow operator Donald Eisberner was killed in the line of duty while plowing a firebreak during the Canoe Landing forest fire in the Eau Claire County Forest.

Hazard Probability – Wildfire

Several factors must be taken into consideration when assessing the probability of a wildfire. A fire can occur anywhere; if it grows and where it spreads is dependent on wind direction, weather, access to fuel sources, and chance. Understanding the factors that support fire growth will help identify areas of risk and vulnerability. The Plan Steering Committee rated the probability and vulnerability of wildfires as of some-to-moderate concern compared to many of the other natural hazards, though it recognized the ignition risks and vulnerabilities varied geographically. This is in part due to most of the forest lands being significantly fragmented and having predominantly deciduous vegetation which will help slow and limit the spread of wildfires.

Vegetation fuel types and the fragmented forest landscape combine to make the fast-spreading, regional fires of the late 1800s very unlikely within Clark County**. In the near term, it can be expected that Clark County will continue to experience about 10-15 significant wildfires per year on average**. **The far majority of these fires will be brush or grass fires less than ten acres in size.**

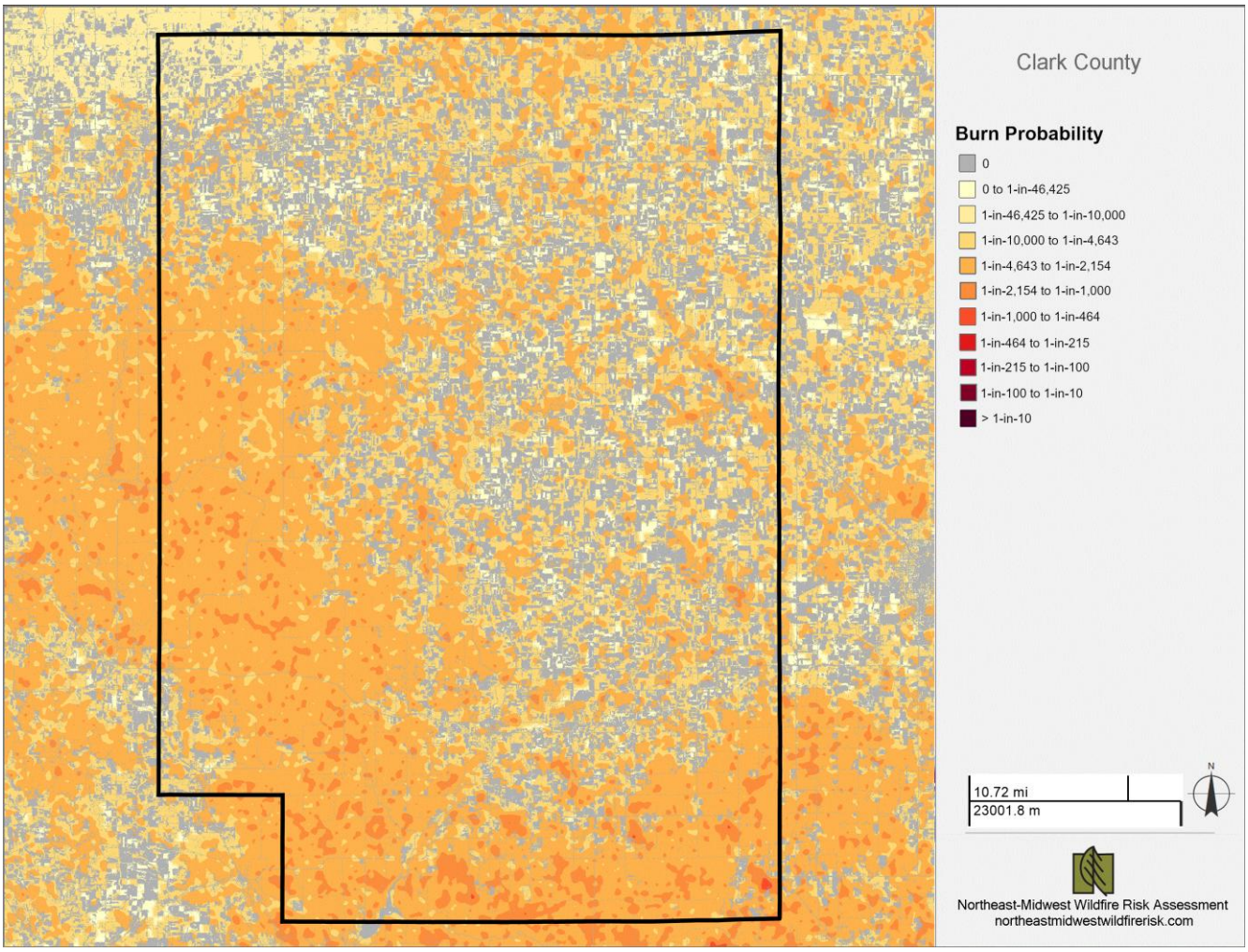
A number of factors could significantly contribute to an increase in the number and size of wildfires over the long term. Foremost, population increases, development in the wildland-urban interface, and the transition from seasonal to year-round housing has great potential to increase the frequency of wildfires in Clark County. Long-term weather patterns, insect infestation, and plant disease are additional factors that may also increase wildfire risks.

Burn Probability

Taking several factors into account, the burn probability is an assessment of the annual probability of a wildfire burning in a specific location. **Figure 17** identifies the burn probability throughout Clark County.

The overall burn probability in the County is low-to-moderate. The highest probability identified is in the "1-in-1,000 to 1-in-464" range, and this only includes 178 acres within the County. The top 4 ranges are not shown on the map as there are no lands in the County identified in these categories.

Figure 17. Clark County Burn Probability



Vulnerability Assessment – Wildfire

General Vulnerabilities	
People	• All residents and visitors are at-risk of injury or death from wildfire events. • Migrant Populations - May lack community resources / social network to efficiently relocate and rebuild during and after wildfire events. Language barriers can prevent life-saving information / orders / alerts from being efficiently dispersed within the community.
Above-Ground Structures	• All structures and personal property have varying vulnerabilities to wildfire depending on proximity to woodlands, structure building materials, and whether mitigation actions (e.g., defensible spaces) have been taken. • The Wildfire assessment in Section III.C. evaluates what areas of the County have higher wildfire risks and vulnerabilities, including the vulnerability to structures and highly valued assets. Over $219.6 million in assessed improvements are located within the four towns with the highest wildfire risks—Dewhurst, Hewitt, Levis, and Mentor.
Campgrounds	• Campgrounds, tourism-related cottages, RV parks, and results are often located in more vulnerable areas. For such facilities, visitors are a potential source of fire ignition (.e.g., campfires), may not understand risk factors, and are a vulnerability should a wildfire occur.
Lake Properties	• Homes and cottages located on or near lakes and rivers often have an elevated vulnerability due to location within a wooded area and have limited access/egress. These properties are frequently identified as a concern by emergency responders due to narrow, winding private roads and driveways, sometimes with steep grade/topographical changes.
Local Economy	• Wildfires can damage businesses and cause closures or evacuations in nearby areas. • The logging and tourism industries would be affected the most within the local economy, were a wildfire to occur. • Clark County Forest, established in 1934, currently covers close to 135,000 acres. The largest blocks are in the western and southern parts of the County. The County sells lumber, which supports its general fund. There are also several privately owned forest lands. • Recreationally, the County Forest supports many businesses in the County. The loss of related tourism would reduce revenues for Clark County campgrounds, parks, and other businesses, though no current study on the extent of potential financial impacts is available. Forest landowners would also incur significant costs associated with salvage and restoration following a large forest fire event.
Natural, Historic, & Cultural Resources	• Forested areas, grassland, and agricultural areas are important economic assets and are susceptible to wildfires. • Historic, non-masonry structures are vulnerable to fire.
Community Lifelines	
Safety & Security	• Personnel are exposed to hazardous conditions when combating wildfires or assisting residents in wildfire areas. • If a very large wildfire was to occur within the County, fire departments and local EMS could potentially be stretched thin; delayed response times might occur.
Food, Water, Shelter	• All above-ground structures are vulnerable. However, structures located in pine plantations, forested areas, or adjacent to grasslands are potentially at risk from wildfires. • Livestock could be at risk if a wildfire starts in a grassland area, however the risk is minimal to food sources. • Large scale wildfires can impact water quality, but this scenario is of low concern. • Farms and other croplands are at high risk of wildfire ignition and spread.
Health & Medical	• Hospitals and other in-patient care facilities may need to be evacuated during wildfire events, but the risk is very low for cities and villages.
Energy	• Above-ground utilities are vulnerable in wooded areas; see Long-Term Power Outage section. • Ash and debris from wildfires can damage solar panels / arrays. • Natural gas lines and storage facilities are vulnerable to prolonged heat exposure and combustion.
Communications	• All above-ground structures are vulnerable, but no specific concerns noted.

Transportation	• Exposure to high amounts of heat from wildfires can damage road infrastructure. • Chemicals, smoke and airborne debris from wildfires create dangerous travel conditions. • Road closures due to wildfires. • Trains are a cause of wildfire ignition. Railway materials (steel beams, wood supports) are susceptible to damage from wildfire.
Hazardous Materials	• All above-ground structures are vulnerable, but no specific concerns noted. • Combustion of materials can create hazardous materials spills or releases. • Hazardous materials may be flammable and can be spread through wildfire smoke/winds.
Educational Institutions	• None known. Evacuation planning may be advised for school facilities within or near high fuel or forested areas. Most educational facilities have large, maintained grounds that would protect buildings from being impacted by a wildfire.
Other Assets	• 6 facilities near or adjacent to large traces of forested areas are especially vulnerable: Butler Town Hall, cells towners in towns of Dewhurst and Foster, Foster Town Shop, County Highway Garage in Town of Hewett, and Dewhurst Town Hall. Bruce Mound, a command and control site, is also located in a forest area. • Overhead power lines and plastic culverts in the forested areas are also vulnerable to fire. • While not especially vulnerable to wildfire, dry hydrants and other reliable, non-pressurized sources of water are especially important to fighting wildfire, especially when municipal water is not available. During the current or past mitigation planning efforts, communities or fire departments identified a need for dry hydrants in a variety of areas.
Vulnerability to Future Assets	
Population Growth & Development	• Developments and populations within the Wildland Urban Interface (WUI) are at a higher risk of exposure to wildfire events. • Agricultural fields contain high levels of surface fuels that can start or spread wildfires. • As reflected in the community profile, Clark County continues to grow in terms of population, thus increasing overall exposure to wildfires.

Wildfires and the resulting burnt landscape can also damage and contaminate the natural environment, which includes polluting sources of drinking water, destroying habitats, exacerbating erosion and runoff to surface waters, and degrading air quality for miles.

Large wildfires produce a significant amount of polluted smoke that degrades air quality well beyond the boundaries of the fire, posing health risks. An example of this impact is May 2023 air quality advisory that was issued for Clark County as a result of the Canadian wildfires. Wildfire smoke originating from Canada started to move into Wisconsin from the northwest causing reduced air quality.

DNR RECOMMENDS WISCONSINITES LIMIT TIME OUTSIDE DUE TO CANADIAN WILDFIRE SMOKE



The DNR is advising Wisconsinites to reduce their time outdoors due to ongoing air quality alerts resulting from Canadian wildfire smoke.
Photo credit: Wisconsin DNR

Projected Loss Estimates

Forest fire can cause significant injury, death, damage to property, and loss of natural resources. As shown in **Table 10**, four communities (Town of Dewhurst, Town of Hewett, Town of Levis, and Town of Mentor) have been identified by WDNR as having a high wildfire risks. These four towns had over $219 million in assessed improvements on 1,389 improved parcels in 2024 as well as a combined 2020 Census population of about 1,627. Nearly all of these parcels were residential; only 52 parcels were commercial in use and 2 were manufacturing. The official Wisconsin Department of Administration 2024 population projections show that 2 of the 4 towns are expected to grow very slightly over the next thirty years; cumulatively the four towns are expected to see a minimal increase in population of 33 persons during the thirty-year period.

Table 10. Population and Improvements of At-Risk Communities

Community	Population			2024 Assessed Improvements			
	2020 Census	WI DOA Proj. 2050	% Chng. '20-'50	# of Imp. Parcels	# com	# ind	Total Value of Improvements
Town of Dewhurst	349	449	100	459	13	0	$ 107,026,400
Town of Hewett	295	290	-5	265	8	1	$ 31,661,300
Town of Levis	437	370	-67	330	10	1	$ 28,847,000
Town of Mentor	546	551	5	335	21	0	$ 52,100,900
Total	1,627	1,660	33	1,389	52	2	$ 219,635,600

Some local fire personnel also noted that wildfires in grasslands and fields also have the potential to spread more quickly than fires in wooded areas.

FEMA National Risk Index (NRI) Estimated Annual Losses

FEMA's NRI provides a source of estimated annual losses (EALs) for Clark County with a wildfire hazard.

Risk Factor	Wildfire
EAL Rate – Population	1 per 514.25m
EAL Rate – Buildings	$1 per $876.89k
EAL Rate – Agriculture	$1 per $6.33 billion
Total EAL	$11,210
Exposure	$59.81 billion
Events per year	0.002% chance per year
Historic loss ratio	Relatively Moderate
Overall Loss Score	30.1 (Very Low)

According to the NRI data, wildfire has the second lowest (behind drought) estimated annual loss of all natural hazard events ($11,210) for Clark County.

Other Factors Influencing Future Losses

A wide variety of preparedness and mitigation efforts can reduce wildfire losses. Active forest planning and management can reduce fuel and provide fire lanes for responders. The Clark County Forest is intensively managed to mitigate the potential of large wildfires and a range of other forest-related hazards (e.g., drought, invasive species) through the *Clark County Forest 15-Year Comprehensive Land Use Plan*. Accessing some remote areas of the County Forest for wildfire response can be a challenge, especially during wet springs or following heavy rains and flooding.



Privately owned woodlots are sometimes less intensely managed than adjacent County Forest lands, especially in cases of absentee land ownership. These woodlots may present a higher risk of forest fire and create a risk to adjacent County Forest lands. Firewise practices, such as maintaining the home ignition zone, fire-resistant building materials, and composting, can target areas most at risk of wildfire. Residents and visitors can all benefit from fire prevention messaging, increased awareness of burning permits, etc.

Overall, wildfire fighting/response equipment and infrastructure for Clark County is good. Prevention and preparedness activities have focused on public education (e.g., promoting defensible spaces, wildfire risk signage), burning permit enforcement, ensuring adequate address signage and driveway access, and wildland training among responders. Some fire departments reported that adequate clearance and driving surfaces for emergency vehicles on driveways and private roads continue to be a significant challenge in some areas.

The Town of Foster maintains a Wildfire Protection Action Plan with Rock Dam Lake being a FireWise site. Some discussion has been held on creating a Wildlife Protection Action Plan for the Town of Dewhurst/Lake Arbutus area; the Town did not previously adopt an earlier community wildfire protection plan. The Town of Levis has not recently updated or taken action on their wildfire plan. Not all fire departments have adopted MABAS, which could pose challenges during a large event. The last medium-scale wildfire exercise was held about 2015, so a larger, functional exercise is recommended.

viii. LONG-TERM POWER OUTAGE

Long-term power loss in Clark County is most likely to be caused by a natural hazard threat (e.g., winter storms, tornadoes) but can also be the result of an accidental technological failure or purposeful act. The following pages provide a special analysis of the long-term power outage threat for the County. This approach allows additional attention to this critical threat, while avoiding undue repetition with the other natural hazard assessments sub-sections (i.e., winter storms, tornadoes & high winds). *Clark County Hazard Mitigation Plan Supplement 2.J.* provides additional details. **For long-term power outage risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in *Plan Supplements 5 & 6*.**

Defining the Hazard – Long-Term Power Outage

An **electric power outage** (also power failure or power loss) is the loss of the electricity supply to a geographic area. There is no standard definition of a "long-term power outage." For purposes of this Plan, a **long-term power outage (LTPO)** event is an unplanned loss of electrical power lasting more than 48 hours and impacting 500+ customers and/or multiple community lifelines.

A power outage can be described as a blackout if power is lost completely or as a brownout is the voltage level is below the normal minimum level specified for the system. There are varying reasons for a power loss or outage such as a power station defect, damage to a power line, or the overloading of the system. "Load shedding" is a common term for a controlled way of rotating available generation capacity between various districts or customers, thus avoiding total wide area blackouts.

Three natural hazards pose the biggest, longer-term power loss threat: (1) a large ice storm, possibly in conjunction with heavy/wet snow; (2) the high winds associated with unstable summertime weather patterns; or (3) high winds during a blizzard. A large wildfire may also destroy above ground electric infrastructure. However, it is large ice storms that pose the greatest threats due to the potential to affect entire regions during times of year when the vulnerabilities due to the loss of power are at their highest.

Hazard Location & Extent

Long-term power loss is capable of harming residents and damaging homes and infrastructure throughout Clark County. While long-term power loss can occur throughout all of Clark County, wooded areas with nearby overhead power lines are more likely to have a higher risk of producing an outage due to ice, winds, tree damage, etc. Power lines for customers near water bodies (e.g., Tainter Lake) are often in wooded areas with a higher risk of damage from falling limbs. Electrical power outage events are typically measured and compared by the number of customers affected and the length of the outage. There is no accepted, common scale for evaluating the intensity or severity of a long-term power loss event.

Xcel Energy, Clark Electric Cooperative, and local municipalities were asked to identify areas of higher outage risk or prone to outages. Given that an estimated 21 percent of Clark County is assessed as forest land, a significant portion of these overhead lines are at higher risk of damage due to falling trees or limbs. Residential development in forested areas or pine plantation and near lakes, especially the Mead Lake, Rock Dam, and the Hatfield area, have the highest vulnerabilities of power loss due to downed

trees limbs. In addition to these areas, Clark Electric noted a history of outages within the Chequamegon National Forest to the north in Taylor County. Xcel Energy reported occasional outages from winds or ice but did not identify any specific problem areas within the County. The loss of power due to falling limbs and trees has been largely mitigated through proactive, aggressive tree-trimming and right-of-way/easement maintenance programs by the electric providers serving Clark County. Tree trimming also reduces wildfire ignition risk.

Clark Electric Cooperative reported that some areas of higher risk identified previous County Mitigation Plans had been mitigated through burying or replacement. Since the 2010 mitigation plan, the Cooperative received hazard mitigation funding to convert overhead lines to underground lines near Mead Lake. All lines on the north side of Mead Lake, about 70% on the south side, and about 50% at Rock Dam Lake have been buried with additional work scheduled as time and budget allow. In 2012, the Cooperative received a mitigation grant to relocate and bury overhead lines that were prone to flood damage and washout along riverbanks near County Highway M. The Cooperative has also secured a State energy grid grant to bury lines and improve system resiliency within the Chequamegon National Forest within Taylor County. Jackson Electric Cooperative also has a policy of moving toward all below-ground power lines through attrition.

Generally, overhead lines located in forested areas and near lakes, areas prone to flooding or bank erosion, and/or aging lines continue to be a priority for burying or replacement through attrition as resources and/or grant funding allows. Projects to improve electrical grid redundancy may also be considered in the future, especially for critical facilities and community lifelines (e.g., essential services, utilities, food/water systems, communications, health and social services, infrastructure), though no such specific locations or vulnerabilities were identified.

Event History – Long-Term Power Outage

There is a threat of having larger long-term power outage events as experienced in Montreal in 1998 where an ice storm hit and left over four million residents without power. Relative to the last 25 years overall, Clark County has experienced an increase in power outage events since 2018. The following are some key long-term power outage events affecting Clark County, with further insights within the *Clark County Hazard Mitigation Supplement.*

- **January 1996 –** freezing rain produced ice accumulations up to ½ inch thick in Clark County, resulting in scattered power outages that were relatively short in duration.
- **Summers of 2000 & 2001 –** power outages due to trees falling on overhead power lines.
- **August 2011** – one death occurred in Clark County when a tornado knocked out electricity for an oxygen machine.
- **July 2019** – Tornados and strong winds struck northern Clark County, resulting in many power poles snapped/bent and power lines downed.
- **December 2021** – This storm spawned three tornados, with EF 1 and EF2 tornados in Clark County resulting in extensive damage to overhead electrical power infrastructure. Clark Electric Cooperative estimated that 80% of its system and nearly all of its customers were impacted with

some customers without power for over 2 days. The Cooperative activated R.O.P.E. mutual aid and received $128,500 in Wisconsin Disaster Fund assistance within Clark County. Some Xcel Energy customers within incorporated areas were without power for 4-6 days.

- **December 2022** – Heavy frost build-up followed by high winds resulted in downed power lines that impacted nearly all of the Cooperative's customers in Clark County. Outages occurred on-and-off over 2-3 days, with some customers without power for over two days.
- **May 2025** – An EF2 tornado in Colby area snapped many power poles resulting in some area customers losing power for 2-3 days.
- **April & July 2026** – Tornados in April and July resulted in some damage to power infrastructure in western Clark County, but the number of customers impacted were significantly fewer than the 2019, 2021, and 2022 events.

Clark County Electric Providers

There are three primary electrical providers in Clark County:

Clark Electric Cooperative (approximately 56% of the county area)
Xcel Energy (approximately 40% of the county area)
Jackson Electric Cooperative (approximately 4% of the county area)

While there have been no recent long-term, widespread power outages in Clark County, a look at recent power outages in **Table 11** for Clark Electric Cooperative provides further insight into the potential risk.

Table 11. Clark Electric Cooperative Weather-Related Power Outages • 2019-2025

Cause	# of Outages	# of Customers Affected *7-yr Average*	Customer Hours Lost *7-yr Average*	Avg Outage Length (hours)
Fire-Grass	2	6.1	11.9	1.9
Lightning	145	374.6	832.1	2.2
Major Event	308	1,631.3	12,707.6	7.8
Trees - ice/snow	30	164.9	413.7	2.5
Trees - wind	416	3,201.7	7,965.3	2.5
Other Ice, Snow, or Wind	147	708.0	1,800.4	2.5
Total	1,048	6,086.6	23,731.0	3.9

source: Clark Electric Cooperative

From 2019-2025, Clark Electric Cooperative had a total of 308 major storm event outages (storms over two days or affecting 60+% of customers). Most or all of these outages can be consolidated under a handful of previously described severe weather events in July 2019, December 2022, and May 2024 that impacted different areas within the service area at slightly different times. The December 2021 outages appear to have been largely recorded as Other Ice, Snow, or Wind event (82% of this type of events occurred in 2021). It is very notable that there were no major event outages reported for 2014-2018

during the last mitigation plan. Unsurprisingly, major event outages also account for the majority of customer hours lost. In summary, a widespread, long-term power outage event covering large areas of Clark County for 3+ days is very rare, though the County has experienced 3 to 4 major outage events since 2018.

Hazard Probability – Long-Term Power Outage

The Plan Steering Committee rated the probability of a long-term power outage event as being of a moderate concern for Clark County, with a relatively high vulnerability should an event occur. The burying of power lines, infrastructure hardening, and tree-trimming efforts by electrical providers, have mitigated the probability of a long-term outage event over the past two decades.

Since 2000, it is estimated that Clark County has had 4-6 power outage events of 3+ days impacting a substantial number of customers, with most outages being more localized and restored within 48 hours. Based on these events and trends, **Clark County is expected to experience a significant long-term power outage about once every 4-6 years on average.** Nearly all of these events would impact a portion of Clark County and affect less than 15,000 customers, with power restored within 3-4 days. While a widespread, long-term power outage event covering most or all of Clark County would be rare, the potential does exist. Past power outage events Clark County have not approached the scale of the 1976 Wisconsin, 1998 Montreal, or 2009 Kentucky outages.
As discussed in the ***Tornadoes & High Winds*** and ***Winter Storms*** sub-sections, the probability of these hazards is likely to increase due to long-term weather patterns. As such, the probability of long-term power outage events is also likely to increase. It is possible that a widespread, long-term loss of power could occur as a result of other causes (e.g., terrorism, cyberattack, loss of a power-generating facility). The probability of these other causes resulting in a long-term event are considered extremely rare and unlikely, but this does not discount the importance of protecting against such instances.

Vulnerability Assessment – Long-Term Power Outage

General Vulnerabilities	
People	• Individuals Reliant on Medical Equipment and Seniors - Individuals that are oxygen dependent or rely on in-home medical equipment are vulnerable, especially if they lack backup power systems or reserves in medical supplies. Tele-health and in-home medical are options may be limited during the power outage. See additional information below. • Assisted living facilities, nursing homes and memory care facilities, facilities with ventilation equipment for patients, and emergency shelters are also vulnerable during long-term term power outages. • Vulnerabilities may be compounded if the power outage occurs during periods of extreme weather (heat and cold), especially for seniors who are living alone that may lack a support network.
Energy Utilities	• Power outages can overload the remaining, functioning portions of the power grid. • Damage to electrical infrastructure, specifically above-ground electrical infrastructure, may necessitate substantial repair costs. • Extensive power outages (in terms of area) can stretch resources thin to repair systems and restore power.
Structures without Backup Power Systems	• Structures without generators will be unable to operate until power is restored. • Maintenance systems, such as sump pumps and air filtration systems, may fail resulting in

	additional risks to structures and individuals. • Most commercial facilities have installed backup generators but may still be vulnerable if the duration of the power loss exceeds the capabilities of the generators and fuel supply is limited.
Community Lifelines	
Safety & Security	• Criminal activity becomes more difficult to identify and respond to when security systems are inoperable. • Emergency services experience increased demands as vulnerable populations lose access to lifelines.
Food, Water, Shelter	• Food supplies may diminish during the outage as storage systems fail. • Pumps and wells will not operate without a backup power system. • HVAC systems will not operate without a backup power system, potentially exposing occupants to extreme weather (heat and cold).
Health & Medical	• Most medical facilities have backup power installed. • Clinics and offices may not have backup power, limiting their ability to serve the community. • In-home services may not be able to operate
Energy	• Failure in one section of the power grid can overload adjacent operational sections, increasing the potential for additional outages.
Communications	• Internet and land-line telecommunications systems may be inoperable during the outage.
Transportation	• No specific concerns noted. County Highway Dept fuel pumps can be operated on generator and fuel available to other departments if needed. New Highway Dept facility has natural gas generator; multi-purpose room can serve as EOC or similar role if needed.
Hazardous Materials	• Monitoring and control systems may be incapacitated, though most facilities with hazardous materials have backup power systems in place.
Educational Institutions	• Most institutions have backup systems installed, but primarily to ensure life safety.
Vulnerability to Future Assets	
Population Growth & Development	• Clark County's population is increasing, thus increasing the vulnerability to power outages. • Additional development increases the demand on energy infrastructure, increasing the potential for "domino-effect" outages as the grid is overextended.

Seniors and DME-Reliant Populations

During the plan update, **Clark County seniors were frequently mentioned as the highest vulnerable population to long-term power outages.** Social isolation, fixed incomes/poverty, and physical and/or mental health conditions can all present special challenges to emergency preparedness, response, and recovery. Seniors living alone in rural areas are of special concern. According to the U.S. Census, in 2024, Clark County had an estimated 5,984 residents ages 65 and over, or about 17.2 percent of its total population. As discussed earlier, the number of County residents ages 65 and over is projected to see a 2% increase from 2020 to 2050.

According to emPOWER data, Clark County has 7,913 Medicaid beneficiaries who have had

Medicaid Beneficiaries w/ Electricity-Dependent DME

Zip Code	Beneficiaries	At-Risk Beneficiaries
54420	264	11
54422	149	11
54425	382	17
54436	404	16
24437	610	34
24446	520	33
24456	2,064	129
24460	542	23
24479	835	35
54493	240	11
54498	432	18
54746	195	11
54771	863	36
Total	**7,913**	**405**

an administrative claim for one or more types of electricity-dependent DME. Of these, 405 were identified as particularly at-risk because they also rely on certain essential health care services. During the plan update, it was noted that Clark County lacked a coordinated approach for the consideration and use of emPOWER data during an emergency or disaster event.

The Clark County Aging and Disability Resource Center (ADRC) provides nutrition and support services to seniors and disabled in the County at three congregate meal sites in Greenwood, Owen, and Colby as well as delivering 125 meals daily to largely home-bound seniors through its meals-on-wheels program using vans. Meals are also provided under contract with restaurants in Neillsville and Thorp. Lunch-n-learns at a meal site are conducted about once a month. Meals-on-wheels participants also receive a supply of emergency meals and an emergency kit should regular service be disrupted. Such services are an important means of tracking and reaching out to the County's special needs population during a disaster, though such services could be disrupted during a long-term power loss event. The ADRC works with County Emergency Management for emergency and continuity planning for these services and nutrition sites. Some nutrition sites could be available as emergency shelters if needed.

The ADRC has been promoting individual emergency planning for senior and special needs clients, with emergency communications networks and other preparedness actions. Emergency contact information is collected from clients upon entering the meals-on-wheels program. ADRC also works with County Emergency Management, Public Health, and other partners for the distribution of hazard awareness and preparedness educational materials through the ADRC monthly newsletter, social media, and web-based resource directory; over 1,000 newsletters are printed monthly. During previous mitigation plans, ADRC staff recommended that the Clark County emergency services/resource directory (the "Red Book") be updated. To help identify, reach out, and direct services to at-risk populations, Clark County relies on coordination with various public-, non-profit, and private-sector service providers. County ADRC also partners to conduct a Resource Expo and other activities to educate seniors, caregivers, and emergency responders on various aspects of emergency preparedness.

Local electric providers give preference to "critical accounts" that have an important safety or health role, such as hospitals. Providers also encourage household planning. For example, the following statement is provided to Xcel Energy's "critical accounts":

> "An approved medical designation on the customer's account does not guarantee uninterruptible utility service or immediate restoration of utility service. Inform customers of the importance of having a household backup plan in place for use of their medical equipment should a disruption of utility service occur."

Clark Electric Cooperative offers a subscription-based FIRSTCALL Medical Monitoring program that can connect individuals in need to the Cooperative Response Center for two-way communication. In short, tools such as the emPOWER data and FIRSTCALL can be useful during an outage but such information is not used by electric providers to prioritize power restoration.

Projected Loss Estimates for Electric Infrastructure

Exposure estimates for all electrical infrastructure in the County are not available. However, in the entire Clark Electric Cooperative system, there are over approximately 1,525 total miles of overhead lines, of which only about 75 miles are three phase. With forest being the predominate land cover for large areas

of Clark County, a significant portion of these overhead lines are most at risk of damage due to falling trees or limbs. Given the above replacement costs, the potential damages to overhead power lines from a severe storm event in Clark County could easily be in the millions. While Xcel Energy serves less area, it does serve a large percentage of total customers in the County, including most cities and villages.

While rare, the impacts and costs of a long-term power outage event can be tremendous, and the Steering Committee viewed this threat as one of the greatest natural hazard concerns for Clark County. Extended power loss in Clark County due to a storm event would likely involve many downed trees and power lines. Downed lines present safety hazards for residents, travelers, and emergency responders. Response can be further hampered by blocked roads from power lines and debris.

Replacement costs for power lines vary based on physical site conditions, but are approximated as follows:

Single Phase – Overhead:	$103,000/mile
Single Phase – Underground:	$201,000/mile
Three Phase – Overhead:	$205,000/mile
Three Phase – Underground:	$210,000/mile

Other Factors Influencing Future Losses

As discussed in the tornado/high wind and winter storm sections, weather-related power outages may increase if the County experiences more frequent high wind or ice storm events, but we are unable to confidently quantify the extent of this increase at this time. See **Section III.B.** for additional discussion on the related effects of such changes in weather patterns. ***Mitigation Plan Supplement 2.J.*** explores additional factors influencing losses including key preparedness and mitigation actions by electric utility providers. Electric providers are important resources for public education and outreach before and during power outage events (e.g., school & responder training with power demo unit, outage information, messaging to stay away from downed lines, safe use of generators). It is also very important to include electric utilities during preparedness exercises and training.

ix. CYBERATTACK

This hazard is included in order to raise awareness of this growing threat and to guide potential mitigation or preparedness actions at a county or community level. A survey or detailed analysis of cyber-preparedness for Clark County and its community lifelines was not performed. *Clark County Hazard Mitigation Plan Supplement 2.K.* provides additional details. **For any cyberattack risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in *Plan Supplements 5 & 6*.**

Defining the Hazard - Cyberattack

For purposes of this report, **cyberattack** is defined as a malicious computer-to-computer attack through cyberspace that undermines the confidentiality, integrity, or availability of a computer (or network), data on that computer, or processes and systems controlled by that computer.



Hazard Location & Extent

Cyberattacks are capable of occurring in any community. There are no geographic boundaries or locations within Clark County uniquely affected by cyberattacks. All Clark County jurisdictions are equally at risk of experiencing a cyberattack event.

The U.S. Cybersecurity & Infrastructure Security Agency (CISA) has created the National Cyber Incident Scoring System to estimate the risk or impacts of a cyberattack incident. This system rates a cyber incident or threat on a score between zero and 100 based on a range of weighted factors. A category is then assigned that drives CISA response urgency:

Baseline (No Color) – Unlikely to affect public health, national or economic security, foreign relations, civil liberties, or public confidence. Likely to be immediately resolved.

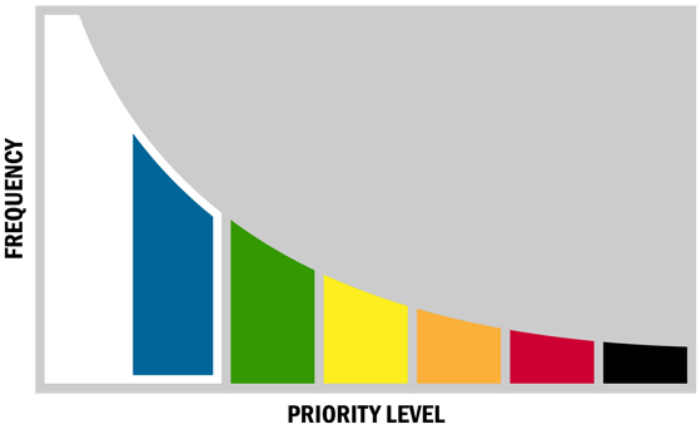
Minimal (Blue) – Same as baseline, but needs further scrutiny and could be escalated.

Low (Green) - Unlikely to affect public health, national or economic security, etc.

Medium (Yellow) - May affect public health, national or economic security, etc.

High (Orange) – Likely to result in a demonstrable impact to public health, national or economic security, etc.

Severe (Red) – Serous incident likely to result in significant impact to public health, national or economic security, etc.



Emergency (Black) – Priority incident poses an immediate threat to the provision of wide-scale critical infrastructure services, national government stability, or the lives of U.S. persons.

Hazard Mitigation Plan Supplement 2.K. provides a summary of the distribution of these incidents from FFY2022 by target partner and severity.

Event History - Cyberattack

The frequency and sophistication of cyberattacks are increasing dramatically as well as losses. National and State trends on cyberattacks are detailed in the *Hazard Mitigation Plan Supplement 2.K.* As discussed in the Supplement, major cybersecurity incidents within Wisconsin since 2020 have been experienced by Langlade and Rock counties, the City of Sheboygan, Kwik Trip, Prevea Health, and a software provider to many school districts.

No data source was identified during this Plan update that provides a complete history of attacks, impacts, and losses within Clark County or the region. However, within west-central Wisconsin, a number of communities have experienced cyberattacks in which the public-sector was targeted:

- In 2009 St. Croix County, a few counties west of Clark County, encountered malicious keylogging software that was used to track keystrokes on a City of Glenwood City computer which allowed hackers to gain access to banking account information; like the Eau Claire County cases, the theft was prevented by the bank.
- Eau Claire County, directly west of Clark County, has been targeted twice. During the second attack in January 2010, overseas hackers acquired credentials through a computer virus which allowed the hackers to attempt to transfer nearly $800,000 from the County's accounts. The County's financial institution helped thwart the robbery attempts in both cases, demonstrating the importance of security partnerships with those providing such services to municipalities. Eau Claire County has taken additional security steps to further help prevent such crimes.
- The websites of a few communities in the region have been hacked and temporarily unavailable but local computer systems were likely not impacted.
- In March 2026, Rusk County, WI discovered a cybersecurity incident impacting its county network environment.

In Summer 2026, water utilities in Michigan and Minnesota were targeted by hackers but utilities in Wisconsin have been unaffected as of August 2026. Clark County government and no participating schools reported that they experienced a significant cyberattack or data breach. The Village of Granton reported that an email account had been compromised, and the City of Colby had a virus-related attack for which a bank helped prevent a breach.

Hazard Probability - Cyberattack

The Plan Steering Committee rated the probability of major cyberattacks in Clark County as moderate, with a high/serious vulnerability (potential impacts). These events will continue to occur within or affect Clark County and its communities, businesses, and residents. And based on trends, the probability (and vulnerability) of such incidents is projected to increase as cyber-threat actors increase, become more sophisticated, and diversify in their targets. The probability of experiencing a cyberattack will also increase as our world becomes increasingly connected and reliant on broadband, smart appliances, etc. It is notable that public health agencies within northwest Wisconsin rated cyber-attack as the highest hazard threat (only behind evacuation), in part reflecting the importance of confidentiality given Federal HIPPA rules.

During the planning process, ransomware attacks where identified as the primary threat of concern, most likely due to the error of a staff person. While Clark County's units of government have significantly strengthened cyber-security over the past decade, good cyber-security practices (cyber-hygiene) is still very effective at decreasing the probability of successful attacks.

Vulnerability Assessment - Cyberattack

General Vulnerabilities	
People	• Any personal electronic device that connects to a network is at risk of a cyber-attack. • Over 9,600 reported cyber-security events occurred within Wisconsin in 2024 with nearly $170 million in losses and 161.4 cyber-security complaints to FBI per 100,000 State residents. • Seniors – Seniors are a frequent target of phishing and fraud attacks. The 60+ year old age group experienced 22.3% of all reported cyber-crime within the U.S. in 2024. • Cryptocurrency users – In 2024, 1,973 cryptocurrency fraud complaints were reported in Wisconsin with over $67.5 million in losses. These complaints have increased around 300% between 2018-2024.
Government	• Access to confidential data to possibly steal, alter, or delete information. Website hacking and other disruption of public services or voting systems, including impacts to public confidence. Emergency communication systems, including 9-1-1 call centers, have been increasingly targeted by cyberattacks, including ransomware and denial-of-service attacks. As was the case in nearby Eau Claire County and Glenwood City, hackers may attempt to obtain access to bank accounts, financial information, etc. A 2023 cyberattack targeted Langlade County's 9-1-1 system.
Local Economy	• Cyber-attacks can cripple networks and shut down businesses at any time. At least one business in the County has experienced a ransomware attack. • Elevated vulnerabilities are financial institutions, businesses conducting e-Commerce, and businesses or manufacturers utilizing computer-controlled equipment that may be remotely controlled. Data breaches will likely reduce the public's trust in any business or facility for which customer data is exposed and may result in liabilities or lawsuits. • Financial institutions - Access to personal information (bank account) at financial institutions can result in theft and/or identity theft. As more and more banking is performed online, financial institutions have been very proactive on cybersecurity issues.
Natural, Historic, & Cultural Resources	• None known.
Community Lifelines	
Safety & Security	• Personal information and records can be accessed in an attack.

	• Criminal records and other law enforcement information are stored digitally. This information is at risk of access and manipulation during a cyber-attack. • Most systems are required to follow mandated security controls to prevent breaches.
Food, Water, Shelter	• Services can be terminated due to an attack. • Utility infrastructure can be accessed and manipulated in a cyber-attack. There has been increasing attention to this vulnerability and related policies/protocols within local municipalities.
Health & Medical	• Networks contain large volumes of personal data that can be targeted in a cyber-attack. • HIPPA laws increase the risk and exposure health systems experience with cyber-crime. • Cyberattack is a major threat to such entities and health data is some of the most valuable on the black market (e.g., filing of claims). The average fine or settlement for the loss of confidential patient information is over $2.5 million.
Energy	• Network can be accessed and manipulated in a cyber-attack. • Power can be redirected or terminated remotely. • Ability to remotely take control of critical systems that monitor and control water supplies, wastewater treatment systems, power generating facilities, dams, communication infrastructure, etc. and can cause damage to equipment. Lack of redundancy in systems and share systems can increase risks and vulnerabilities.
Communications	• Network can be accessed and manipulated in a cyber-attack. • 911 communications centers are increasingly the target of ransomware and denial-of-service attacks.
Transportation	• Public transit networks can be accessed and manipulated. • Traffic control systems can be accessed and manipulated resulting in confusion, traffic congestion and/or accidents.
Hazardous Materials	• Sites managing hazardous material storage systems via remote networks are vulnerable to cyber-attacks. • Materials can be released at toxic levels during an attack.
Educational Institutions	• Networks contain large volumes of personal data that can be targeted in a cyber-attack. • Cyberattacks can lead to disruption of educational services. • For public schools cyber-security issues are frequently addressed in cooperation with CESA. Given that students are increasingly using computers and mobile devices in the classrooms, the risk of viruses, malware, etc., is high. See subplans in **Section VII.B.** for any specific concerns.
Vulnerability to Future Assets	
Population Growth & Development	• There are no areas of higher or lower risk to cyber-attack. • As use of the internet and the Internet of Things increases at home and within businesses increases, the probability of a cyber-attack occurring increases.
Other	• **Failure of critical infrastructures**. The CIA reports malicious activities against information technology systems have caused the disruption of electric power capabilities in many regions overseas, including a case that resulted in a multi-City power outage.[17] In today's world, broadband technology is a path of attack to utilities and communications. And given that infrastructure often shares systems and grids across large areas, the vulnerability from a single attack is increased. • **Exploiting global financial services**. In November 2008, payment processors at an international bank were compromised, permitting fraudulent transactions at more than 130 automated teller machines in 49 cities within a 30-minute period.[18] In another case, a U.S. retailer in 2007

[17] www.sans.org/newsletters/newsbites/newsbites.php?vol=10&issue=5, CIA presentation, SANS SCADA Security Summit, January 16, 2008.

[18] www.bankinfosecurity.com/article.php?art_id=1197, February 5, 2009.

	experienced data breaches and loss of personally identifiable information that compromised 45 million credit and debit cards.[19] • **Systemic loss of U.S. economic value.** Industry estimates of losses from intellectual property to data theft in 2008 range as high as $1 trillion.[20]

Projected Loss Estimates

The Federal Bureau of Investigation's Internet Crime Complaint Center's 2023 Internet Crime Report provides some estimates on the financial impacts as a result of cyberattacks.

- $12.5 billion dollars were lost to cyber crime, a 22% increase in losses suffered, compared to 2022. Business Email Compromise and Investment scams were the costliest crimes, accounting for more than 50 percent of losses.
- The age cohort of 60+ had the largest number of victims and losses.
- Wisconsin ranks 23rd overall in number of victims per state (7,683) and 29th overall in victim losses ($92,084,459).
- The average victim in Wisconsin lost $11,985.48. This is below the national average of $14,197.80 per victim.
- Wisconsin's financial loss average has increased by almost 227% since 2020.

Cyberattack Preparedness & Mitigation (Cyber-Security)

Cyberattack losses and vulnerabilities can be mitigated through cybersecurity and good cyber-hygiene. The *Hazard Mitigation Plan Supplement* includes a discussion of cyber-security preparedness at the Federal, State, and local level as well as potential preparedness and mitigation actions. A few highlights mentioned during the plan update include:

- Many municipalities now have cyber-security insurance, require multi-factor authentication, and have IT professionals under contract. Off-site and/or cloud backup of data is now common.
- The County has utilized the Federal Center for Internet Security for penetration testing, etc., in the past, though these services are no longer free.
- There is increasing attention being given to cyber-security policies for public infrastructure (e.g., to what extent can utilities be controlled remotely) and travel/remote work/mobile devices.
- Having protections and policies for "insider threats" from disgruntled or recently released employees is also important.
- Ongoing, regular education, testing, and backup of critical data is important, but especially education. What is the process for data recovery if needed? Paper versions of some key documents or processes may still be valuable.

[19] www.infoworld.com/d/security-central/retailer-tjx/reports-massive-data-breach-952, January 17, 2007.

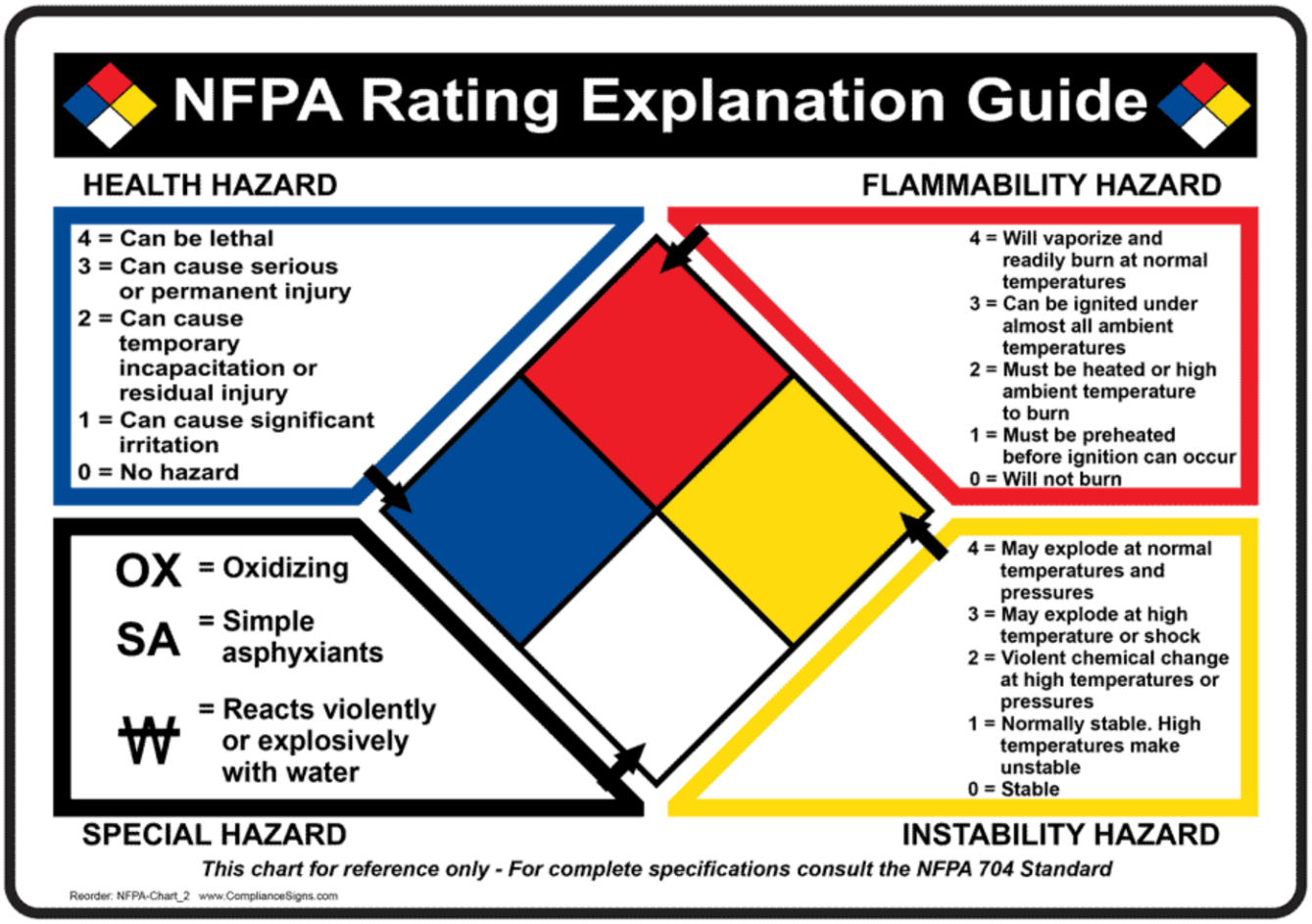
[20] www.mcafee.com/us/about/press/corporate/2009/20090129_063500_j.html. See also http://resources.mcafee.com/content/NAUnsecuredEconomiesReport, McAfee, "Unsecured Economies: Protecting Vital Information", January 2009. Projection based on survey by Purdue's Center for Education and Research in Information Assurance and Security.

x. HAZARDOUS MATERIALS SPILLS

Note: This plan only focuses on point sources of contaminants due to an accidental or malicious hazardous materials incident, such as a hazardous materials spill or a release from a leaking tank. *Clark County Hazard Mitigation Plan Supplement 2.L* provides additional details. **For hazardous material spill risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in *Plan Supplements 5 & 6*.**

Defining the Hazard – Hazardous Materials Spills

Hazardous materials and substances can present special risks to humans and the environment at the time of disaster as well as pose substantial difficulties and necessitate special precautions for post-disaster clean-up. There are many definitions and descriptive names being used for the term "hazardous material," each of which depends on the nature of the problem being addressed. Unfortunately, there is no one list or definition that covers everything. The United States agencies involved, as well as state and local governments, have different purposes for regulating hazardous materials that, under certain circumstances, pose a risk to the public or the environment. The *Clark County Hazard Mitigation Supplement* describes many of the Federal definitions.



Within this plan, we apply the term "Hazardous Materials" broadly to include…

> **…any substance or combination of substances (including wastes of a solid, liquid, gaseous, or semi-solid form) which, because of its quantity, concentration, physical chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality, an increase in serious irreversible or incapacitating illness, or pose a potential hazard to human health or the environment.**

This definition encompasses the hazardous substances and wastes definitions listed previously, including those chemicals required to be reported under Title III of SARA, otherwise known as the Emergency Planning and Community Right-to-know Act (EPCRA). Companies across a wide range of industries (including chemical, mining, paper, oil and gas industries) that produce more than 25,000 pounds or handle more than 10,000 pounds of a listed toxic chemical must report it to the Toxics Release Inventory.

Two additional definitions are particularly important for county-level HazMat planning:

Active Reporting (Tier Two) Facilities – Under Section 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA), these facilities must annually share/report to the County Local Emergency Planning Committee any chemical(s) with a physical hazard or health hazard as defined in Federal regulations and any substance for which OSHA requires a facility to maintain a Safety Data Sheet (SDS). Due to OSHA requirements, any owner or operator of a facility is required to submit an SDS for a hazardous chemical into WHOPRS or to WEM for the following:

1. For each hazardous chemical present at a facility at or above 10,000 pounds at any one time, OR
2. For each Extremely Hazardous Substance (EHS) present at a facility at or above 500 pounds or the Threshold Planning Quantity (TPQ), whichever is less, at any one time.

Active Planning (EHS) Facilities – These facilities have a total amount of an extremely hazardous substance present that equals or exceeds threshold planning quantity for that chemical. These facilities must also annually file Tier Two reports, in addition to submitting emergency plans for its hazardous substances for review by the Local Emergency Planning Committee (LEPC).

1. The chemical is expected to cause significant adverse acute human health effects at concentration levels which are likely to exist beyond the facility site boundaries as a result of a release. Acute (short-term) effects occur rapidly as a result of short-term exposure, usually to high concentrations of a chemical.
2. In humans, the chemicals are expected to cause cancer, birth defects, nervous system effects, gene mutations which can be passed on to the next generation, or other chronic (long-term) health effects associated with repeated exposure to a chemical over a long period of time.
3. The chemical is expected to cause significant and serious adverse effects on the environment due to its toxicity, and/or its persistence (tendency to remain in an unchanged form, rather than breaking down into smaller chemical parts), and/or its tendency to bioaccumulate (to become increasingly concentrated in plant and animal tissue).

Given the hazard mitigation and disaster preparedness context of this planning effort, this plan only focuses on point sources of contaminants due to an accidental or malicious **hazardous materials spill or chemical incident**, when a hazardous substance is released and potentially has a significant, negative health, safety, or environmental impact. Risks and impacts from non-point sources or potentially created during normal, permitted activities are not included in the plan scope.

Hazard Location & Extent

Hazardous materials are widely used, stored, and transported in Clark County. A hazardous materials spill incident could take place almost anywhere. Based on stakeholder and local official input during the planning process, areas and neighborhoods adjacent to the County's rail lines and major highways, especially Highway 29 and Highway 10, have a higher likelihood of experiencing a hazardous spill event. EHSs may be transported over any local, state, or federal highway for which weight limits are met. Most fixed facilities with large quantities of hazardous chemicals (e.g., industry, commercial businesses, utilities) are located in the incorporated cities and villages.

State Highway 29 and U.S. Highway 10 were most frequently identified as being of concern due to speeds and the volumes of truck traffic. Canadian National owns the rail lines in Clark County. Some frustration was expressed by local officials over not knowing the types and quantities of hazardous materials being transported by through Clark County. But given that these rail lines pass through cities and villages (i.e., Stanley, Thorp, Withee, Owen, Abbotsford, Colby, Unity), there is a great threat to people and property should a spill or event occur.

The extent of a hazardous materials spill can be measured by its impacts such as: what has been contaminated, the area of exposure, environmental damage, the number of people injured, any required evacuation (zone size, numbers evacuated, evacuation length), economic losses, and clean-up costs. The extent of a spill event is unique for each occurrence and there is not a commonly used scale for measuring the size or intensity of most hazardous materials spills.

There are instances in which known or threatened hazardous materials releases are so extensive, posing a serious risk to human health and/or the environment, or the hazardous materials site has been largely abandoned, that Federal assistance is needed. In 1980, Congress established the Comprehensive Environmental Response, Compensation and Liability Act (**CERCLA**) or informally called the **Superfund** Program, which forces the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work. Those Superfund sites that pose the greatest risks to humans or the environment, and/or require EPA take a more active role during long-term response and clean-up are identified on the Superfund **National Priority List** (NPL). Many of these NPL locations are former mining sites, hazardous/solid waste dumps, chemical/fuel companies, and industrial areas which produced military ammunition.

Not all Superfund sites are on the NPL. Using EPA's Hazard Ranking System (HRS), sites with a score of 28.50 or greater are eligible for placement on the National Priority List. The HRS score is based on a range of factors, including: the likelihood of the release, toxicity and quantity of the waste, people or sensitive environments affected, and the pathways for exposure (e.g., drinking waters, surface water, soils, air).

Clark County Superfund Sites

According to the Wisconsin DNR, Wisconsin has 36 active National Priority List (NPL) sites, 9 deleted/removed National Priority List sites, 1 proposed National Priority List site, and 10 other non-priority Superfund sites. **Clark County has no active Superfund properties listed in the EPA Superfund Enterprise Management System (SEMS).**

Significant Clark County Events

The *Hazard Mitigation Plan Supplement* includes a brief overview of State and regional HazMat events. The vast majority of reported hazardous materials incidents in Wisconsin result from the loading, unloading, and transportation of hazardous materials. The 1996 Weyauwega train derailment that required the evacuation of around 2,300 residents for 16 days continues to be the most dramatic HazMat incident in the State's history. No clear HazMat spill trends for Clark County were identified during the process. Local officials were generally more concerned with transportation (highway & rail) spills compared to fixed facilities. Anecdotally, milk truck spills may be the most common type of spills.

Bureau for Remediation & Redevelopment Tracking System (BRRTS) Records

The Bureau for Remediation & Redevelopment Tracking System (BRRTS) keeps data on hazardous materials releases and the clean-up of contaminated sites and is maintained by the Wisconsin Department of Natural Resources. The BRRTS system categorizes these events by activity type. As shown in **Table 12**, there are 750 BRRTS records for Clark County with start dates from 1978 to 2025, of which only 20 are still open; the remaining are assumed to be closed for which no further action is likely needed.

Table 12. BRRTS Records for Clark County – 1978 thru 2025 report start dates[21]

Activity	1978-1999		2000-2025	
Spills	125	33.2%	262	70.1%
Leaking Underground Storage Tanks	130	34.6%	27	7.2%
Environmental Repair (non-LUST)	40	10.6%	21	5.6%
No Action Required Discharge	32	8.5%	41	11.0%
Abandoned Container or Other	1	0.3%	3	0.8%
Voluntary Party Liability Exemption	0	0.0%	1	0.3%
Offsite	48	12.8%	19	5.1%
Totals	**376**	**100%**	**374**	**100%**
Average Reports per Year	**18**		**15**	

The above suggests that hazardous materials releases in the County are decreasing in frequency. Since 2000, about 70% of all BRRTS reports were spills. **Spills** are locations where a clean-up is confirmed by laboratory analysis, generally within 60 to 90 days. While most records are associated with spills, two other activity types are particularly important—leaking underground storage tanks (LUSTs) and environmental repair (ERPs) sites.

A **LUST** site has soil and/or groundwater contaminated with petroleum, which includes toxic and cancer-causing substances. However, given time, petroleum contamination naturally breaks down in the environment (biodegradation). Some LUST sites may emit potentially explosive vapors. The previous data suggests that the majority of older LUST sites in the County have likely been addressed and this risk will continue to be a small or decreasing proportion of such records in the future.

ERP sites are sites other than LUSTs that have contaminated soil and/or groundwater. Examples include industrial spills (or dumping) that need long-term investigation, buried containers of hazardous

[21] Wisconsin Department of Natural Resources, WDNR BRRTS on the Web, http://dnr.wi.gov/topic/Brownfields/wrrd.html The locations of some records are unconfirmed.

substances, and closed landfills that have caused contamination. The ERP activities include petroleum contamination from above-ground (but not from underground) storage tanks. Unlike spills which are typically reported and cleaned up quickly, LUST and ERP sites many times are undiscovered or go unreported for long periods of time until significant contamination occurs. For reference, **Figure 18** later in this assessment shows the location of the open LUST and ERP sites in the County.

Of the BRRTS records from 2000-2025:

- 9% were located in the City of Loyal
- 8% were located in the City of Neillsville
- 7% were located in the City of Abbotsford
- 7% were located in the City of Owen

Other Recent Hazardous Materials Spills

No recent, major hazardous materials spills within Clark County were identified during the planning process. The last events requiring evacuation were both in the City of Abbotsford in 2018—one when a natural gas line was damaged during road construction and the other at Abbyland Foods (Marathon County) due to an ammonia spill. During this Plan update, transportation-related hazardous materials spills were frequently mentioned by communities as a greater concern than EPCRA-regulated fixed sites since it is not known what HazMat is being transported through the County at any given time, making it more difficult to plan for and respond to. Further, while there is a higher risk of transportation spills nearer Federal and State highways due to traffic volumes, such spills could potentially occur anywhere along roadways and railroad lines.

Hazard Probability – Hazardous Materials Spills

The Plan Steering Committee rated hazardous materials spills for fixed sites (e.g., places of business) as having a below moderate (some concern) for probability of occurrence and a moderate vulnerability (potential impacts). Transportation-related concerns were rated slightly higher for both probability and vulnerability, with a substantial-to-serious vulnerability.

Approximately 10-15 hazardous materials spills or other releases will be reported in any given year in the County based on the BRRTS data since 2000. The largest proportion of these events will be spills, for which the majority are smaller incidents that are cleaned-up with a very short timeframe. Leaking underground storage tanks (LUSTs) are expected to continue to decrease in frequency.

Of greatest concern are the environmental repair projects for contaminated sites, such as illegal dumpsites, closed landfills, buried containers, overturned trucks/rail cars, illegal drug laboratories, or large industrial spills. Such sites have the greatest potential for environmental impact; environmental repair sites have the highest likelihood of requiring a long-term investigation and significant remediation measures**. Based on BRRTS data, new environmental repair sites will be reported for the County at an average slightly less than one per year; not all will require significant remediation activities.**

The level of risk is also influenced by growth in Clark County. As more growth occurs, there is an increase in the potential number of contamination sources. And, as the number of industries increases, there is an increase in the general use of hazardous materials in the County for domestic, institutional, and commercial purposes. Traffic volumes are also rising, which increases the potential for accidents involving vehicles carrying hazardous materials. Further, as additional private wells are installed, more residents are potentially vulnerable to groundwater contamination. It can be expected that the frequency of hazardous materials incidents and spills in the County could slowly increase as the County's population continues to rise and development occurs. Not included in the previous probabilities is the potential for an intentional HazMat release, including as an active threat or act of terrorism.

Vulnerability Assessment – Hazardous Materials Spills

General Vulnerabilities	
People	• Residents located near highways, railroads, or facilities utilizing significant quantities of hazardous chemicals are more vulnerable. Incorporated cities and villages have the greatest vulnerabilities given the concentrations of people, businesses, lifelines, and hazardous materials facilities. • Exposure to toxic levels of hazardous materials can result in medical ailments and or death.
Local Economy	• Areas identified as hazardous waste sites are expensive to clean up and difficult to market. • Most hazardous material spills occur in warehouses and industrial sites.
Natural, Historic, & Cultural Resources	• None known.
Community Lifelines	
Safety & Security	• Special equipment is needed to investigate hazardous material spills. • Personnel, including law enforcement and other emergency responders, are at an increased risk of exposure to hazardous chemicals when responding to spills. In 1999, two responders in the region did receive respiratory injuries during a transportation-related hazardous materials incident.
Food, Water, Shelter	• Hazardous material spills can infiltrate groundwater, soils, and livestock that are later used to create products for human consumption. • Wells for potable drinking water are especially vulnerable to groundwater contamination, especially private ones which are typically tested less frequently than their public counterparts and do not have associated wellhead-protection programs. Contamination may be from point sources (a spill or release) or may be more indirect, such as the application of atrazine pesticides over time within a wellhead draw area. These include the municipal systems, with some communities planning to construct new wells in the future to support growth. As the population increases in the County, the number of new private well permits each year has also been significantly increasing. • Shelters near hazardous spill sites can increase the risk of exposure to toxic chemicals. • With contract spraying and local cooperatives, fewer farms are storing large quantities of hazardous materials, but some stakeholders in the regional have anecdotally suggested that this trend may be reversing.
Health & Medical	• Exposure to hazardous materials can cause medical ailments, potentially increasing demand for healthcare facilities.
Energy	• Natural gas transmission pipelines transport substances that are hazardous but are also energy community lifelines. One natural gas transmission pipeline and two petroleum pipelines transect Clark County from west to east.
Communications	• None known.

Transportation	• A wide variety of chemicals move through and within the County via railroad and truck traffic. If a spill should occur, adjacent residents, travelers, buildings, water supplies, and ecosystems can be impacted. And as response and clean-up proceeds, these transportation routes may need to be temporarily closed and nearby homes, businesses, and structures evacuated. Extended closures of rail and highway systems can impact local businesses and delay emergency response. • Transportation-related spills were of greater concern than spills at fixed sites during the planning process due to the related uncertainties and lack of site-specific plans. • Some highways and railroad travel through residential areas.
Hazardous Materials	• The County has 13 EHS planning facilities and 58 Tier Two reporting facilities with hazardous materials in such quantities requiring special planning and/or report under Federal rules.
Educational Institutions	• Some schools have hazardous chemical on-site. Some schools are also located near railroads. See sub-plans in **Section VII.B.** for participating institutions for any specific concerns.
Vulnerability to Future Assets	
Population Growth & Development	• Increased industrial development increases the probability of hazardous materials being located in the area, increasing the potential for hazardous material spills.

Key Areas of Concern

A hazardous materials spill or release can occur virtually anywhere in the County due to transportation accident, illegal dumping, improper handling, leaking storage tank, or other accident. To provide a sense of the number and distribution of potential brownfield and remediation sites in the County due to past hazardous materials dumping, storage tank leaks, or other such contamination requiring action, **Figure 19** identifies past and current sites in the County where contamination has occurred according to the BRRTS database. All of these sites have had some level of contamination to soil, groundwater, or both, to varying degrees, but often limited to the site.

Figure 19 also identifies the highways and railroad of Clark County. During the planning process, transportation-related spills were consistently identified as the greatest hazardous materials concern for the following primary reasons:

- Traffic accidents occur with many contributing factors that can be difficult to control or mitigate, including the uncertainty of what materials and quantities being transported.
- Major highways with heavy truck traffic and the rail lines pass through residential areas and near schools, hospitals, and other critical facilities.
- Most fixed facilities using hazardous materials have security measures, plans, and procedures in place to monitor, mitigate, and response to spills. For many of these facilities, local emergency response personnel are familiar with the facilities and materials being used.

Public Officials Have An ACTIVE ROLE in Pipeline Safety and Security

- Be aware of pipeline facility locations in your area.
- Report suspicious individuals or activities immediately.
- Be aware of signs of leakage (e.g., sight, smells, sounds)
- Watch for and report unauthorized digging along pipeline right-of-way.
- Address pipelines in your emergency response procedures; work with your pipeline company.
- Know that pipeline company employees and contractors carry photo ID and will show it to you upon request.

source: Pipeline Association for Public Awareness

Figure 19. Key Areas of Hazardous Materials Concern

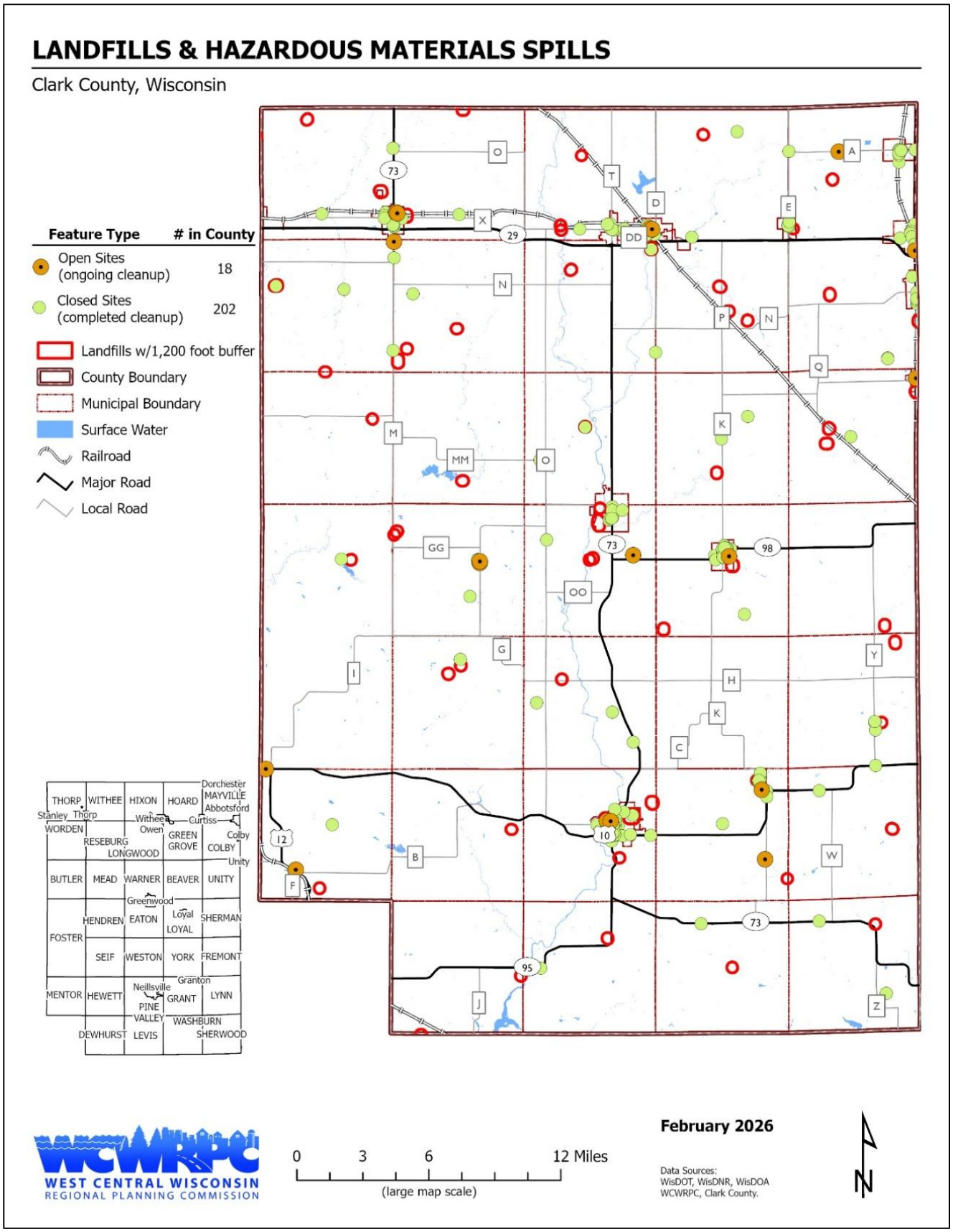
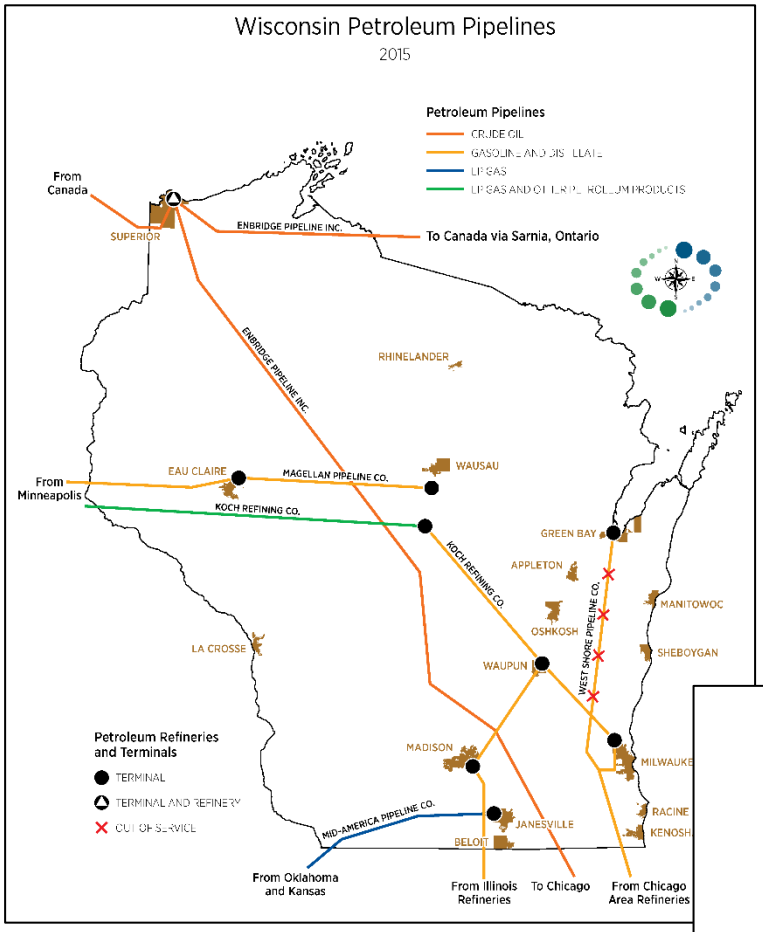


Figure 20. Wisconsin Pipeline Locations, 2015
source: Wisconsin Public Service Commission



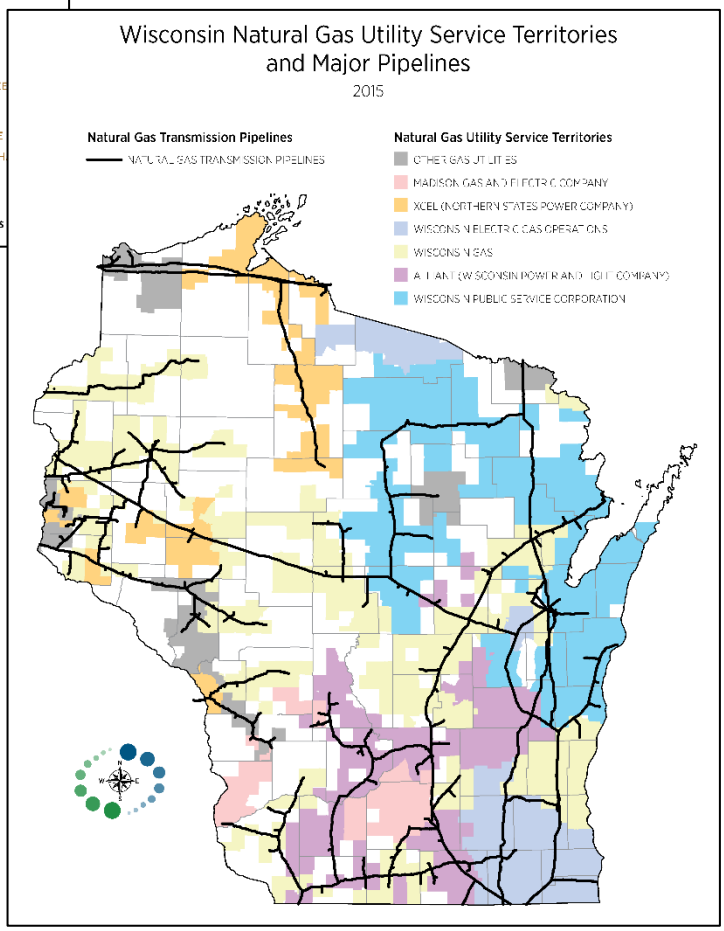
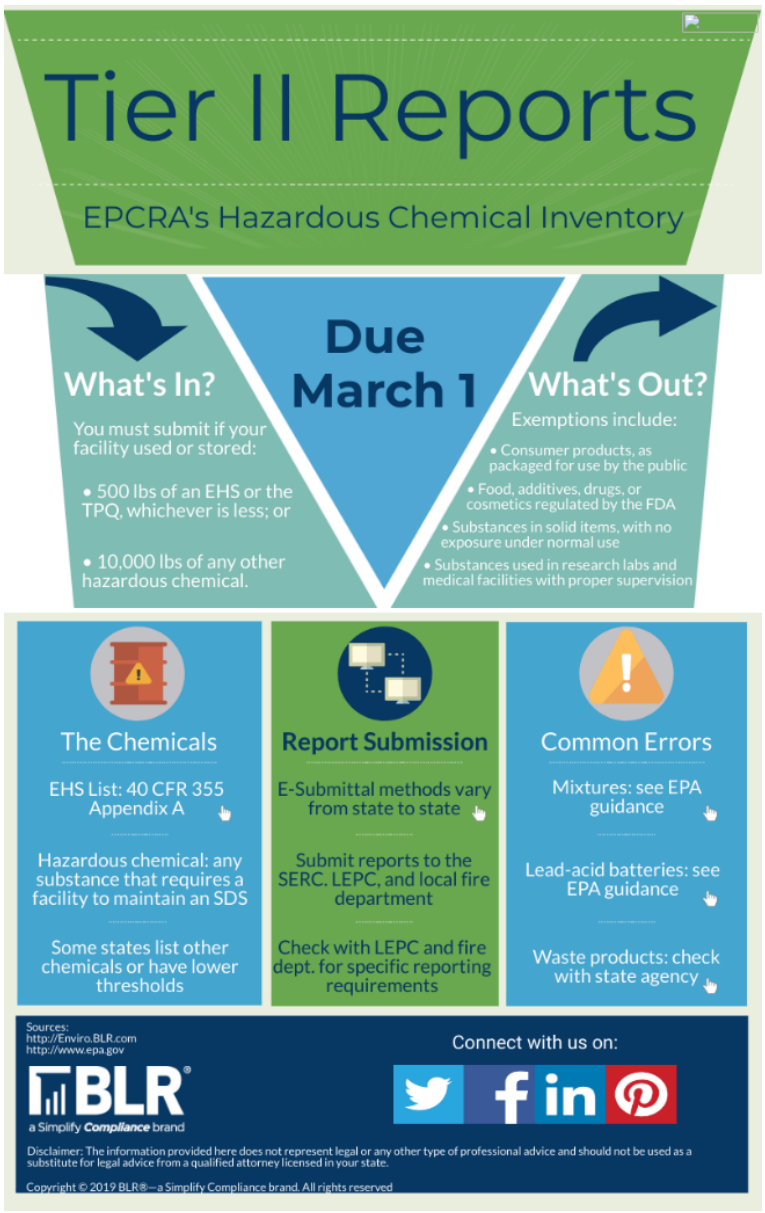


Figure 20 includes two maps from the State of Wisconsin showing the locations of major energy distribution pipelines; a map with more detailed pipeline locations within the County are not included in this plan for reasons of security.

Deep-Well Casing Areas & Landfills
Also shown on Figure 19, are the County's numerous landfills for which a special variance approval is needed prior to drilling a potable well within 1,200 feet.

EHS and Tier Two Facilities
As of July 2026, there were 653 Tier Two Reporting facilities and 16 active EHS Planning facilities located within Clark County, which is an increase since 2018. These facilities represent significant potential sources for a hazardous materials incident, with the EHS facilities being the greater concern. The majority of these facilities are located within incorporated areas. For reasons of security, maps showing the locations of these EHS and Tier Two facilities have not been included within this plan. During this Plan update, no unique natural hazard vulnerabilities were identified for any of the Tier Two or EHS facilities. None of the associated structures were identified as potentially being located within a 100-year floodplain or in a dam shadow.



Toxic Release Inventory (TRI) Sites
Facilities in certain industries which manufacture, process, or use significant amounts of toxic chemicals are required to annually report on their releases of these chemicals. More specifically, facilities with ten or more employees that process more than 25,000 pounds in aggregate, or use greater than 10,000 pounds of any toxic chemical in a given year are required to report releases each year to the Toxic Release Inventory (TRI) database. Releases include any toxic chemicals spilled, discharged, injected or otherwise released into the air, land, water, or underground. **These releases are not accidental hazardous materials spills**, but are an indicator of potential risk.

In 2024, Clark County had about 394,471 pounds of on-site releases or off-site disposal of toxic chemicals from eight locations, according to EPA's TRI Toxics Tracker. Approximately 1% was disposed of or released off-site while close to 100% of all onsite releases were to the water. Lynn

Dairy/Lynn Proteins, a cheese manufacturing facility located along Highway 10 in Granton, accounted for much of the on-site release. Of the 1.7 million pounds of production-related waste managed in the County in 2024, 0% was recycled, 77% was treated and 23% was disposed or released. While the amount of production-related waste managed in the County was tending down since 2020, in 2024 it increased and was just below the level from 2020.

It must be stressed that some type of inappropriate action should not and cannot be insinuated or implied when a facility appears in the TRI database**. In most, if not all, cases, the TRI reported releases are in compliance with applicable regulations and are consistent with the appropriate management plans. The far majority of releases in the TRI database are not accidental spills, but could be considered part of normal business practice under current regulations**. This information is provided to convey a greater sense of the risks of an accidental spill at a location using these substances or during transport. And, again, this only includes reports for facilities releasing 10,000 or more pounds.

Manure Storage and Animal Waste Management Facilities

As documented in Section II.C., Clark County is home to large numbers of livestock. Manure and other animal waste is a natural by-product of the County's agricultural economy. For example, on average, an adult dairy cow produces 20-21 tons of manure per year. Most farms that have livestock also have manure management or storage facilities. If not properly designed and maintained, such facilities can be a source of contaminated runoff to groundwater and surface waters, as discussed previously in the flooding assessment.

Manure and other animal waste is a potential source of nitrates, phosphorus, bacteria, and pathogens that can impact public health with exposure or due to the contamination of drinking water. If not properly managed, animal waste has the potential to contaminate wells, kill fish, and pollute lakes and rivers. Pathogens in manure can make water unsafe to drink or use for recreation. Nitrogen and phosphorus in manure runoff to surface waters can create toxic algae blooms that can block out sunlight, starve the water of oxygen, and destroy habitat. This risk is not limited to spills at fixed sites (barnyards, storage facilities) or transportation spills. For many areas, non-point sources (e.g., landspreading, pasture management, poor nutrient management) are of equal or greater concern. The *Clark County Hazard Mitigation Plan Supplement* provides details on a statewide study of manure incidents.

During the plan update, no large manure spills or large fish kills as a result of nutrient run-off in Clark County were identified by stakeholders. Locally, issues related to animal waste and nutrient management are primarily monitored and addressed by WDNR and the Clark County Land Conservation Division. The Land Conservation Division enforces the County's manure storage and management regulations, provides related educational services, and manages a program to potential cost-share the proper abandonment of facilities that are no longer being used.

It must be noted that there is ongoing political and legal debate whether manure should be classified as a hazardous material or hazardous waste. As part of a 2015 Wisconsin Supreme Court Case (Wilson Mutual Insurance Co. v. Falk), the Court found that "just because manure may be beneficial when spread on a field, does not mean it is not a pollutant." This report does not attempt to make such legal and regulatory distinctions.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

During the 2026 Plan update, PFAs were identified by some participants as a growing concern. This subsection recognizes these growing concerns, though information regarding PFA contamination is evolving, and the threat comes from many sources and not just HazMat spills.

PFAs are a large group of over 6,000 human-made chemicals that have been used in industry and consumer products worldwide since the 1950s. PFAs were widely used, long lasting chemicals. Since their components break down very slowly over time that have been nicknamed "forever chemicals".

Most PFAS use was discontinued in the early 2000's, but they continue to impact the environment. PFAS were used in a wide variety of products from non-stick cookware to stain resistant coatings for carpets and furniture. Because they do not decay very quickly, PFAS are able to infiltrate groundwater and water supplies through runoff and absorption. The true effects of PFAS on the environment and on people are not fully known. It has been determined that PFAS, through water infiltration, are being ingested by animals and people where they then collect in the body overtime.

PFAs continue to be studied and related regulations also continue to change. WDNR has created an interactive data viewer to identify testing areas, contamination sites and fish and game consumption advisories.



Potential Groundwater Impacts

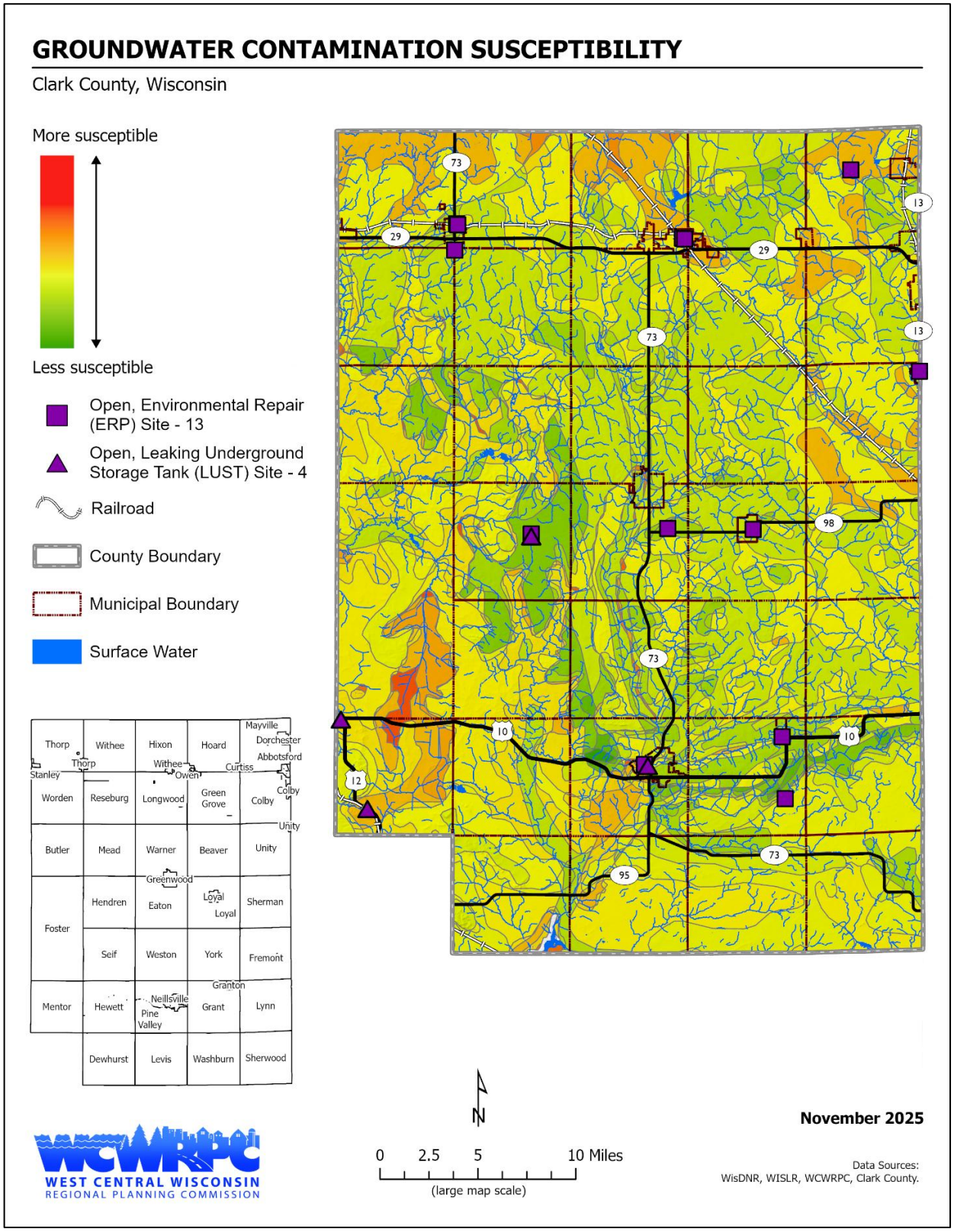
Nearly all Clark County residents rely on local groundwater for their source of portable water. Businesses, including agriculture and industry, also rely on groundwater. One of the potential environmental impacts of a hazardous materials release or spill is groundwater contamination. Groundwater collects or flows beneath the Earth's surface, filling the porous spaces in soil, sediment, and rocks, and is the source of water for aquifers, springs, and wells. The degradation or pollution of groundwater quality due to some substance or toxin introduced or spilled onto the soil and making its way to the groundwater can pose health risks for those using the groundwater for drinking and domestic use.

All groundwater is susceptible to contamination. Soils, geology, and depth to water table are characteristics of the natural environment that influence a location's relative susceptibility to groundwater contamination. **Figure 21** is a generalized picture of how groundwater contamination susceptibility varies in the County. While such information may guide general planning and policy, site-specific variation exists and such information should not be used for making site-specific decisions.

Projected Loss Estimates

Due to the lack of comprehensive, up-to-date data and related studies, future loss estimates for hazardous materials spills in Clark County are not included. However, basing future losses on historic spill data under-estimates the true vulnerability. A very large HazMat release is possible in Clark County and would greatly exceed any projected loss estimates based on historic data should there be significant injuries, long-term evacuation/quarantine, and/or environmental damage.

Figure 21. Groundwater Contamination Susceptibility



xi. ACTIVE THREATS

This sub-section highlights active threats information and the effects of these events. *Clark County Hazard Mitigation Plan Supplement 2.M.* provides additional details. **For active threat risks and vulnerabilities specific or unique to the participating villages, cities, and school districts, please refer to the subplans in *Plan Supplements 5 & 6*.**

Defining the Hazard—Active Threats

For the purpose of this plan, an active threat incident occurs when an individual (or group) displays a weapon, having made threats, and shown intent to cause harm or act our violence. A weapon includes any firearm, knife, vehicle, or other instrument that can cause bodily harm, injury, or death. Such incidents can include:

- **Active shooters** – one or more subjects who participate in a random or systematic shooting spree with the intent to continuously harm or kill others.
- **Bombs and/or bomb threats** – any explosive device or bomb or bomb on or near a target, regardless of the method of delivery (e.g., pipe bomb, car bomb) or whether the threat is real or a hoax.
- **Hostage situations** – one or more subjects hold people against their will in order to hold off authorities, often threatening to harm the victims if approached. The hostage-taker(s) may issue demands, often including the release of hostages.

Active threats can include acts of terrorism, but not all active threats are performed for reasons of terrorism. The FBI defines two categories of terrorism:

> **International terrorism**: Perpetrated by individuals and/or groups inspired by or associated with designated foreign terrorist organizations or nations (state-sponsored). For example, the December 2, 2015, shooting in San Bernardino, CA, that killed 14 people and wounded 22 involved a married couple who radicalized for some time prior to the attack and were inspired by multiple extremist ideologies and foreign terrorist organizations.
>
> **Domestic terrorism**: Perpetrated by individuals and/or groups inspired by or associated with primarily U.S.-based movements that espouse extremist ideologies of a political, religious, social, racial, or environmental nature. For example, the June 8, 2014, Las Vegas shooting, during which two police officers inside a restaurant were killed in an ambush-style attack, was committed by a married couple who held anti-government views and who intended to use the shooting to start a revolution.

Further, there are types of terrorist attacks that would not be classified as a traditional active threat, such as cyberattacks, a critical infrastructure attack, vandalism, or intimidation. OSHA has further identified four primary categories for workplace violence events, though the perpetrator's primary intent may not also be to harm large numbers of persons: Criminal Intent, Customer/Client, Worker-on-Worker, and Personal Relationships.

Additional definitions are included in *Clark County Hazard Mitigation Plan Supplement 2.M.*

Hazard Location & Extent

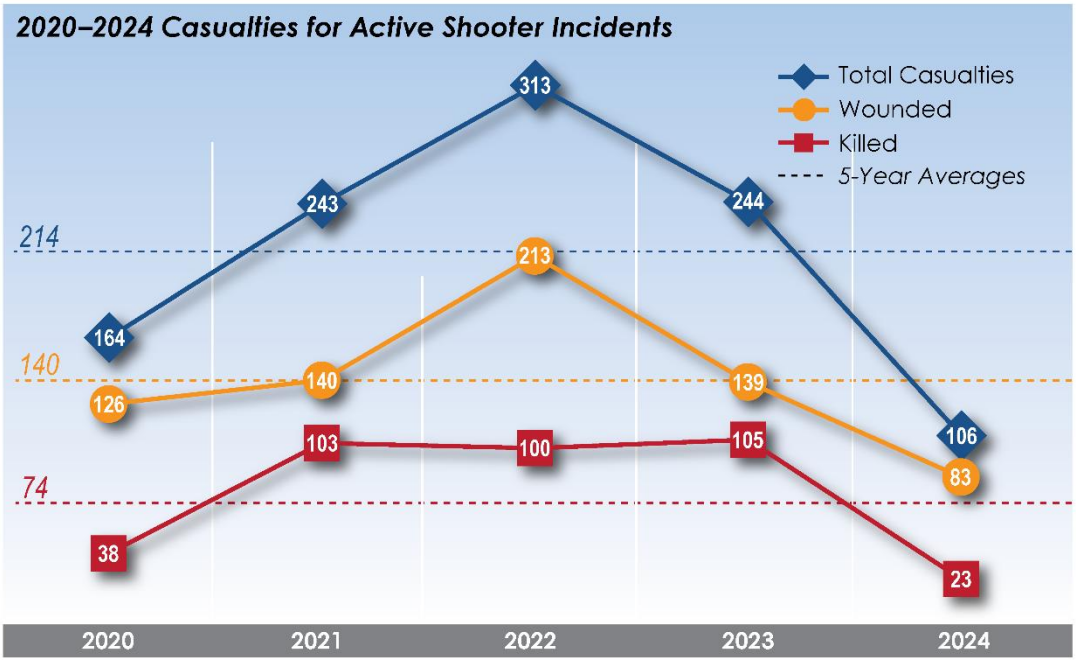
Active threat events can occur anywhere in Clark County. *Mitigation Plan Supplement 2.M.* includes data showing that such threats occur in communities of all sizes and across a broad spectrum of socio-economic circumstances. Like Clark County, about three-quarters of all active shootings occur in majority white communities. While active threats can occur anywhere, places and events where people gather have a higher risk. The communities with larger populations, more businesses, and more critical facilities have slightly higher risks, but no location is immune. In Clark County, such places would include churches, hospitals, schools, community events, larger employers, and other gathering spaces.

There no adopted scale to measure and compare active threats intensity. The intensity of active threat events are largely measured by the number of individuals impacted (i.e., killed, injured, otherwise threatened). *Mitigation Plan Supplement 2.M.* describes one way to evaluate the evolution of an active threat and related pre-event, during the event, and post incident actions. Very few organizations will experience an active shooter incident that wounds or kills multiple victims; a far greater number will experience other forms of workplace violence (e.g., threats, simple or aggravated assaults, robbery, trespass, damage to property, rape).

Unlike most workplace violence events, other active threats often aim to impact large numbers of people, which is the primary focus of this plan section. In Clark County, there are many different gathering places for which a larger, multi-victim active threat event could occur. And the impact of an active threat event goes beyond those involved with the immediate threat. Those who are not directly impacted by the event may be psychologically impacted through fear, concern for safety, and reduced activity. Services may also be disrupted and economic ramifications could occur.

Event History - Active Threats

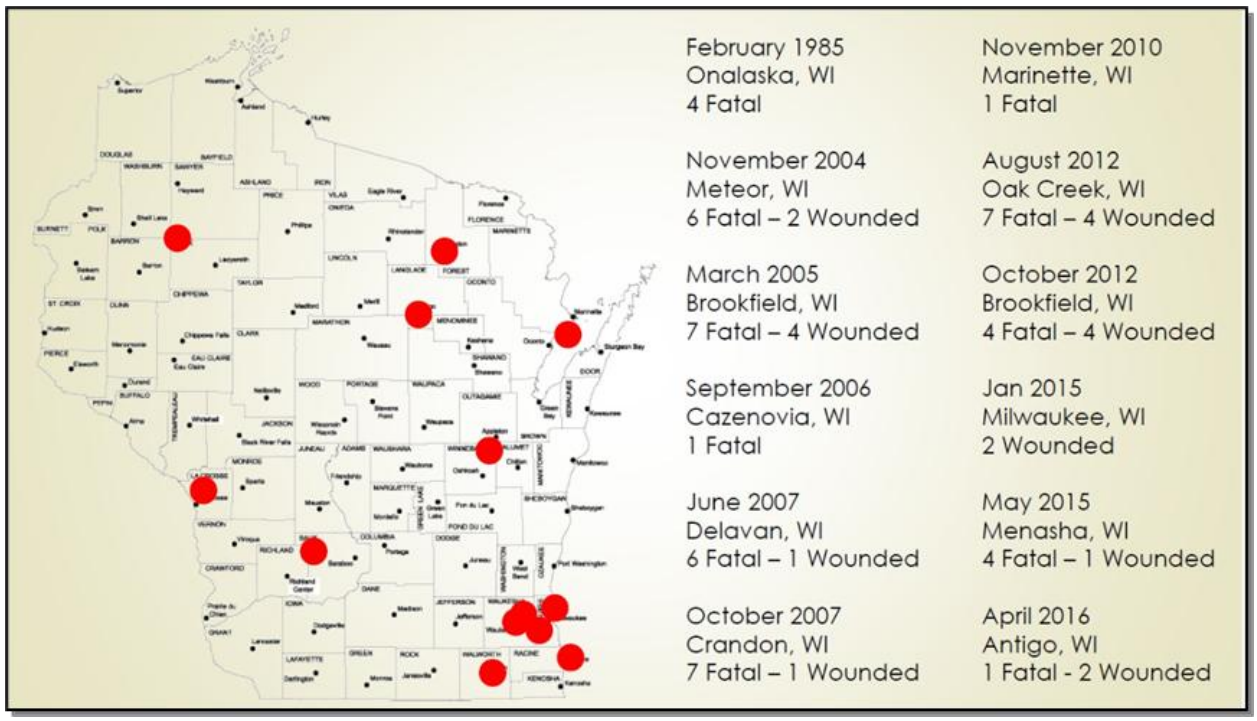
National trends on active threats are detailed in *Mitigation Plan Supplement 2.M.* Overall, the number of active shooter events in the United States almost tripled from 2000 to 2022, though there has been a significant recent decrease. The largest majority of events since 2000 occurred at places of commerce (45%), followed by open spaces (21%) and educational institutions (14%).



FBI. *Active Shooter Incidents in the United States 2024*, June 2025

Significant Clark County Events

To date, there have been no large, active shooter incidents in Clark County in contemporary history. There have been school-related threats but no incidents to date. However, Wisconsin is not immune to this threat. Below is a listing of recent active shooter incidents in Wisconsin provided by Barron County Emergency Management through 2016.



The list does not include more recent mass casualty events in Wisconsin, including:

- March 22, 2017 - Active shooter incident in the Rothschild area that resulted in the deaths of a police officer and four civilians. The suspect was motivated by a domestic incident; and the violent spree involved gunfire at a bank, law office, and apartment building.
- November 20, 2020 – Eight people were hospitalized with non-life-threatening injuries after a person opened fire at the Mayfair Mall in Wauwatosa.
- February 26, 2020 – A former employee shot and killed five people at the Molson Coors Beverage Company campus in Milwaukee, then committed suicide.
- 2021 – SUV drove into a crowd, killing at least five people and injuring over 40 others during a Christmas parade in Waukesha, WI.
- December 16, 2024 – School shooting at Abundant Life Christian School in Madison, WI where three people were confirmed dead and size others were injured.

Closer to home, on August 27, 2025, a mass shooting occurred at the Church of the Annunciation in Minneapolis. Two children and the perpetrator died, and thirty other people were injured.

There is no reason to believe that active shooter events in Wisconsin (or Clark County) would

significantly differ in character than national trends. The Wisconsin events listed previously are quite diverse and, for example ranged from a domestic/home shooting (Delavan, 2007) to a Sikh Temple (Oak Creek, 2012) to a beauty salon (Brookfield, 2012) to a school parking lot (Milwaukee, 2015) to a park/trail (Menasha, 2015). Located northwest of Clark County, the 2004 Meteor shooting involved a dispute over a hunting stand.

Hazard Probability - Active Threats

The Plan Steering Committee ranked active shooter as having a moderate-to-low probability of occurring in Clark County (i.e., of some concern), but a high/serious vulnerability in terms of potential impacts (e.g. injuries, death) should an event occur. This is partly due to Clark County's relatively small, largely rural population.

Predicting the active shooter risk for Clark County (2020 population of 45,440) is difficult, if not impossible, given the national average rate of 45 incidents per year (2020-2024) for the U.S. population of over 340 million.[22] Based on the Wisconsin and national trends, we can say that rural areas and smaller communities, such as Clark County, are not immune to active shooter events, though the risk is higher in areas of higher population density.

Predicting the active threat risk for Clark County (2020 population of 34,659) is difficult, if not impossible. In the United States from 2018-2022 each year on average there were:

- 42.2 active shooter incidents with 222.5 casualties (injuries & fatalities)
- 336.6 bombings with 105 casualties

Based on the U.S. population of 340 million, the above active threat incidents are rare. Using these national averages and the County's population, **Clark County would, on average, experience 0.0062 active shooter incidents in a year (about 1 event every 233 years) and 0.0419 bombing incidents per year (about 1 event every 103 years), keeping in mind that many events occur without casualties.** And based on the Wisconsin and national trends, we can say that rural areas and smaller communities, such as Clark County, are not immune to active shooter events, though the risk is higher in areas of higher population density.

The previous pie charts also show that risk varies by location and type of facility, though, again, no location is immune and preparedness efforts should not be limited by past trends. Based on national trends, there is a greater chance that an active shooter event will involve a Clark County business. This is not surprising, since there is a greater number of businesses in most communities compared to schools, government buildings, churches, or health care facilities.

There are a few factors that could potentially influence the frequency of active shooter, workplace violence, and targeted school violence incidents, such as:

1. **Social media/internet access and management**—Information is passed to others quickly online

[22] U.S. Department of Justice Federal Bureau of Investigation. *Active Shooter Incidents in the United States 2024.* file:///C:/Users/SusanBadtke/Downloads/Active%20Shooter%20Incidents%202024.pdf

and has resulted in copycat behavior (e.g. a bomb threat in a school resulting in a bomb threat in nearby school soon thereafter). Further, the internet provides a plethora of information, including instructions on how to carry out illegal activities as well as social discourse among individuals and groups that are considering potentially violent behavior.

2. **Population trends**—The population of Clark County is increasing. This trend could cause tensions between existing and new residents. It is also not surprising that the number of incidents generally increase as the population increases, as reflected by the concentration of Wisconsin events in the southeast corner of the State.
3. **Mental Health programming**—The rate of active shooter incidents can be decreased by improvements in access to mental health programming and the public's acceptance of such services without the social stigmas.
4. **Mitigation and preparedness efforts**—A variety of potential mitigation and preparedness efforts are discussed later in this subsection.
5. **Access to firearms** - The availability and accessibility of firearms can significantly impact the likelihood and severity of active shooter incidents. States with more lenient gun laws typically see more mass shootings and more fatalities.

Vulnerability Assessment— Active Threats

General Vulnerabilities	
People	• All individuals are at risk of experiencing active threat events.
Gathering Places, Parades, & Festivals	• Locations with increased populations and transient populations face have an increased potential for active threat events. • Houses of worship remain a top target nationally. Reported active shooter events at houses of worship varied in denomination and included retreat centers/camps.
Local Economy	• Large employers are a frequently mentioned active threat concern. The general distribution of businesses by type are described in **Section II.C.** • Active threat events may result in shutdowns or closures.
Natural, Historic, & Cultural Resources	• None known.
Governmental Facilities	• County and local municipal building are frequently mentioned active threat targets. Section II.D. identifies the local government buildings, fire halls, and law enforcement facilities in Clark County. Details on the active threat vulnerabilities and capabilities of cities and villages are included in the municipal subplans.
Community Lifelines	
Safety & Security	• Emergency services and law enforcement personnel are required to respond to active threat events, placing these individuals in harm's way.
Food, Water, Shelter	• Utility infrastructure is a potential target in threat events. • Crops and livestock are potential targets for biological attacks.
Health & Medical	• Healthcare infrastructure is a potential target in a threat events. See also *Cyberattack* section. • Hospitals and healthcare facilities no only serve a potentially vulnerable population, but also have a large number of employees. A study published in the Annals of Emergency Medicine in September 2012 found that large hospitals (more than 400 beds) had an incidence rate of 99.8 active shooter events per 1,000 hospitals compared to 6.7 events per 1,000 hospitals among smaller facilities; Clark County's hospitals are smaller facilities.

	• There were no patterns or factors that could definitively profile vulnerable sites and situations. Nearly 60% of shootings happened in the hospital building, with the rest on the grounds or parking structures. 34% of shootings happened in the Emergency Department and 32% in patient rooms. • Most involved a determined shooter with a specific target. Most shooters were neither current or former patients or employees. 91% of shooters were men. • About 40% could have been prevented using a metal detector, but such a security practice can be difficult and expensive to fully implement.
Energy	• Utility infrastructure is a potential target in threat events. See also *Cyberattack* section.
Communications	• Infrastructure is a potential target in a threat events. See also *Cyberattack* section.
Transportation	• Public transit has an increased potential for active threat events. • Bridges, roads, and other infrastructure are potential targets in active threat events.
Hazardous Materials	• Sites containing hazardous materials are potential targets in active threat events.
Educational Institutions	• Facilities are at an increased risk of active threat events. See also *Cyberattack* section. • Most systems / organizations have increased preparedness to address active threat events. • See subplans for participating jurisdictions within **Section VII.B.**
Vulnerability to Future Assets	
Population Growth & Development	• Increases in population increase the potential intensity and exposure of active threat events. • All people and areas are at an equal risk of experiencing an active threat event. • Gathering places or population centers have an increased probability of events occurring.
Other Assets	• Mental health facilities and services will be strained during and after active threat events. Additional capacity may be needed as the population grows.

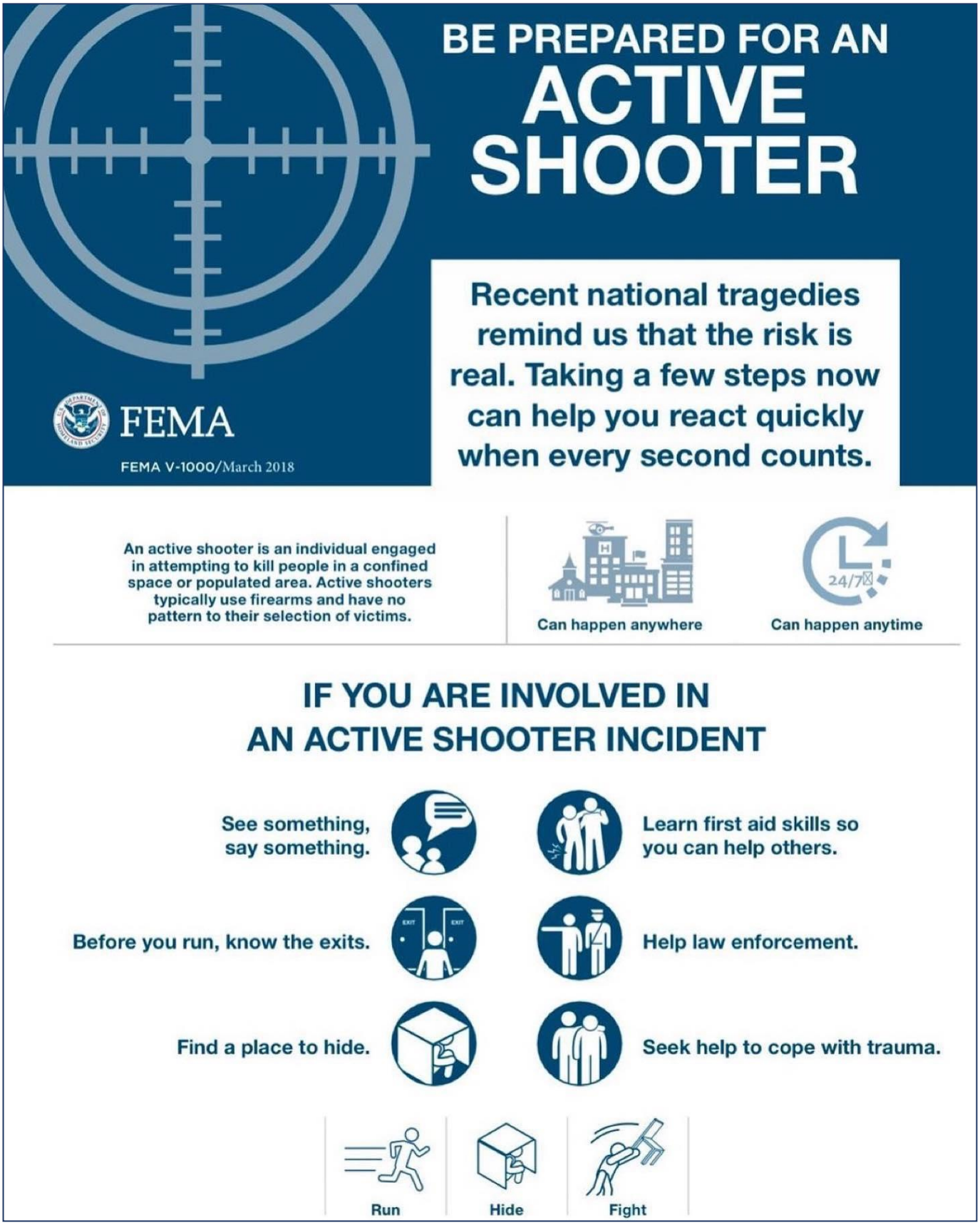
Projected Loss Estimates

Given the relative rarity of these events and the lack of past events in Clark County, projected loss estimates are not provided in this plan.

Other Factors Influencing Future Losses

- Population Growth. As noted previously, Clark County continues to grow, which increases the exposure to active threats.
- Preparedness & Mitigation. Due to the great variety in the type and sizes of these locations, there is no "one size fits all" solution to mitigating active shooter risks. Schools and health care facilities have relatively stronger active threat preparedness programs. Security hardening and annual training has occurred at Clark County government facilities, including support from the U.S. Marshals Service. Some municipalities have hardened their offices to vary degrees. Some area businesses have worked with the County Sheriff's Department for facility walk-throughs. Some Sheriff's Department and local law enforcement officers have participated in de-escalation training.

  As discussed in the *Mitigation Plan Supplement*, an "all threats" approach is advised that should consider: education & awareness, planning & exercises, site assessment & hardening, employee/client assistance, and collaboration with partners.


BE PREPARED FOR AN
ACTIVE
SHOOTER
FEMA
FEMA V-1000/March 2018
Recent national tragedies remind us that the risk is real. Taking a few steps now can help you react quickly when every second counts.
An active shooter is an individual engaged in attempting to kill people in a confined space or populated area. Active shooters typically use firearms and have no pattern to their selection of victims.
Can happen anywhere
24/7
Can happen anytime
IF YOU ARE INVOLVED IN
AN ACTIVE SHOOTER INCIDENT
See something, say something.
Learn first aid skills so you can help others.
Before you run, know the exits.
Help law enforcement.
Find a place to hide.
Seek help to cope with trauma.
Run
Hide
Fight

SECTION IV.
CAPABILITY ASSESSMENT SUMMARY

FEMA Resiliency Rating for Clark County

Overall, FEMA's National Risk Index (NRI) rates Clark County's community resilience as having a **Relatively Low** ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the United States This community resilience assessment is based on 49 social, economic, environmental, governance, and housing/infrastructure variables such as household income, access to personal transportation, English-language proficiency, health & crop insurance, access to critical services, housing types, disaster training, and population stability.

Of Wisconsin's 72 counties, Clark County ranked 70th in terms of community resilience. This data suggests that preparedness efforts are very important and that support from outside the County may be critical to response and recovery following a major disaster event. However, this somewhat misleading since the low-scoring resiliency variables partially reflect the County's significant Amish population, which is a very self-reliant and resilient community overall.

Overview of Mitigation Actions in Clark County

FEMA's planning guidance requires that mitigation plans document each jurisdiction's existing authorities, policies, programs, and resources and its ability (or lack of ability) to expand on and improve these existing policies and programs as they relate to the local hazard mitigation. To address this requirement, **Supplement 3.A.** includes a table of potential mitigation and preparedness activities indicating whether each activity is being carried out in Clark County; additional notes are provided for each activity, including any opportunities to expand upon or improve local actions. **Supplement 3.B.** reviews progress on high priority recommendations from the County's 2020 Mitigation Plan. The city, village, and educational institution sub-plans in **Supplements 5 & 6** identify mitigation actions for other participating jurisdictions. The following are some key findings from this capability assessment review.

Community Planning & Regulatory Capabilities

Clark County has a **long history of FEMA-approved mitigation planning (2005, 2010, 2015, 2020)** and many communities have comprehensive plans, though many are out of date. Mitigation considerations are incorporated unevenly within community plans, with strongest emphasis on floodplain and stormwater management and the delivery of core emergency services (e.g., law enforcement, fire, EMS). The County lacks a comprehensive plan, but has a Land & Water Conservation Plan, a Public Health Emergency Preparedness Plan, and a County Forest Management Plan that have strong intersections with mitigation. State-mandated building codes provide basic hazard protections, but limit local flexibility for enhanced standards. Zoning, subdivision control, driveway regulation, and address signage enforcement operate to varying degrees across communities; some fire departments have emergency access concerns with driveways. The County maintains a strong GIS program, though lacks detailed structure data, which limits a robust flood hazard vulnerability assessment.

Flood Mitigation

Floodplain and shoreland zoning are well-established and development in floodplains is discouraged, though Granton does not currently participate in the National Flood Insurance Program (e.g., likely have not adopted the most recent maps and/or floodplain zoning ordinance). Stormwater and drainage improvements continue, and have addressed many of the key flooding hotspots identified in past mitigation plan. **The City of Neillsville and Village of Curtiss have both utilized FEMA mitigation flooding for the acquisition of floodprone structures**. Most dams are in good repair, with no major deficiencies reported; hydraulic shadow mapping has been completed for high hazard dams.

Other Physical Mitigation Projects

Some communities have designated storm shelters. **More than any other County in the region, FEMA mitigation grant dollars have been used to construct six community safe rooms in the County, including two at the Abbotsford and Owen-Withee schools since the 2020 mitigation plan.** Ensuring continued maintenance and access to all of the older safe rooms was discussed during the 2026 Plan update. Power line burial, tree trimming, snow fencing, and transportation hazard controls are regularly implemented. **Clark Electric Cooperative utilized FEMA mitigation grant dollars in 2010 to overhead power lines.** Many critical facilities lack generators and formal emergency fuel agreements. Fire protection and related water access is generally good; some equipment needs identified by fire departments. The County lacks formal warming/cooling centers, though libraries and municipal buildings are commonly used and demand has been low. Capital improvement planning supports mitigation efforts, and recent hazardous waste disposal programs demonstrate proactive coordination.

Emergency Operations Planning & Training

The County maintains an updated Emergency Operations Plan and coordinates it with the Public Health Emergency Preparedness Plan. Most municipalities have emergency plans, but updates are inconsistent. Regular training occurs at the County level. HazMat training is strong, aided by regional Type I and Type III teams. ICS training is met by most responders, but elected officials may need additional support. Except for the County, continuity of government planning is limited. Evacuation, debris management, mass-gathering planning, and volunteer management show partial development; credentialing in place. Communicable disease planning is robust.



Emergency Notification & Communications

The centralized emergency communications system was updated in 2018 and provides strong countywide coordination. Communications gaps persist in rural and hilly terrain, but improved. Storm siren coverage is generally good, though aging equipment and battery back-up concerns exist. NOAA radio distribution is limited. **Continuing outreach to encourage sign-up for the County's emergency notification system (Everbridge).** ARES/RACES participation is currently low. Inconsistencies adoption of MABAS and IAmResponding. Lack of redundancy if cell network goes down or a fiber line cut.

Education, Outreach, and Preparedness

Public education is relatively strong, especially during Severe Weather Awareness Week, though should continue to be supported. More education on emergency notification systems (e.g., NWS watches vs. warnings, sirens, Everbridge) most frequently mentioned need. Outreach to seniors and other residents is well-coordinated in partnership with Public Health and ADRC. Soil health and shoreland practices are actively promoted. Wildfire education is limited due to relatively low risk. **The County utilized FEMA mitigation grant funding in 2010 to conduct an educational outreach initiative on flood insurance, etc. and to distribute NOAA radios to seniors through the ADRC program.**

Mutual Aid & Partnerships
Law enforcement and fire/EMS mutual aid is strong and well-coordinated (e.g., MABAS). Public works mutual aid is informal in most cases. Public health partnerships are robust, supported through regional health readiness coalitions. Limited public-private partnerships exist. County agencies maintain strong relationships with schools, including support active threats and communicable disease planning and exercises. VOADs—particularly Red Cross and Salvation Army—are active but face declining volunteer numbers.

Barriers & Opportunities

In addition to the above, barriers to capabilities and mitigation action as well as ways to strengthen, expand upon, or improve the capabilities were discussed during Plan Update Steering Committee meetings, community meetings, and stakeholder interviews. The following primary barriers and potential approaches were identified:

Barriers

- Lack of funding, limited grant availability, and increasing costs. This was the most frequently mentioned barrier, especially for the implementation of mitigation measures, such as the construction of safe rooms or additional flood/stormwater storage measures.
- Time for training, planning, and implementing mitigation/preparedness strategies.
- Lack of volunteers; volunteer fatigue and burnout. This is a challenge for many volunteer fire and EMS organizations in the County.
- Challenges keeping up with changing threats, such as increasing heavy rainfall events due to long-term weather patterns and increasing sophistication of cyberattacks. Emerging/changing threats require continued creation/amendment and exercising of emergency plans.
- Clark County's communities differ, with a large Plain Community and working immigrant populations in different areas. Outside of these groups, the County's population is also aging overall.

Opportunities

- Training, exercises, drills and meetings; bring stakeholders together to share understanding of trends, resources, and lessons learned.
- Continue to regularly engage local communities and the public, including educational outreach. Collaborate with employers and local organizations on public preparedness and recruiting volunteers.
- Inventory key resources/needs (e.g., shelters, emergency generators), then share findings with key stakeholders/communities and work collaboratively to fill gaps.
- Integrate the Mitigation Plan findings and recommendations into other County and community plans. Use the County's Integrated Preparedness Plan to guide equipment & training needs.
- Continue to assess potential long-term weather change impacts to risks and encourage adaptation strategies as part of future mitigation plans and other related plans (e.g., comprehensive plans, stormwater management plan, promoting soil health practices).
- Pursue grant opportunities to supplement limited local funding for the implementation of recommended mitigation projects. Utilize available local resources and partnerships for in-kind cost share contributions when possible.

SECTION V.
MITIGATION GOALS AND STRATEGIES

A. MITIGATION GOALS

The following mitigation goals apply to all hazards. The mitigation goals are intended to provide direction to achieve the desired outcomes and are to be used as guidelines by which mitigation activities are identified and impact is evaluated. The Plan Update Steering Committee reviewed and updated the goals in the 2020 Mitigation Plan. The revised goals are not limited to natural hazards with an increased emphasis on anticipated threats and innovative solutions.

Goal One: Physical Development and Infrastructure

Work cooperatively to provide for the safety of residents, ensure the continuity of essential services, and limit damage to homes, structures, and community lifelines by exploring, supporting, and implementing strategies that mitigate the impacts of anticipated hazard and loss events while providing and maintaining a strong, resilient physical infrastructure and emergency response capacity.

Goal Two: Planning and Policy

Promote mitigation planning that anticipates hazard risks and vulnerabilities, then identifies appropriate, reasonable, and innovative mitigation and preparedness strategies that can be implemented in a uniform and cost-effective manner. Encourage nature-based and collaborative mitigation solutions when feasible.

Goal Three: Communication and Coordination

Maintain and promote an effective hazard warning system and maximize available resources for emergency planning, response, and recovery through intergovernmental coordination, cost-effective communication, public involvement, and other strategic partnerships.

Goal Four: Education and Outreach

The citizenry, businesses, organizations, and employees of Clark County will be aware of appropriate preparedness alternatives and have greater capability to prepare for and mitigate the impacts the hazards facing their communities.

B. RECOMMENDED COUNTY-LEVEL MITIGATION ACTIONS

Mitigation actions reduce or prevent the loss of life and property by lessening the impacts of disasters. These strategies are long-term solutions with preventative benefits to people, property, infrastructure, community lifelines, and/or the economy by reducing vulnerabilities. Mitigation actions can include:

- planning & regulations
- structure & infrastructure projects
- natural systems protection
- education & awareness programs
- weather adaptation strategies

Plan Supplement 3.C. summarizes the process and criteria utilized by the Plan Update Steering Committee to evaluate, select, and prioritize the recommended mitigation strategies.

The recommended strategies are organized by hazard type, then further organized into:

- ***Recommended Projects***: Projects are typically larger or more capital-intensive efforts that have a focused, action-oriented outcome that is achievable within a certain time period. Special grant funding or other resources are often needed for the implementation. Strategies involving physical structural or infrastructure changes likely fall into this category. Not all hazard types have a recommended project strategy.
- ***Recommended Planning, Policy, and Outreach Actions***: Policies tend to be ongoing, decision-making or programmatic guidance, though they may also include smaller, less costly planning, assessment, collaboration, or educational efforts. In most cases, these strategies can be funded or performed as part of normal operating budgets and do not require the identification of new or special funding or other resources. However, some training, planning, and outreach may require additional funding.

For each recommended mitigation strategy, the following is also provided:

High Priority	High priority strategies are indicated based on the evaluation of mitigation alternatives by the Plan Update Steering Committee using the previously described criteria. These high priorities provide focus and are suggested to assist with plan implementation and monitoring.
Timeframe	The Plan Update Steering Committee was asked to help assign a timeframe for each strategy using the following categories: **Short-Range:** *0 to 3 years* **Long-Range:** *4+ years* **As Needed:** *monitor & implement if conditions worsen or feasibility changes* **Exclude:** *there were very few "votes" to exclude; no alternative was excluded* The expected timeframe is based on a reasonable expectation of required resources, approvals, etc. The implementation of some strategies is subject to resources that are not controlled by the suggested responsible party, such as grant funding. The actual timeframes may also vary based on changing needs, regulations, community priorities, etc.

Lead Party(s)	This column suggests the position, department, jurisdiction, or entity that will have primary responsibility in initiating or implementing the mitigation action. However, in most cases, mitigation actions will require collaboration. Mitigation strategies involving land or property will in most cases always include the landowner as a lead party.
Funding	Potential and most likely funding sources are identified. FEMA guidance requires the identification of specific funding sources. In some cases, a mitigation action may be funded as part of the government's annual operating budget or a capital improvements plan, with revenue from multiple various sources.
Analysis	The analysis applies the previously described criteria to offer comments on feasibility, costs, benefits, opportunities, barriers to implementation, or additional explanation.

Note:

The priorities for the strategies herein were made in the context of this plan and the hazard threats facing Clark County. There may be other good reasons to implement a recommendation.

A low priority should not necessarily be interpreted as having a lesser importance to Clark County overall. Priorities also can vary by individual community.

The exclusion of a beneficial strategy from this plan should not prevent or defer action if the need exists and resources are available.

During the planning process, additional preparedness (non-mitigation) strategies were also recommended that are not included in this section, but are discussed in Section V.C. and Plan Supplement 3.D.

Severe Weather & Extreme Temperature Mitigation Strategies

The following strategies prevent or reduce the vulnerabilities associated with various aspects of severe/extreme weather including: **tornados, high winds, thunderstorms, winter storms, extreme temperatures, and drought**. They are combined here since some mitigation alternatives mitigate the impacts of multiple hazards.

2026 Plan Strategy Alternative	Priority & Timeline	Lead Party(s)	Funding	Analysis
1. Pursue grant funding to make cost-sharing available for the installation of community safe rooms (storm shelters) at mobile home parks, private and public campgrounds, RV parks, and recreational areas, such as the County Fairgrounds or near Rock Dam, where no existing shelter alternatives exist. Especially target safe room projects at mobile home parks and resort properties were landowners are strongly interested and supportive of such projects.	Med-High Varies based on interest, if funding avail.	Landowner Communities and county may need to raise awareness of grant options. A partnership with a mitigation plan participant (eligible grant applicant) may be required in some cases.	FEMA BRIC or HMGP grant funding with local cost share by municipality and/or landowner	• $$-$$$ • A safe room meeting FEMA standards provides near-absolute protection for occupants. • WCWRPC can provide direction & grant support with WEM assistance. • Emergency power generator may be FEMA mitigation grant eligible as part of • Hardening of schools and public buildings can serve nearby mobile home parks, slab-on-grade residential, etc. • Strong interest - A number of communities and entities have expressed interest in possible safe room projects or hardening.
2. Work with municipalities and businesses to explore grant funding for community safe rooms and storm hardening (retrofit) projects for community lifeline facilities, educational institutions, long-term care facilities, businesses, and manufacturers, especially if located in a slab-on-grade or large-span structure. In cases where an adequate shelter is available, a remote unlock system or operations & maintenance plan may be valuable.	Med-to-High Varies based on interest, if funding avail.			
3. Collaborate with owners of existing safe rooms in the County to review, exercise/drill, and update as needed their operations & maintenance plans. Work to ensure that all community safe rooms receiving grant funding in the past continue to be a safe, accessible place that is consistently available when severe weather (tornado & high wind) warnings are issued. Ensure target populations are aware of safe room availability. Improve warning systems and remote unlock capabilities if needed.	Very High 1-3 yrs, then ongoing	County Emergency Mgmt & Safe Room owners	FEMA BRIC or HMGP grant funding may be available to assist with remote unlock.	• $ • May be considered a preparedness activity, though linked to past mitigation project grant funding • County Public Health may be available to assist Emergency Management
4. Explore County ordinance language requiring new or expanding campgrounds, RV parks, and resorts to construct or identify per formal agreement a storm shelter for visitors. As needed, provide model language to local municipalities for consideration. *(Note: The preparedness alternatives include a related educational option)*	Low	County Zoning & County Board	Existing County operational budget	• $ • A number of towns have campgrounds. • Potentially a growing vulnerability with new or expanding campgrounds. • Could potentially be handled as part of a conditional use requirement in zoned communities. • Explore if could be part of a Public Health or operational license.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
5. Conduct a survey of campgrounds, resorts, and areas with concentrations of short-term rental properties to determine the status of emergency plans, storm shelter availability, and related resource needs.	Med-to-Low 3-5 years	County Emergency Management	Existing County operational budget	• $ • Could be used to educate on safe rooms & other mitigation opportunities. • Identify strategies based on the survey results. • As an option, this could be included as part of the next hazard mitigation plan update.
6. If funding opportunities become available, work with communities to pursue grant dollars for generators and, if needed, the wiring of fueling stations for a generator to provide emergency power for community lifeline facilities, shelters, public works buildings, and local emergency operations centers in Clark County.	Med 2-5 years; dependent on funding	Facility or shelter operator	Limited grant opportunities, unless part of a larger or multi-use facility.	• $$ • While generator availability continues to improve, it continues to be a significant need. • USDA Rural Development may fund generators in rare cases. • WI PSC Refueling Readiness Grant Program for wiring of fueling stations.
7. Continue to explore options to increase energy resiliency, especially in rural areas, which have a higher potential for longer-term outages. Work with local power providers to bury overhead electrical lines in areas prone to outages due to falling trees/limbs or high winds, when cost feasible. Pursue mitigation grant funding when needed and available.	High ongoing as funding allows	Electric Provider	Electric Provider typically covers cost to bury lines, though may be FEMA BRIC or HMGP grant eligible	• $$-$$$ • Lines are often buried for newer development or completed in conjunction with street improvement projects. • Cooperatives and municipal utilities may be eligible for FEMA BRIC or HMGP grant funding for projects in areas prone to outages.
8. Identify heating and cooling shelters with generators that are available for extended periods and power outages. Include capacity, policies, and pet options. Integrate such shelters into planned community safe room projects. Increase public awareness of shelter availability and transportation options.	High 2-4 years	County Public Health working with Red Cross	If part of safe room, generator and HVAC costs may be eligible for FEMA BRIC or HMGP funding.	• $-$$ • Demand may be slowly increasing as extreme temperatures increase. • Some facilities used as shelters, like libraries, may only be available during limited hours. • Some currently identified shelters lack generators or may not be widely known; see previous generator-related mitigation strategy.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
9. Develop a notification and monitoring strategy for at-risk populations in the event of a long-term power outage or other disaster. Considerations should include: (1) how special needs households are contacted or monitored during an extended power outage; (2) home oxygen sources and emergency oxygen availability, and potential demand during an extended power outage; and (3) how back-up oxygen may be distributed, including strategies for when roads are impassible. Coordinate between agencies how oxygen-dependent household lists (e.g., emPOWER data) will be accessed and used during an emergency. Identify strategies to address any gaps.	Very High 1-3 yrs, then ongoing	County Public Health & Emgy Mgmt to initiate. Involve partners such as ADRC, DME providers, and electric providers	Existing staff operational budgets	• $ for evaluation/planning • HSS emPOWER database includes 392 County residents that are Medicare beneficiaries reliant on electricity-dependent durable medical and assistive equipment (DME) and are at higher risk due to reliance on essential health care services. • A specific plan for such events does not exist and uncertain of emergency availability of oxygen. • Electric providers have their own data and critical client lists; have verbally agreed to share. • County Public Health has executed an agreement to access emPOWER data for emergency planning purposes. Discussion needed on how this data can best be used.
10. Partner with interested communities to pursue mitigation grant dollars to distribute NOAA All Hazards (Weather) Radios, with a potential priority for seniors, mobile home residents, campgrounds, and community lifeline facilities.	Low; as opportunities arise	County Emergency Management; ADRC; communities	May be eligible for FEMA HMGP grant funding (i.e., a 5% project)	• $ • Interest has been waning as smart phones become more common. • Partner w/ ARES/RACES, et. al., for radio programming as part of the local match contribution.
11. Undertake a coordinated all-hazards educational outreach project targeting rural households, including the Plain Community, on flood awareness; sirens, Everbridge, and warning systems; shelter availability; home preparedness; driveway accessibility; and other resources. May include a local official educational component.	Med-Low 4-5+ years	County Emergency Management Disaster Ready Chippewa Valley	Varies based on scope. FEMA mitigation grant funding could be used for a more formal outreach initiative	• $ • Proactive mitigation strategy. • Overlaps with some other strategies, including a more detailed flood- and wildfire-related alternatives. • County be combined with the distribution of weather radios. • WCWRPC may be able to help. • Insurance providers certified to sell flood insurance could be important partners. • Potential related to continued NFIP compliance; FEMA HMGP or FMA funding could be available.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
Flood Mitigation Strategies				
1. Continue to monitor, study, and address stormwater and flash flooding hotspots in the county as identified in the flood assessment of the hazard mitigation plan. Potential projects include, but are not limited to creation or expansion of flood/stormwater storage areas, the installation or re-sizing of culverts, the creation or improvement of drainageways, roadway improvements, and the protection of natural drainage and retention areas.	Med overall; varies by muni-cipality Ongoing, often in con-junction with road & street improve-ments	County Zoning or Land Conservation, County Emergency Management, County Highway, municipalities, landowners	Stormwater utilities, development impact fees, CIPs, and highway/road funding are traditional sources. CDBG-Public Facilities, TIF, FEMA Flood Mitigation Grants, Army Corps of Engineers, & WI Municipal Flood Control & Flood Resilience Grants for larger projects.	• $$ to $$$ • Increasing frequency & intensity of heavy rain events = more flooding. • Grant funding could mitigate a reoccurring flooding threat/vulnerability. • Often impacts transportation (a community lifeline). • Solutions are typically feasible, if funding available • Localized approach that increases drainage can increase flooding downstream. • Poor culvert condition on many local roads. • If significant damages, County Emergency Mgmt may provide support. • Potentially related to continued NFIP compliance.
2. Pursue hazard mitigation grant funding to acquire, relocate, or floodproof structures and properties with a flood history, most at risk of flood damage, and/or following a flood event in which significant damage occurs if the landowner agrees to participate. Also see City & Village sub-plan recommendations.	As needed No specific projects identified at this time.	Landowner, County Zoning or municipalities	FEMA Flood Mitigation Grant & WI Municipal Flood Control Grant programs with landowner match contributions	• $$ to $$$ • No repetitive loss properties identified, except perhaps due to ice damming on lower Black River. The most serious past flooding problems mitigated, including using grant funds for buyout. • Strong grant potential if a reoccurring or vulnerability. • May mitigate a reoccurring flooding threat/vulnerability. • Solutions are typically feasible, if funding is available and with the landowner's consent. • Potentially related to continued NFIP compliance.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
3. When new governmental construction, subdivision development, and non-flood mitigation projects (e.g., safe rooms) are being planned, consider extreme rainfall event trends, as needed, to control stormwater runoff and mitigate flooding.	Med ongoing	Developer or land owner	Same as above. New development unlikely eligible for mitigation grants unless part of a mitigation project.	• $ to $$$ • Proactive. • If part of a mitigation grant project, may score additional points. • May not be political support to amend ordinances to require or incentivize. • May serve as a model; could use WDNR Health Lakes grant dollars in shoreland areas.
4. Continue to advocate for State or Federal funding to improve floodplain map accuracy. If issues with inaccuracies increase, explore obtaining FEMA approval so that Clark County may engage in LiDAR-based Letter of Map Amendment (LOMA) approvals, which can save landowners considerable time and expense.	High Ongoing	County Planning & Zoning; WDNR & FEMA	FEMA (RiskMAP) & WDNR; County projects budget	• $$ • Poor accuracy of floodplain maps weakens flood vulnerability assessment, creates flood insurance and ordinance compliance challenges, and damages public trust. • If needed, obtain FEMA certification of LiDAR data as meeting PM-61 standards • Related to continued NFIP compliance.
5. Explore grant funding and/or USGS partnerships to install automated water monitoring/flood gauges upstream of key flood prone areas and potentially at County-owned dams. In particular, consider such monitoring for the S. Fork of the Eau Claire River as well as installation of traffic-control gates across County Highway M.	Med-Low 3-5 yrs	Likely Land Conservation or local lake groups	USGS or WDNR	• $ to $$ for installation • Could be combined with other water quality monitoring efforts
6. Continue to maintain dams and dam emergency operating plans. Strive to complete mapping of hydraulic shadows (dam failure areas) of all high-hazard and large dams; discourage development in these dam shadows as noted in the County's floodplain ordinance.	Med-High Ongoing	varies by Dam Owner; Zoning staff for code enforcement	Funded by dam owners; WDNR Municipal Dam Grant; FEMA High Hazard Potential Dams Grant	• $$ to $$$ • Proactive; partly preparedness. • No major dam structural concerns or improvement needs identified. • Not all dam owners provide GIS-based dam shadow data to the County; mapping of these by the County is relatively a lower priority. • While dam maintenance can be expensive, code enforcement and educational outreach may largely be accomplished with existing resources.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
7. Continue to enforce County floodplain regulations to: discourage future floodplain development and the storage of hazardous materials in floodplains; require dry land access for structures; limit development in dam shadows; and maintain natural flood storage areas. The Village of Granton is encouraged to adopt the latest official floodplain maps and ordinance, and address their NFIP non-participating status.	Med Ongoing	County Zoning and County Board	County annual operating budget	• $ • Proactive; strong mitigation strategy. • County has adopted the most recent WDNR floodplain ordinance model. • No additional costs expected unless enforcement/compliance issues arise. • Related to continued NFIP compliance.
8. Engage in an educational effort to increase public and elected officials knowledge of flood risks and the new maps, including awareness that typical homeowner's insurance does not cover flood damage, that many structures outside the 100-year floodplain are vulnerable to flooding, and the importance of well testing following flood events. Especially target those municipalities with the greatest assessed improvements in or near floodplain areas.	Med-Low 3-5 yrs	County and local designated floodplain managers County Emergency Management	County and community operational budgets. FEMA mitigation grant funding could be used for a more formal outreach initiative	• $ • Proactive mitigation strategy. • WDNR and WCWRPC may be able to help. • Insurance providers certified to sell flood insurance could be important partners. • No additional costs expected unless enforcement/compliance issues arise. • Related to continued NFIP compliance. • FEMA HMGP or FMA funding could be available.

Wildfire Mitigation Strategies

Larger wildfire mitigation projects and community wildfire protection planning were considered, but the costs of such alternatives outweighed the overall risk, vulnerabilities, and anticipated benefits at this time within Clark County. Instead, it was recommended to continue smaller, often targeted, educational and outreach efforts.

2026 Plan Strategy Alternative	Priority & Timeline	Lead Party(s)	Funding	Analysis
1. Continue to maintain a Wildfire Protection Action Plan for the Town of Foster with the Rock Dam area as a Fire Wise Partner site, which grew out of their community wildfire protection plan (CWPPs). Support current interest in creating an Action Plan for the Town of Dewhurst and/or Fire Wise initiatives in the Hatfield area. Encourage the Town of Levis to consider creating an Action Plan based on its CWPP.	Med Ongoing	WDNR, Local Fire Dept, and Town	WDNR Forestry grants	• $ - $$ • Typically not an extensive planning effort, but does require Town commitment. • Increases grant eligibility for FireWise strategies prioritized in the CWPP or Action Plan.

2026 Plan Strategy Alternative	Priority	Lead Party(s)	Funding	Analysis
2. Within intensive fire protection areas, continue to educate residents and local officials in the mitigation of wildfire risks, with an emphasis on enforcement of burning regulations/burning permits, defensible spaces around homes, and emergency vehicle access on driveways and private roads. Increase resident awareness of burning restrictions, warning signage, and permit contacts. Outreach should especially target areas of highest risk	Med Ongoing	Local Fire Depts & Wisconsin DNR Assistance from Town Boards, schools, & County Emgy Mgmt	Largely uses existing staff or volunteer support. Some WDNR resources available.	• $-$$ • Continuing educational outreach, but could expand into additional programming and planning in highest risk areas. • Could include installation of additional Fire condition warning signage. • Special customized messaging and outreach may be needed for the Plain Community; Towns and County Land Conservation may be key to helping with such outreach
3. Collaborate with railroads, towns, loggers, and County Highway Department to educate on transportation-related wildfire ignition risks and to promote Firewise practices.	Low 4-5+ years	WDNR, Local Fire Depts, County Emergency Management	Possibly WDNR Foresty Grants	• $ • An increasing cause of wildfire ignition within the County
4. Pursue grant funds for dry hydrants for fire protection where other water sources are not readily available. Continue to add new water sources to the Emergency Services Atlas.	Med-High as needed	Local Fire Departments	WDNR Forest Fire Protection Grant program; developer	• $-$$ • WDNR FFP Program could cover 50% of costs. • Not a widespread need.
5. Continue to maintain and implement the *Clark County 15-Year Comprehensive Forest Land Use Plan* and the *Clark County Land and Water Resources Conservation Plan* to include best management practices to reduce risks related to wildfire, drought, invasive species, and plant diseases. Maintain county forest roads and, when feasible, cutting of a ”right-of-way” to provide safer access/egress during a wildfire.	Med Ongoing	Clark County Land & Water Conservation; landowners	Existing County budget for staffing costs with some State support. Further funding sources vary by project type.	• $-$$$ • This strategy recognizes the importance of the various forest-management actions recommended within these plans to mitigating wildfire risks. •

Oher Mitigation Strategies

The following are multi-hazard mitigation strategy alternatives or potential strategies to address non-natural hazards.

2026 Plan Strategy Alternative	Priority & Timeline	Lead Party(s)	Funding	Analysis
1. MULTI-HAZARD – Explore grant funding to integrate the updated mitigation plan into a web-based Clark Claire County Emergency Management Dashboard (ArcGIS Hub site) and, potentially, into a future regional mitigation plan story map.	Low 5+ yrs	County Emergency Management WCWRPC	Would be depended on FEMA grant funding	• $ • Provides greater public access to the mitigation plan; given FEMA requirements, the full mitigation plan is not very "public friendly" • County has created the Dashboard • WCWRPC working with WEM to explore the regional-level story map
3. MULTI-HAZARD –Integrate natural hazard risks, extreme weather trends, and hazard mitigation priorities into the County Integrated Preparedness Plan, the Public Health Emergency Preparedness Plan, and other related County plans.	Low As opportunities allow	County Public Health and Emergency Management	As part of County operational/program budget for plan update.	• $ • County does not currently have a comprehensive plan.
4. MULTI-HAZARD – Conduct a public educational outreach initiative for ESL populations that increases knowledge of natural hazard risks, notification systems, insurance programs, and available resources.	Low 4-5+ yrs or as opportunities allow	Public Health with partner support	Largely a collaboratively supported initiative, but some grant funding may be available.	• $ • This could also be considered a preparedness activity, but should identify and emphasize reduction of vulnerabilities. • May be eligible for FEMA HMGP grant funding (i.e., a 5% project). • Churches and schools are key partners.
5. COMMUNICABLE DISEASE/MULTI-HAZARD - Conduct outreach or specialized workshops with the agricultural community (e.g., farmers, farmland owners, cooperatives, agronomists) and the Plain Community on preparedness, mitigation, and ag-related hazard risks, including long-term power loss and avian flu.	Low 4-5+ yrs or as opportunities allow	County Land Conservation, Emergency Management, NRCS, Extension	Operational budgets	• $-$$ • May be an initiative of a producer-led group. • Watershed and lake groups could be partners. •

2026 Plan Strategy Alternative	Priority & Timeline	Lead Party(s)	Funding	Analysis
6. HAZ MAT SPILLS – Utilize the findings of the updated Commodity Flow Study to customize training/exercises and other preparedness efforts to reflect the types of hazardous materials on the major highways and railroads in Clark County. Consider evacuation planning and transportation resources, especially for those with limited mobility.	Med 2-5 yrs & ongoing	County Emergency Management	U.S. DOT HazMat Emergency Planning Grant (WisDOT administers)	• $-$$ • Updated study nearly complete. • Transportation-based spills on highways and by rail were a greater concern than fixed facilities. • Evacuation planning can address multiple hazards. • Identifying HazMat commodity flow based solely on placards has limitations, but can provide some general insights.
7. ACTIVE THREATS - Continue to conduct active shooter/active threat building assessment, training, and reunification planning for government facilities, area businesses, community lifeline facilities, and other gathering places. Encourage annual exercises at educational institutions as part of their mandatory drills. Consider additional training on de-escalation techniques, especially for service departments interacting regularly with the public.	Very High ongoing	Facility owner County Emgy Mgmt Law Enforcement	County Emgy Mgmt or Sheriff's Dept may be able to provide support or coordinate exercises upon request	• $ ($$-$$$, if security hardening) • Continuing, but greater regularity for some facilities recommended. • May reduce vulnerability through recommended security hardening or improved procedures. • Encourage sharing of after-action reports from exercises among law enforcement.
8. CYBERATTACK – Continue efforts to educate the public, businesses, and local governments on good cybersecurity/cyber-hygiene practices to reduce vulnerabilities. Encourage the adoption of AI-use policies. For organizations, include related resources and continuity planning (e.g., cyber insurance, assessment & response resources, back-up, restoration).	High ongoing	Establish a special team? ADRC for seniors	Uses existing staff or volunteer support.	• $ • ADRC provides related outreach to seniors via its newsletter. • Local ISPs may be good partners. • Promote availability of CISA and State Cyber Response team resources. • Disaster Ready Chippewa Valley as a possible partner for business outreach. • Perhaps a regional effort spearheaded by the West Central WI Broadband Alliance.

C. RECOMMENDED COUNTY-LEVEL PREPAREDNESS ACTIONS

While this mitigation plan focuses on long-term solutions and preventative actions that will reduce disaster vulnerabilities (losses), it is only natural that potential preparedness strategies are also identified during the mitigation planning meetings and discussion. Preparedness (vs. mitigation) is focused more on shorter-term effects and responses, which can include:

- planning (e.g., emergency action plans, continuity plans, evacuation plans)
- monitoring, communication systems, & crisis communications
- training, drills, & exercises
- education & awareness programs
- emergency response/recovery tools, supplies, equipment, & resources

There is not a "bright line" between mitigation and preparedness, and preparedness activities can also help to save lives or mitigate losses. As such, the Plan Update Steering Committee determined that it was important to document and prioritize these preparedness alternatives, which can serve as a guide for programming and integrated preparedness planning. The preparedness recommendations can be found in **Plan Supplement 3.D.** Since preparedness activities are not required to be included in a mitigation plan, additional implementation details are not provided for each. For most, a variety of organizations and collaborative partnerships would be involved.

D. OTHER PARTICIPANT SUB-PLANS

Plan Supplements 5 & 6 contain sub-plans or "mini-plans" for each participating city, village, and educational institution. As full plan update participants, these jurisdictions may pursue mitigation grant funding directly for eligible projects. Section I.C. summarizes the process for engaging these other plan participants during the plan update process.

The sub-plans are part of the County's overall mitigation plan, including its community profile, hazard assessment, capacity assessment, and mitigation goals, which apply to all participating jurisdictions. Many of the County-level mitigation and preparedness strategies are also multi-jurisdictional in nature. However, this sub-plan approach provides each participant with a more focused assessment of the hazard threats and mitigation solutions for their specific community or facilities, which is more convenient and accessible for these communities and schools for monitoring plan implementation and future plan updates.

When identifying the recommended strategies in the sub-plans, the same criteria and general approach were considered as described in Supplement 3.B., though the method of review and prioritization was at the discretion of each city, village, and educational institution.

In addition to mitigation strategies, each sub-plan includes:

- A risk assessment, including past events and potential vulnerabilities

- A capabilities assessment.
- Any key barriers to plan implementation, which were considered when identifying strategies and resources to overcome or lessen these barriers.
- A plan maintenance, update, and adoption approach.

Each mitigation plan participant is expected to approve and/or adopt the updated County mitigation plan as a whole. It is understood that, prior to the next full mitigation plan update, any individual plan participant may modify/amend their own sub-plan without requiring approval/adoption of the full plan by Clark County or any other participant.

E. PLAN IMPLEMENTATION

The mitigation strategies in Section V.B. and the sub-plans include recommended priorities & timelines, a primary responsible party(s) who would normally take the lead in initiating or implementing each recommendation, and potential funding or other resources for each. The prioritization of the strategies offers guidance in the implementation of this plan based on available resources and potential to reduce losses. The countywide strategies in Section V.B. also include additional implementation guidance.

Plan Supplement 4.D. includes a synopsis of some commonly used hazard mitigation grant funding sources with a focus on natural hazards. Additional information on Federal grant funding can be found at www.cfda.gov. FEMA maintains an informative webpage describing their mitigation grant assistance programs. Some infrastructure improvements may also be funded locally through the establishment of a stormwater utility district or ordinance fee system, tax incremental financing (TIF), general obligation bonds, and developer contributions. Capital improvements planning can be a valuable tool to assist communities in the planning and prioritizing of major infrastructure investments and identifying the best financing approach. Additional sources of financial support are also often available following a disaster event, such as U.S. Small Business Administration (SBA) loans for the repair or replacement of property. The U.S. Department of Agriculture, through its local Farm Service Agency office, provides disaster assistance for crop losses and livestock emergencies. Grant funding for additional emergency measures, such as the rehabilitation of flood control works may be available through the U.S. Army Corps of Engineers. Non-natural hazards such as pandemics, school-based terrorism, nuclear accident, and hazardous materials spills typically have their own unique supportive services and funding resources, which are not included in Supplement 4.D. In the event of an impending or recent disaster, municipalities and

This Mitigation Plan is a guide.

- Actions should be prioritized based on need, potential of loss reduction, benefits-costs, and availability of resources (e.g., funding, staff).
- Actions and priorities may change as threats and opportunities change.
- Some recommended actions may require additional feasibility analysis.
- Individual municipalities may have different priorities.
- Partnerships and collaboration are encouraged to leverage resources and maximize results.
- It is recognized that not all strategies will be completed prior to the next plan update in five years.

County Emergency Management offices are encouraged to contact WEM and the agencies identified in Supplement 4.D. for potential assistance, since available resources and related requirements frequently change, and this list is not all-inclusive. West Central Wisconsin Regional Planning Commission can also be valuable in helping to develop the capital stack and secure resources for projects.

Due to the involvement of key stakeholders and County departments during the planning process, the strategy recommendations are known to these stakeholders and can be integrated into, or coordinated with, other work programs and planning efforts.

Like many municipalities, Clark County and its communities are facing fiscal challenges and resources are limited. **The recommended strategies will be implemented as resources (e.g., funding, staffing) and as other priorities allow.** Further, because of such limitations, there is not an expectation that all strategy recommendations will be fully implemented between now and the next update of this plan.

F. PLAN COORDINATION AND INTEGRATION

The capabilities assessment in **Plan Supplement 3.A.** summarizes how Clark County and its communities have integrated mitigation actions into other planning tools. Further, many of the mitigation and preparedness strategies and the sub-plans reference other planning mechanisms that are vital to successful implementation, such as:

- Comprehensive & land use plans Though they vary, most comprehensive plans typically include discussion on related topics, including flooding, emergency services, and other community lifelines. The mitigation recommendations and many of the sub-plans specifically advocate for integration of this mitigation plan into future comprehensive plan updates. Clark County and most towns lack comprehensive plans. However, most cities and many villages do have such plans, which provides an excellent opportunity to ensure a high level of integration with this Mitigation Plan. Supplement 3.A. also recognizes the important role that the *Land & Water Resource Management Plan* has in addressing wildfire, stormwater management/flooding, and drought.
- Regulations, agreements, & related procedures This includes floodplain ordinances/management, subdivision ordinances, burning permits, and stormwater management ordinances. There are numerous regulatory references within the mitigation recommendations.
- Local capital improvements plans & other budget documents Most notable are infrastructure projects, such as those related to stormwater systems, water supplies, weather sirens, generators, and communications equipment, which must be considered as part of local budgets. Many of the stormwater and flash flooding hotspots in the previous mitigation plans were addressed by including these projects in the road improvement or capital improvement and stormwater management plans at the County or local level.
- Emergency preparedness & response plans Mitigation and preparedness recommendation reference County, community, and dam Emergency Action Plans, the County's Public Health Emergency Preparedness Plan (see Supplement 2.B.i), continuity of government planning, and other related efforts. Some local municipalities need to update their emergency operating plans, and Clark County Emergency Management has been successful in championing these updates. County

Emergency Management also works cooperatively with stakeholders regarding plans, procedures, and grant applications related to long-term power outage, storm shelters and sirens, highway closures, communications systems, incident command, dams, etc. Clark County Emergency Management will consider the mitigation and preparedness strategies to help guide the County's Integrated Preparedness Plan (IPP), training considerations, and other work planning. The IPP provides the most significant, new way to improvement plan coordination.

To date, integrating the strategies and recommendations found in past hazard mitigation plan into local comprehensive plans has been inconsistent. Some planning consultants working with local communities are unfamiliar with the details of the hazard mitigation plan, and the State comprehensive planning law includes no specific reference to mitigation or resiliency planning, though such a State law is being considered. Further, mitigation planning is on a different schedule than comprehensive planning, with most comprehensive plans likely to be updated no more frequently than once per decade.

As the mitigation plan strategies reflect, WCWRPC and Clark County staff will continue to work with local municipalities to encourage coordination and consistency between the hazard mitigation plan, and other community plans, and provide guidance on how to incorporate mitigation strategies into their comprehensive plans and other planning mechanisms. When made aware of local comprehensive planning efforts and updates, WCWRPC will contact municipalities to encourage them to consider the strategies found within the *Clark County Multi-Hazard Mitigation Plan.* Such coordination has been part of WCWRPC-facilitated comprehensive planning efforts in Abbotsford, Colby, and Neillsville in recent years.

Continued, <u>active</u> involvement of key county staff, local jurisdictions, and other stakeholders during hazard mitigation plan updates is critical to ensuring incorporation of mitigation strategies into other planning mechanisms.

Since key County staff were actively involved in the development and update of the County mitigation plan, many of the mitigation strategies are based on staff recommendations and provide confidence that a high level of coordination between these various planning efforts will continue.

SECTION VI.
PLAN ADOPTION & MAINTENANCE PROCESS

A. PLAN ADOPTION

Each participating municipality and educational institution, including Clark County, considered and adopted this plan. Governmental jurisdictions in Wisconsin are required to take such formal actions during a properly noticed, public meeting; public and stakeholder attendees are typically provided an opportunity to comment during these meetings. Section I.B. at the beginning of this plan includes additional information on the County's plan adoption process. Clark and Jackson Electric Cooperatives also actively participated in and approved the 2026 Mitigation Plan update. Copies of the adopting documents are included in **Section VIII.**

B. PLAN MAINTENANCE & CONTINUED PUBLIC PARTICIPATION

Past reviews of the County's mitigation plan were primarily limited to a periodic internal review by the County Emergency Management Coordinator. No special plan reviews or plan amendments were needed.

i. Plan Monitoring and Annual Plan Reviews

The County Emergency Management Coordinator has the duty to monitor and recommend any revisions to the county emergency operations plan, all hazards mitigation plan, and the integrated preparedness plan for county board action. Each year, starting in Spring 2027, Clark County, through its Emergency Management Coordinator, will complete an annual review of the Mitigation Plan, unless a plan update is already in progress. This review may be performed concurrently with other work planning, such as Integrated Preparedness Plan (IPP) updates. The annual plan review should consider aspects such as:

- Progress on mitigation plan recommendations, including the suggested timelines and the pursuit of related mitigation grant funding. Regularly, update the IPP to reflect any changes in needed education, training, and outreach. See Subsection VII.B.iv below.
- Any significant changes in vulnerabilities, priorities, or trends, including threats to community lifelines and weather/event patterns.
- Any significant changes in capabilities or barriers to plan implementation.
- Opportunities to strengthen plan coordination (i.e., integrate mitigation and preparedness into other community planning mechanisms).
- Potential new mitigation and preparedness strategies, projects, or grant opportunities.
- Any new mandates, rules, etc. as well as any input received from Wisconsin Emergency Management (WEM) and the Department of Homeland Security—Federal Emergency Management Agency (FEMA) regarding plan implementation.
- Any comments or discussion with the public, partners, or other stakeholders.

If any critical issues or potential plan amendments are noted during the Emergency Management Coordinator's annual review of the plan, the Emergency Management Coordinator will provide a brief report to the County Local Emergency Preparedness Committee. The mitigation strategy recommendations in Section V.B. can serve as a tracking sheet to evaluated plan progress with an emphasis on the medium and high priorities. The Committee will recommend any revisions to the plan, if necessary, which would then be forwarded to the County Board for its consideration and action. The Emergency Management Coordinator may also need to follow up with participating jurisdictions, various County offices, and other stakeholders during this process. West Central Wisconsin Regional Planning Commission (WCWRPC) is available to aid if needed at any time during this evaluation process.

Public involvement and comments will be welcomed during this plan maintenance process. The Local Emergency Preparedness Committee and County Board meetings are subject to the Wisconsin Open Meeting Law and will be properly noticed as required by State Statute, including at the County's website. Through these public notices, the public, local communities, and other stakeholder organizations are invited to attend and actively participate. Public announcements (e.g., press releases, social media posts) are encouraged when mitigation projects are implemented and the mitigation plan used.

ii. Special Plan Reviews (Post-Disaster or New Project)

Disaster events, emergency trends/needs, and funding opportunities may also necessitate plan amendments. Within six months following a significant disaster event, the Emergency Management Coordinator, at their discretion, may conduct a special post-disaster review for consistency with the mitigation plan. A municipality or the County Board may also request a special plan review for the consideration of a plan amendment to introduce or modify a mitigation project or strategy that was not included in the original plan, perhaps due to unforeseen circumstances, changes in resources, or a changing hazard risk. The special review may occur concurrently with the annual review described previously.

Information regarding the recent disaster or new project will be collected and considered by the Emergency Management Coordinator. If a mitigation plan amendment is potentially needed, this information will be provided to the County Local Emergency Preparedness Committee for their review and recommendation during a public meeting. As appropriate, recommended changes to the plan will be forwarded to the County Board and potentially the municipal contacts of the participating jurisdictions for their action and consideration.

iii. Plan Updates

Every five years, the hazard mitigation plan will be comprehensively reviewed, current data collected, and the plan updated. However, the 2026 Mitigation Plan was significantly restructured and included the city/village/school subplans. While this required additional time for this update, this is anticipated to "streamline" and simplify future plan updates. As such, **it is envisioned that the five-year update of this Mitigation Plan may be more strategic and limited in scope focusing on key data, significant trends, and priority projects, with a more comprehensive, robust update every 10 years.**

It is recommended that the plan update process begin no later than June 2030 to allow for completion and adoption prior to the expiration of the 2026 Mitigation Plan. All future plan updates shall incorporate opportunities for public involvement to meet all requirements of 44 CFR Part 201.6 and/or any applicable planning guidelines, requirements, or regulations developed or updated in the interim.

Each update of Clark County's mitigation plan has strengthened weaknesses or incorporated opportunities since the previous plan. Some potential changes for the next County mitigation plan update include:

- During the planning for future plan updates, engage in a discussion with County Public Health on opportunities for data collection and public engagement.
- Work with the Plan Update Steering Committee to identify additional ways to engage the public and community lifelines as part of the mitigation planning process, including education on mitigation opportunities.
- As part of the next plan update (or the more robust 10-year update), the Steering Committee will consider the inclusion (or exclusion) of additional hazard risks. For instance, has the probability and vulnerability of fog events changed and are there feasible alternatives available to help mitigate accidents such as the February 2011 deadly accident on Highway 29 near Owen?
- The Committee should also consider the value of additional specific sub-group meetings and public outreach activities targeting certain vulnerabilities or threats (e.g., ag/avian flu, cybersecurity), community organizations/VOADs, or mitigation measures.
- Increase the use of digital capabilities and web-based tools during the plan update for data analysis, sharing key information, and obtaining public/stakeholder input. Consider the creation of a web-based mitigation plan hub site or dashboard.

iv. Evaluating Plan Effectiveness

As part of plan reviews and future plan updates, the effectiveness of the County's Hazard Mitigation Plan will be evaluated based on:

- Did the Plan anticipate the hazards of significant risk? Are the probabilities and vulnerabilities for each hazard reasonably accurate?
- What was the progress on implementing the strategy recommendations, with a particular emphasis on high-priority strategies?
- If a mitigation project is proposed in the future or a mitigation funding opportunity become available, did the Mitigation Plan already contemplate or support a proposed project?
- For mitigation projects that are implemented, what were the benefits vs. costs?

Section VI.
Adopting Resolutions